Entergy Arkansas, LLC
Independence Steam Electric Station
Recycle Ponds

2024 Annual Groundwater Monitoring and Corrective Action Report

Prepared in Compliance with the EPA Final Rule for the Disposal of Coal Combustion Residuals Title 40 CFR Part 257

Prepared for:

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January 31, 2025

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EXECUTIVE SUMMARY

Entergy Arkansas, LLC (EAL), operated two recycle ponds as part of its process water system for bottom ash transport at the Independence Steam Electric Station (Plant) located near Newark, Arkansas. The recycle ponds provided intermediate storage of waters used in the transport of coal combustion residuals (CCR) generated from the combustion of coal at the Plant. The West Pond commenced closure as of August 2020 and the East Pond commenced closure as of February 2021. Closure by removal was completed in the second half of 2022. The certified closure of the recycle ponds CCR Unit was completed on October 2, 2023. Management of the CCRs at the recycle ponds is performed pursuant to national criteria established in Title 40 of the Code of Federal Regulations (40 CFR), Part 257 (CCR Rule), effective April 19, 2015 and subsequent revisions to the CCR Rule.

The ponds remained in detection monitoring prior to closure. Because the unit completed closure by removal, further detection monitoring is not required. Two consecutive monitoring events of Appendix IV constituents were conducted in 2024, specifically to confirm that there were no Appendix IV constituents detected at statistically significant levels above the GWPS and demonstrate that the ponds were closed in accordance with 40 CFR 257.102. The plant initially identified the following potential statistically significant increases (SSIs): (*list per comment above*). Alternate source demonstrations ("ASDs") were performed for the potential SSIs and are attached to this report. Each of the ASDs performed were successful, and the Plant updated the closure certification in November 2024 to incorporate the 2024 monitoring results. The recycle ponds CCR Unit remained closed by removal for the duration of 2024.

As indicated above, the potential SSIs identified during the monitoring reports are detailed in the table below.

Potential SSIs 3rd and 4th Quarters 2024 Monitoring Event			
Well ID	**Date**	**Analyte**	**Confirmed SSI? (Yes/No)**
RP-4	07/2024	Barium	No
RP-6	07/2024	Barium	No
RP-4	09/2024	Barium	No
RP-5	09/2024	Selenium	No
RP-6	09/2024	Barium	No

1. INTRODUCTION

Entergy Arkansas, LLC (EAL), operated two recycle ponds as part of its process water system for bottom ash transport at the Plant located near Newark, Arkansas (Lat: 35.67826 / Long: -91.408848). The recycle ponds provided intermediate storage of waters used in the transport of CCR generated from the combustion of coal at the Plant. The West Pond commenced closure as of August 2020 and the East Pond commenced closure in February 2021. Closure by removal was completed in the second half of 2022. The certified closure of the recycle ponds was completed on October 2, 2023. The recycle ponds are managed in accordance with the national criteria established in the CCR Rule. EAL installed a groundwater monitoring system at the recycle ponds CCR Unit that is subject to the groundwater monitoring and corrective action requirements provided under §257.90 through §257.98 of the CCR rule. In accordance with §257.90(e) of the CCR rule, EAL must prepare an annual report that provides information regarding the groundwater monitoring and corrective action program at the recycle ponds CCR Unit.

2. GROUNDWATER MONITORING SYSTEM

The recycle ponds CCR Unit groundwater monitoring system consists of 10 monitoring wells as shown on Figure 1 included in Appendix A. Pursuant to §257.91(f) of the CCR rule, a qualified Arkansas-registered professional engineer has certified the groundwater monitoring system, which was designed and constructed to meet the requirements of §257.91.

3. INSTALLED OR DECOMISSIONED WELLS DURING 2024

EAL did not install any new wells or decommission any existing wells in the certified groundwater monitoring system during 2024.

4. GROUNDWATER MONITORING DATA

In accordance with §257.90(e)(3), all monitoring data obtained under §257.90 through §257.98 during 2024 are provided in Appendix B and C. Monitoring data includes:

- Groundwater level measurements and groundwater flow characteristics;
- Summary of the number of groundwater samples that were collected for analysis for each background and downgradient well;
- Dates the samples were collected;
- Whether the sample was collected as part of detection or assessment monitoring; and
- Summary of CCR Rule constituent results.

5. STATUS SUMMARY OF THE 2024 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring was performed in accordance with the assessment monitoring requirements of §257.95. A summary of activities related to groundwater monitoring performed during 2024 is provided in the list below:

- Two supplemental monitoring events were performed during July and September/October of 2024 for analysis of Appendix IV parameters.
- Statistical evaluation of the monitoring data was performed in accordance with the statistical method certified by a qualified Arkansas-registered professional engineer. The certified statistical method has been posted to EAL's CCR Rule Compliance Data and Information website.
- Statistical evaluation of the monitoring data identified five statistically significant increases (SSIs) during the July and September/October monitoring events.
- EAL completed a successful alternate source demonstration (ASD) per §257.95(g)(3)(ii) in response to potential SSIs identified during the statistical evaluation of the data generated from the July and September/October 2024 supplemental monitoring events. As required by §257.95(g)(3)(ii), a copy of the ASD is included in Appendix D.
- The successful ASD provided in Appendix D demonstrates that none of the potential SSIs exceeded Groundwater Protection Standards (GWPS) at statistically significant level; in fact, the potential SSIs observed during the supplemental monitoring events were below the GWPS concentrations.
- No problems were encountered during 2024 with regard to the supplemental monitoring and corrective action system. Therefore, no actions were required to modify the system.
- The recycle ponds CCR Unit remained in closure with no requirement to initiate assessment of corrective measures for the duration of 2024.

6. PROJECTED ACTIVITIES FOR 2025

The certified closure of the recycle ponds CCR Unit was completed on October 2, 2023. No activities are planned for the program during 2025.

APPENDIX A
WELL LOCATIONS

LEGEND

- RECYCLING POND WELL
- RECYCLING POND BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM DIGITALGLOBE, 2016.

0 300 600 Feet

1 " = 300 '

1:3,600

PROJECT:

ENTERGY INDEPENDENCE PLANT
555 POINT FERRY ROAD
NEWARK, AR

TITLE:

RECYCLING POND WELL LOCATIONS

DRAWN BY:	S. MAJOR	PROJ. NO.:	431479
CHECKED BY:	L. BURRIS		
APPROVED BY:	J. HOUSE		**FIGURE 1**
DATE:	DECEMBER 2020		

TRC
Two United Plaza
8550 United Plaza Blvd., Suite 502
Baton Rouge, LA
Phone: 225.216.7483

FILE NO.: 431479-001.mxd

TRC - GIS
Plot Date: 12/29/2020, 14:53:52 PM by SMAJOR -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\431479-001.mxd
Coordinate System: NAD 1983 StatePlane Arkansas North FIPS 0301 Feet (Foot US)
Map Rotation: 16.75

APPENDIX B
GROUNDWATER LEVEL DATA

Water Level Measurements 2024					
Well ID	TOC Elevation (ft NAVD88)	June 24, 2024		September 30, 2024	
		Depth to Groundwater (ft below MP)	Groundwater Elevation (ft NAVD88)	Depth to Groundwater (ft below MP)	Groundwater Elevation (ft NAVD88)
RP-1	238.95	31.30	207.65	30.39	208.56
RP-3	234.37	26.12	208.25	26.14	208.23
RP-4	240.54	33.32	207.22	32.67	207.87
RP-5	241.97	34.78	207.19	34.13	207.84
RP-6	241.27	33.96	207.31	33.44	207.83
RP-7	241.04	33.64	207.4	33.18	207.86
RP-9	238.14	30.69	207.45	30.11	208.03
RP-10	242.99	35.70	207.29	35.10	207.89

LEGEND

- CADL MONITORING WELLS
- RECYCLING POND BOUNDARY
- GROUNDWATER CONTOUR: 0.1' INTERVAL
- GROUNDWATER FLOW DIRECTION (0.000086 FT/FT)

NOTES

1. BASE MAP IMAGERY FROM ESRI/DIGITAL GLOBE, 2016.
2. WATER LEVELS COLLECTED JULY 24, 2024.
3. RP-2 AND RP-8 WERE NOT SAMPLED.

N

0 900 1,800 Feet

1 " = 433 '

1:5,200

PROJECT:
ENTERGY INDEPENDENCE PLANT
555 POINT FERRY ROAD
NEWARK, ARKANSAS

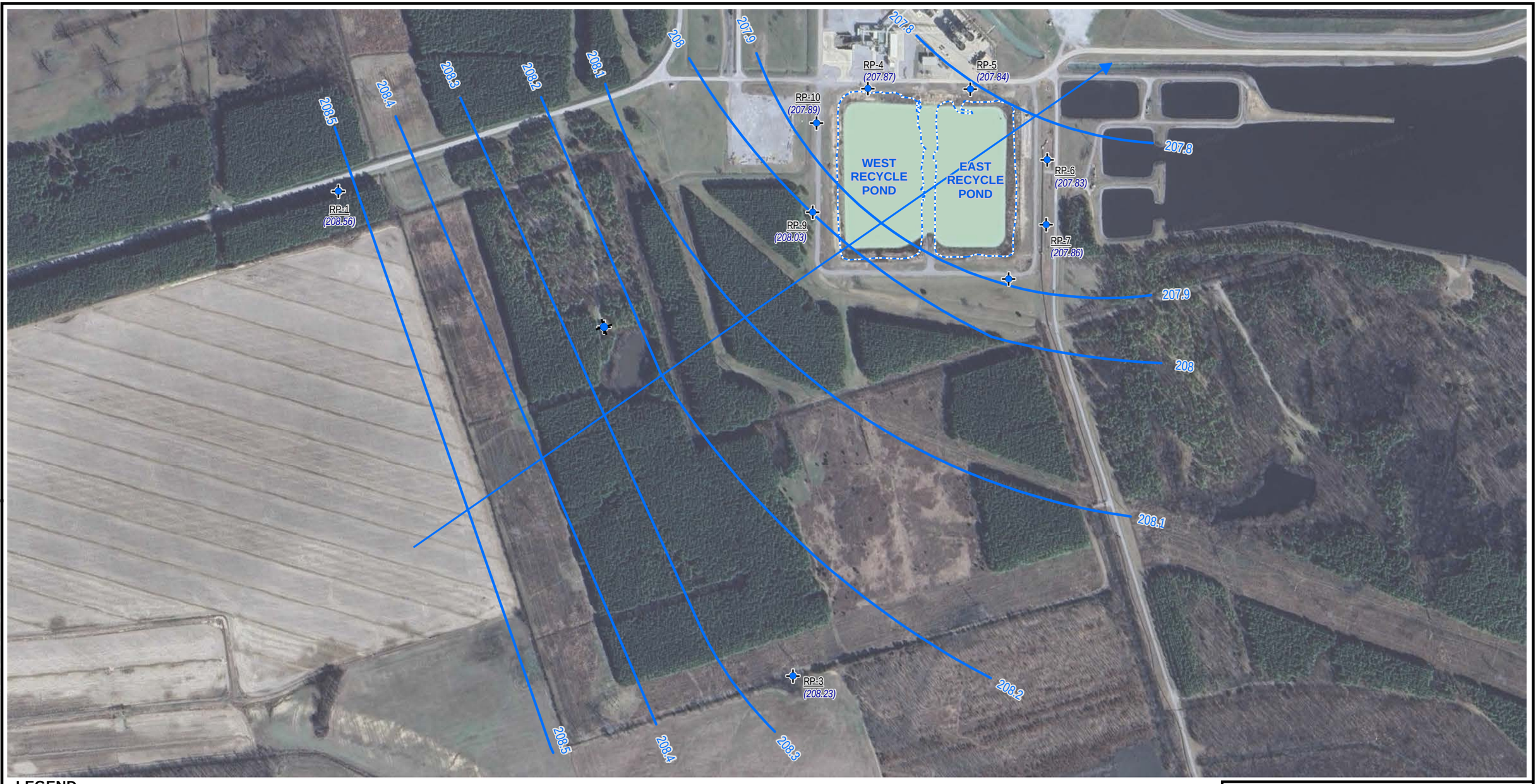
TITLE:
3RD QUARTER 2024 POTENTIOMETRIC MAP

DRAWN BY:	D. STITCHER	PROJ. NO.:	591543
CHECKED BY:	W. XIE		
APPROVED BY:	J. HOUSE		**FIGURE 2.1**
DATE:	JANUARY 2025		

TRC
4545 SHERWOOD COMMON BLVD.
BUILDING 3, SUITE A
BATON ROUGE, LA 70816
225.216.4783

FILE NO.: Entergy_ISES_Pond_3Q24_Fig_1_20250130.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Arkansas North FIPS 0301 Feet (Foot US)
Map Rotation: 16.75
Plot Date: 1/30/2025, 18:53:32 PM by DSTITCHER -- LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\ENTERGY\MadisonLegacyProjects\Arkansas\2025\Entergy_ISES_Pond_3Q24_Fig_1_20250130.mxd



LEGEND

- CADL MONITORING WELLS
- RECYCLING POND BOUNDARY
- GROUNDWATER CONTOUR: 0.1' INTERVAL
- GROUNDWATER FLOW DIRECTION (0.000086 FT/FT)

NOTES

1. BASE MAP IMAGERY FROM ESRI/DIGITAL GLOBE, 2016.
2. WATER LEVELS COLLECTED JULY 24, 2024.
3. RP-2 AND RP-8 WERE NOT SAMPLED.

N

0 900 1,800 Feet

1 " = 450 '
1:5,400

PROJECT:
ENTERGY INDEPENDENCE PLANT
555 POINT FERRY ROAD
NEWARK, ARKANSAS

TITLE:
4TH QUARTER 2024 POTENTIOMETRIC MAP

DRAWN BY:	D. STITCHER	PROJ. NO.:	591543
CHECKED BY:	W. XIE		
APPROVED BY:	J. HOUSE		**FIGURE 2.2**
DATE:	JANUARY 2025		

TRC
4545 SHERWOOD COMMON BLVD.
BUILDING 3, SUITE A
BATON ROUGE, LA 70816
225.216.4783

FILE NO.: Entergy_ISES_Pond_3Q24_Fig_2_20250130.mxd

Plot Date: 1/30/2025, 19:07:32 PM by DSTITCHER -- LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\ENTERGY\Madison\Legacy\Projects\Arkansas\2025\Entergy_ISES_Pond_3Q24_Fig_2_20250130.mxd
Coordinate System: NAD 1983 StatePlane Arkansas North FIPS 0301 Feet (Foot US)
Map Rotation: 16.75

TRC - GIS

APPENDIX C
GROUNDWATER QUALITY DATA

Sampling Schedule, Entergy Independence Recycle Ponds Network			
	Supplemental Monitoring Sampling Dates and Wells Sampled		
Well ID	7/24/2024	9/30-10/1/2024	Number of Samples Collected
RP-1	X	X	2
RP-2	[1]	[1]	0
RP-3	X	X	2
RP-4	X	X	2
RP-5	X	X	2
RP-6	X	X	2
RP-7	X	X	2
RP-8	[1]	[1]	0
RP-9	X	X	2
RP-10	X	X	2

Notes:

[1] RP-2 and RP-8 were not sampled during this monitoring period. Wells were inaccessible during this period and samples could not be collected.

Summary of Analytical Results – Third Quarter 2024																
Well ID	**Date**	**Antimony (mg/L)**	**Arsenic (mg/L)**	**Barium (mg/L)**	**Beryllium (mg/L)**	**Cadmium (mg/L)**	**Chromium (mg/L)**	**Cobalt (mg/L)**	**Fluoride (mg/L)**	**Lead (mg/L)**	**Lithium (mg/L)**	**Mercury (mg/L)**	**Molybdenum (mg/L)**	**Selenium (mg/L)**	**Thallium (mg/L)**	**pH (s.u.)**
RP-1	07/24/2024	<0.005	<0.0005	0.0499	<0.0005	<0.001	<0.003	<0.0005	<0.150	<0.0005	<0.0150	<0.0002	<0.001	<0.005	0.000757	6.05
RP-3	07/24/2024	<0.005	<0.0005	0.032	<0.0005	<0.001	<0.003	<0.0005	<0.150	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.26
RP-4	07/24/2024	<0.005	<0.0005	0.0678	<0.0005	<0.001	<0.003	<0.0005	0.313	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.43
RP-5	07/24/2024	<0.005	0.000671	0.037	<0.0005	<0.001	<0.003	<0.0005	<1.50	<0.0005	<0.0150	<0.0002	0.00479	<0.005	<0.0005	6.58
RP-6	07/24/2024	<0.005	<0.0005	0.0403	<0.0005	<0.001	<0.003	<0.0005	0.241	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.66
RP-7	07/24/2024	<0.005	<0.0005	0.0291	<0.0005	<0.001	<0.003	<0.0005	<1.50	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.64
RP-9	07/24/2024	<0.005	<0.0005	0.0431	<0.0005	<0.001	<0.003	<0.0005	<0.150	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.43
RP-10	07/24/2024	<0.005	<0.0005	0.0588	<0.0005	<0.001	<0.003	<0.0005	0.187	<0.0005	<0.0150	<0.0002	<0.001	<0.005	<0.0005	6.56

Summary of Analytical Results – Fourth Quarter 2024																
Well ID	**Date**	**Antimony (mg/L)**	**Arsenic (mg/L)**	**Barium (mg/L)**	**Beryllium (mg/L)**	**Cadmium (mg/L)**	**Chromium (mg/L)**	**Cobalt (mg/L)**	**Fluoride (mg/L)**	**Lead (mg/L)**	**Lithium (mg/L)**	**Mercury (mg/L)**	**Molybdenum (mg/L)**	**Selenium (mg/L)**	**Thallium (mg/L)**	**pH (s.u.)**
RP-1	10/01/2024	<0.004	<0.002	0.0433	<0.002	<0.001	<0.002	<0.002	<0.150	<0.002	<0.015	<0.0002	<0.005	<0.002	<0.002	6.61
RP-3	09/30/2024	<0.004	<0.002	0.0334	<0.002	<0.001	<0.002	<0.002	0.235	<0.002	<0.015	<0.0002	<0.005	<0.002	<0.002	6.74
RP-4	09/30/2024	<0.004	<0.002	0.0704	<0.002	<0.001	<0.002	<0.002	0.19	<0.002	<0.015	<0.0002	<0.005	0.00258	<0.002	6.54
RP-5	09/30/2024	<0.004	<0.002	0.0318	<0.002	<0.001	<0.002	<0.002	0.256	<0.002	<0.015	<0.0002	<0.005	0.00488	<0.002	6.95
RP-6	09/30/2024	<0.004	<0.002	0.0502	<0.002	<0.001	<0.002	<0.002	0.221	<0.002	0.0169	<0.0002	<0.005	0.0031	<0.002	6.72
RP-7	09/30/2024	<0.004	<0.002	0.0321	<0.002	<0.001	<0.002	<0.002	0.178	<0.002	<0.015	<0.0002	<0.005	0.00336	<0.002	6.92
RP-9	09/30/2024	<0.004	<0.002	0.0409	<0.002	<0.001	<0.002	<0.002	<0.150	<0.002	<0.015	<0.0002	<0.005	<0.002	<0.002	6.56
RP-10	09/30/2024	<0.004	<0.002	0.0621	<0.002	<0.001	<0.002	<0.002	<0.150	<0.002	<0.015	<0.0002	<0.005	<0.002	<0.002	6.84

ANALYTICAL REPORT

August 07, 2024

Alliance Technical Group - Bryant, AR

Sample Delivery Group:	L1761233
Samples Received:	07/27/2024
Project Number:	1145-21-081
Description:	Entergy - Independence
Site:	RECYCLE PONDS
Report To:	Jonathan Brown 219 Brown Lane Bryant, AR 72022

Entire Report Reviewed By: Myra Ingram

Katie Ingram
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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

TABLE OF CONTENTS

RP-1 L1761233-01 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 18:00 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 14:24	07/30/24 14:24	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 14:58	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 21:53	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 21:56	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 14:54	NA	Allen, TX

RP-3 L1761233-02 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 13:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 15:02	07/30/24 15:02	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:01	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 21:54	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:02	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:00	NA	Allen, TX

RP-4 L1761233-03 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 16:00 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 15:15	07/30/24 15:15	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:08	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 21:56	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:08	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:07	NA	Allen, TX

RP-5 L1761233-04 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 15:25 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	10	07/30/24 15:28	07/30/24 15:28	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:10	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 21:58	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:15	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:13	NA	Allen, TX

RP-6 L1761233-05 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 14:50 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 15:41	07/30/24 15:41	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:12	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 22:03	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:33	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:19	NA	Allen, TX

RP-7 L1761233-06 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 14:05 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	10	07/30/24 15:54	07/30/24 15:54	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:15	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 22:05	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:40	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:38	NA	Allen, TX

RP-9 L1761233-07 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 17:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 16:07	07/30/24 16:07	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331681	1	07/31/24 12:51	08/01/24 15:17	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 22:06	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:46	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:44	NA	Allen, TX

RP-10 L1761233-08 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 16:40 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 16:45	07/30/24 16:45	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331682	1	07/31/24 12:45	08/01/24 11:48	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 22:08	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:52	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:50	NA	Allen, TX

FIELD BLANK L1761233-09 GW

Collected by: JLC/BLS | Collected date/time: 07/26/24 09:55 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 16:58	07/30/24 16:58	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331682	1	07/31/24 12:45	08/01/24 11:50	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333416	1	08/03/24 14:56	08/04/24 22:10	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 22:58	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 15:57	NA	Allen, TX

DUPLICATE (RP-9) L1761233-10 GW

Collected by: JLC/BLS | Collected date/time: 07/24/24 17:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2332148	1	07/30/24 17:11	07/30/24 17:11	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2331682	1	07/31/24 12:45	08/01/24 11:53	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2333673	1	08/01/24 08:34	08/01/24 16:37	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/02/24 23:04	EJS	Allen, TX
Metals (ICPMS) by Method 6020	WG2332538	1	08/01/24 13:10	08/05/24 16:03	NA	Allen, TX

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.

Katie Ingram
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	07/30/2024 14:24	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 14:58	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 21:53	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 14:54	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 14:54	WG2332538
Barium	0.0499		0.00300	1	08/05/2024 14:54	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 21:56	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 14:54	WG2332538
Chromium	ND		0.00300	1	08/05/2024 14:54	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 14:54	WG2332538
Lead	ND		0.000500	1	08/05/2024 14:54	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 14:54	WG2332538
Selenium	ND		0.00500	1	08/02/2024 21:56	WG2332538
Thallium	0.000757		0.000500	1	08/05/2024 14:54	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	07/30/2024 15:02	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 15:01	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 21:54	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:00	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:00	WG2332538
Barium	0.0320		0.00300	1	08/05/2024 15:00	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:02	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:00	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:00	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:00	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:00	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:00	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:02	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:00	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.313		0.150	1	07/30/2024 15:15	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 15:08	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 21:56	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:07	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:07	WG2332538
Barium	0.0678		0.00300	1	08/05/2024 15:07	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:08	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:07	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:07	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:07	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:07	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:07	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:08	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:07	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Fluoride	ND		1.50	10	07/30/2024 15:28	WG2332148

Sample Narrative:
L1761233-04 WG2332148: dilution due to high SO4

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/01/2024 15:10	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lithium	ND		0.0150	1	08/04/2024 21:58	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00500	1	08/05/2024 15:13	WG2332538
Arsenic	0.000671	B	0.000500	1	08/05/2024 15:13	WG2332538
Barium	0.0370		0.00300	1	08/05/2024 15:13	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:15	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:13	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:13	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:13	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:13	WG2332538
Molybdenum	0.00479		0.00100	1	08/05/2024 15:13	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:15	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:13	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.241		0.150	1	07/30/2024 15:41	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 15:12	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 22:03	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:19	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:19	WG2332538
Barium	0.0403		0.00300	1	08/05/2024 15:19	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:33	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:19	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:19	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:19	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:19	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:19	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:33	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:19	WG2332538

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Fluoride	ND		1.50	10	07/30/2024 15:54	WG2332148

Sample Narrative:
L1761233-06 WG2332148: dilution due to high SO4

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/01/2024 15:15	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lithium	ND		0.0150	1	08/04/2024 22:05	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00500	1	08/05/2024 15:38	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:38	WG2332538
Barium	0.0291		0.00300	1	08/05/2024 15:38	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:40	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:38	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:38	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:38	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:38	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:38	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:40	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:38	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	07/30/2024 16:07	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 15:17	WG2331681

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 22:06	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:44	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:44	WG2332538
Barium	0.0431		0.00300	1	08/05/2024 15:44	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:46	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:44	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:44	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:44	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:44	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:44	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:46	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:44	WG2332538

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.187		0.150	1	07/30/2024 16:45	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 11:48	WG2331682

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 22:08	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:50	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:50	WG2332538
Barium	0.0588		0.00300	1	08/05/2024 15:50	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:52	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:50	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:50	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:50	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:50	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:50	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:52	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:50	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.311		0.150	1	07/30/2024 16:58	WG2332148

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/01/2024 11:50	WG2331682

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	08/04/2024 22:10	WG2333416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00500	1	08/05/2024 15:57	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 15:57	WG2332538
Barium	ND		0.00300	1	08/05/2024 15:57	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 22:58	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 15:57	WG2332538
Chromium	ND		0.00300	1	08/05/2024 15:57	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 15:57	WG2332538
Lead	ND		0.000500	1	08/05/2024 15:57	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 15:57	WG2332538
Selenium	ND		0.00500	1	08/02/2024 22:58	WG2332538
Thallium	ND		0.000500	1	08/05/2024 15:57	WG2332538

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Fluoride	ND		0.150	1	07/30/2024 17:11	WG2332148

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/01/2024 11:53	WG2331682

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lithium	ND		0.0150	1	08/01/2024 16:37	WG2333673

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00500	1	08/05/2024 16:03	WG2332538
Arsenic	ND		0.000500	1	08/05/2024 16:03	WG2332538
Barium	0.0402		0.00300	1	08/05/2024 16:03	WG2332538
Beryllium	ND		0.000500	1	08/02/2024 23:04	WG2332538
Cadmium	ND		0.00100	1	08/05/2024 16:03	WG2332538
Chromium	ND		0.00300	1	08/05/2024 16:03	WG2332538
Cobalt	ND		0.000500	1	08/05/2024 16:03	WG2332538
Lead	ND		0.000500	1	08/05/2024 16:03	WG2332538
Molybdenum	ND		0.00100	1	08/05/2024 16:03	WG2332538
Selenium	ND		0.00500	1	08/02/2024 23:04	WG2332538
Thallium	ND		0.000500	1	08/05/2024 16:03	WG2332538

Method Blank (MB)

(MB) R4101177-1 07/30/24 13:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Fluoride	U		0.0640	0.150

L1761233-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1761233-01 07/30/24 14:24 • (DUP) R4101177-6 07/30/24 14:37

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	ND	ND	1	1.26		15

Laboratory Control Sample (LCS)

(LCS) R4101177-2 07/30/24 13:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluoride	8.00	7.98	99.7	80.0-120	

L1761068-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761068-01 07/30/24 13:33 • (MS) R4101177-4 07/30/24 13:58 • (MSD) R4101177-5 07/30/24 14:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	8.00	0.284	8.24	8.37	99.5	101	1	80.0-120			1.54	15

L1761233-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1761233-01 07/30/24 14:24 • (MS) R4101177-7 07/30/24 14:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Fluoride	8.00	ND	7.98	98.1	1	80.0-120	

Method Blank (MB)

(MB) R4101575-1 08/01/24 12:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R4101575-2 08/01/24 12:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00342	114	80.0-120	

L1761227-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761227-12 08/01/24 12:59 • (MS) R4101575-4 08/01/24 13:09 • (MSD) R4101575-5 08/01/24 13:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00312	0.00311	104	104	1	75.0-125			0.542	20

QUALITY CONTROL SUMMARY

L1761233-08,09,10

Method Blank (MB)

(MB) R4101437-1 08/01/24 11:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R4101437-2 08/01/24 11:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00330	110	80.0-120	

L1761330-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761330-01 08/01/24 11:38 • (MS) R4101437-4 08/01/24 11:43 • (MSD) R4101437-5 08/01/24 11:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00272	0.00263	90.6	87.6	1	75.0-125			3.35	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4102610-1 08/04/24 21:21

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium	U		0.00485	0.0150

Laboratory Control Sample (LCS)

(LCS) R4102610-2 08/04/24 21:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium	1.00	0.979	97.9	80.0-120	

L1761227-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761227-12 08/04/24 21:25 • (MS) R4102610-4 08/04/24 21:28 • (MSD) R4102610-5 08/04/24 21:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	ND	0.987	1.02	98.7	102	1	75.0-125			2.92	20

Method Blank (MB)

(MB) R4101665-1 08/01/24 16:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium	U		0.00485	0.0150

Laboratory Control Sample (LCS)

(LCS) R4101665-2 08/01/24 16:14

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium	1.00	0.905	90.5	80.0-120	

L1761255-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761255-03 08/01/24 16:15 • (MS) R4101665-4 08/01/24 16:19 • (MSD) R4101665-5 08/01/24 16:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	0.0408	0.939	0.953	89.8	91.2	1	75.0-125			1.51	20

Method Blank (MB)

(MB) R4102226-1 08/02/24 21:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Beryllium	U		0.000130	0.000500
Selenium	U		0.00152	0.00500

Method Blank (MB)

(MB) R4102810-1 08/05/24 14:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.00154	0.00500
Arsenic	0.000158	J	0.000140	0.000500
Barium	U		0.000340	0.00300
Cadmium	U		0.000220	0.00100
Chromium	U		0.000470	0.00300
Cobalt	0.0000798	J	0.0000480	0.000500
Lead	U		0.0000900	0.000500
Molybdenum	U		0.000270	0.00100
Thallium	U		0.0000800	0.000500

Laboratory Control Sample (LCS)

(LCS) R4102226-2 08/02/24 21:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Beryllium	0.100	0.0960	96.0	80.0-120	
Selenium	0.100	0.0985	98.5	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4102810-2 08/05/24 14:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	0.100	0.102	102	80.0-120	
Arsenic	0.100	0.0999	99.9	80.0-120	
Barium	0.100	0.100	100	80.0-120	
Cadmium	0.100	0.103	103	80.0-120	
Chromium	0.100	0.103	103	80.0-120	
Cobalt	0.100	0.102	102	80.0-120	
Lead	0.100	0.102	102	80.0-120	
Molybdenum	0.100	0.105	105	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4102810-2 08/05/24 14:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Thallium	0.100	0.0969	96.9	80.0-120	

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

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	LAO00356
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		

Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-23-39
Iowa	408	Oklahoma	8727
Louisiana	30686		

[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.

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Bryant, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to:
Jonathan Brown

Email To:
Jonathan.brown@alliancetg.com;dbraund@gb

Project Description:
Entergy - Independence

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: **501-847-7077**

Client Project #
1145-21-081

Lab Project #
GBMCBAR-ENTERGYINDY

Collected by (print):
JLC / BLS

Site/Facility ID #
RECYCLE PONDS

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y 1

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	No. of Cntrs	FLUORIDE 125mlHDPE-NoPres	Metals 250mlHDPE+HNO3	RA-226/228 & COMB. 1L-HDPE-Add HNO3	RA-226/228 & COMB. 1L-HDPE-Add+HNO3	pH Remarks	Sample # (lab only)
RP-1	G	GW		7.24.24	1800	4	X	X	X	X	6.61	-01
~~RP-2~~		GW										
RP-3	G	GW		7.24.24	1310	4	X	X	X	X	6.74	-02
RP-4	G	GW		7.24.24	1600	4	X	X	X	X	6.54	-03
RP-5	G	GW		7.24.24	1525	4	X	X	X	X	6.95	-04
RP-6	G	GW		7.24.24	1450	4	X	X	X	X	~~6.92~~ 6.72	-05
RP-7	G	GW		7.24.24	1405	4	X	X	X	X	6.92	-06
~~RP-8~~		GW										
RP-9	G	GW		7.24.24	1710	4	X	X	X	X	6.56	-07
RP-10	G	GW		7.24.24	1640	4	X	X	X	X	6.54	-08

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

Remarks: See attached Appendix IV for all required parameters.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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 # L1761733

D134

Acctnum: **GBMCBAR**
Template:**T256636**
Prelogin: **P1090893**
PM: **829 - Brittnie L Boyd**
PB:
Shipped Via: **FedEX Ground**

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 checked: Date/Time
Jacob Cohoon	7/26/24	1230			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 40	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Dempsey	Date: 7-27-24 Time: 0900	Hold: Condition: NCF / OK

PH-10BDH4321
TRC-3223A228

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Bryant, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to: **Jonathan Brown**

Email To: **Jonathan.brown@alliancetg.com;dbraund@gb**

Project Description: **Entergy - Independence**

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: **501-847-7077**

Client Project #

Lab Project # **GBMCBAR-ENTERGYINDY**

Collected by (print): JLC/BLS

Site/Facility ID # **RECYCLE PONDS**

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FLUORIDE 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	RA-226/228 & COMB. 1L-HDPE-Add HNO3	RA-226/228 & COMB. 1L-HDPE-Add-HNO3	Remarks	Sample # (lab only)
											pH	
FIELD BLANK	G	GW		7.26.24	0955	4	X	X	X	X	–	-09
DUPLICATE (RP-9)	G	GW		7.24.24	1710	4	X	X	X	X	6.56	-10
		GW										

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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 # L1701279

Table #

Acctnum: **GBMCBAR**
Template: **T256636**
Prelogin: **P1090893**
PM: **829 - Brittnie L Boyd**
PB:

Shipped Via: **FedEX Ground**

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)
Jacob Coburn	7/26/24	1230	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Deyang

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: °C Bottles Received: 40

Date: 7.27.24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Appendix IV	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

CP761234

Tracking Numbers	Temperature
9047 5444 4234	2.2 to 0.3 = 2.5 EDAG
9047 5444 3937	2.2 to 0.3 = 2.5 EDAG
9041 0470 7791	3.5 to 0.3 = 3.8 EDAG
9041 0470 7800	3.4 to 0.3 = 3.7 EDAG
9047 5444 4245	1.2 to 0.3 = 1.5 EDAG
9047 5444 4258	1.1 to 0.3 = 1.4 EDAG

Demanty
Name

7.27.24
Date

ANALYTICAL REPORT

August 07, 2024

Alliance Technical Group - Bryant, AR

Sample Delivery Group:	L1761235
Samples Received:	07/27/2024
Project Number:	1145-21-081
Description:	Entergy - Independence
Site:	RECYCLE PONDS
Report To:	Jonathan Brown 219 Brown Lane Bryant, AR 72022

Entire Report Reviewed By: Myra Ingram

Katie Ingram
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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

TABLE OF CONTENTS

RP-1 L1761235-01 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 18:00 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/04/24 16:43	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/04/24 16:43	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 10:58	ZRG	Mt. Juliet, TN

RP-3 L1761235-02 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 13:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-4 L1761235-03 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 16:00 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-5 L1761235-04 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 15:25 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-6 L1761235-05 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 14:50 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-7 L1761235-06 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 14:05 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/04/24 16:43	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/04/24 16:43	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-9 L1761235-07 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 17:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

RP-10 L1761235-08 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 16:40 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2332445	1	07/30/24 12:52	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2332445	1	07/30/24 12:52	08/01/24 12:16	ZRG	Mt. Juliet, TN

FIELD BLANK L1761235-09 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/26/24 09:55 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2333206	1	07/31/24 08:45	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2333206	1	07/31/24 08:45	08/01/24 19:17	ZRG	Mt. Juliet, TN

DUPLICATE (RP-9) L1761235-10 Non-Potable Water

Collected by: JLC/BLS | Collected date/time: 07/24/24 17:10 | Received date/time: 07/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2332189	1	07/31/24 14:51	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2333206	1	07/31/24 08:45	08/05/24 13:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2333206	1	07/31/24 08:45	08/01/24 19:17	ZRG	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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Katie Ingram
Project Manager

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.674	J	0.426	0.535	0.774	0.405	08/04/2024 16:43	WG2332189
(T) Barium	*90.1*					*30.0-143*	*08/04/2024 16:43*	WG2332189
(T) Yttrium	*90.4*					*30.0-136*	*08/04/2024 16:43*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.799	J	0.454	0.801	08/04/2024 16:43	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.124	J	0.156	0.293	0.205	0.169	08/01/2024 10:58	WG2332445
(T) Barium-133	*78.4*					*30.0-143*	*08/01/2024 10:58*	WG2332445

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0315	U	0.244	0.343	0.464	0.242	08/05/2024 13:45	WG2332189
(T) Barium	*112*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*109*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.777		0.461	0.572	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.777		0.391	0.514	0.335	0.232	08/01/2024 12:16	WG2332445
(T) Barium-133	*88.8*					*30.0-143*	*08/01/2024 12:16*	WG2332445

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.417	U	0.238	0.338	0.467	0.244	08/05/2024 13:45	WG2332189
(T) Barium	*97.8*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*106*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0302	U	0.330	0.636	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0302	U	0.229	0.385	0.432	0.292	08/01/2024 12:16	WG2332445
(T) Barium-133	*76.1*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.531		0.191	0.292	0.346	0.184	08/05/2024 13:45	WG2332189
(T) Barium	*101*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*96.1*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.531	J	0.280	0.557	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	-0.0784	U	0.205	0.340	0.436	0.284	08/01/2024 12:16	WG2332445
(T) Barium-133	*87.9*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.788		0.378	0.542	0.696	0.370	08/05/2024 13:45	WG2332189
(T) Barium	*47.4*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*99.8*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.63		0.524	0.735	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.843		0.363	0.489	0.236	0.175	08/01/2024 12:16	WG2332445
(T) Barium-133	*92.0*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.282	J	0.263	0.367	0.483	0.253	08/04/2024 16:43	WG2332189
(T) Barium	*123*					*30.0-143*	*08/04/2024 16:43*	WG2332189
(T) Yttrium	*91.5*					*30.0-136*	*08/04/2024 16:43*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.299	J	0.307	0.580	08/04/2024 16:43	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0170	U	0.158	0.294	0.322	0.225	08/01/2024 12:16	WG2332445
(T) Barium-133	*88.1*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.495	J	0.326	0.437	0.606	0.321	08/05/2024 13:45	WG2332189
(T) Barium	*115*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*81.2*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.840		0.422	0.680	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.345		0.268	0.395	0.309	0.209	08/01/2024 12:16	WG2332445
(T) Barium-133	*90.5*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0221	U	0.268	0.368	0.508	0.265	08/05/2024 13:45	WG2332189
(T) Barium	*116*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*96.4*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.173	U	0.336	0.580	08/05/2024 13:45	WG2332445

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.173	J	0.203	0.338	0.279	0.192	08/01/2024 12:16	WG2332445
(T) Barium-133	*85.1*					*30.0-143*	*08/01/2024 12:16*	WG2332445

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.119	U	0.220	0.321	0.425	0.223	08/05/2024 13:45	WG2332189
(T) Barium	*113*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*97.5*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.160	U	0.271	0.463	08/05/2024 13:45	WG2333206

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.160	J	0.158	0.279	0.184	0.144	08/01/2024 19:17	WG2333206
(T) Barium-133	*95.4*					*30.0-143*	*08/01/2024 19:17*	WG2333206

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.685		0.237	0.336	0.428	0.224	08/05/2024 13:45	WG2332189
(T) Barium	*107*					*30.0-143*	*08/05/2024 13:45*	WG2332189
(T) Yttrium	*98.9*					*30.0-136*	*08/05/2024 13:45*	WG2332189

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	3.06		0.618	0.480	08/05/2024 13:45	WG2333206

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	2.38		0.571	0.693	0.217	0.161	08/01/2024 19:17	WG2333206
(T) Barium-133	*95.6*					*30.0-143*	*08/01/2024 19:17*	WG2333206

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4103399-1 08/04/24 16:43

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.251	J	0.176	0.321	0.169
(T) Barium	*107*		*107*		
(T) Yttrium	*82.3*		*82.3*		

L1761235-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1761235-07 08/05/24 13:45 • (DUP) R4103399-5 08/04/24 16:43

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.495	0.326	0.606	0.321	-0.0140	0.336	0.626	0.327	200	1.09	U	20	3
(T) Barium	*115*				*110*	*110*							
(T) Yttrium	*81.2*				*97.4*	*97.4*							

Laboratory Control Sample (LCS)

(LCS) R4103399-2 08/04/24 16:43

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.58	91.6	80.0-120	
(T) Barium			*85.9*		
(T) Yttrium			*90.4*		

L1761235-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761235-01 08/04/24 16:43 • (MS) R4103399-3 08/04/24 16:43 • (MSD) R4103399-4 08/04/24 16:43

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.674	14.8	16.5	84.4	94.5	1	70.0-130			10.8		20
(T) Barium		*90.1*			*88.0*	*108*							
(T) Yttrium		*90.4*			*95.7*	*95.7*							

Method Blank (MB)

(MB) R4103049-2 08/01/24 13:54

Analyte	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc
	pCi/l		+ / -	pCi/l	pCi/l
Radium-226	0.139		0.0849	0.0765	0.0557
(T) Barium-133	*84.3*		*84.3*		

L1761235-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1761235-08 08/01/24 12:16 • (DUP) R4103049-1 08/01/24 10:58

Analyte	Original Result	Original 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lc	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	pCi/l	+ / -	pCi/l	pCi/l	%			%	
Radium-226	0.173	0.203	0.279	0.192	0.310	0.224	0.214	0.162	57.0	0.455		20	3
(T) Barium-133	*85.1*				*90.5*	*90.5*							

Laboratory Control Sample (LCS)

(LCS) R4103049-3 08/01/24 13:54

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.00	5.03	101	75.0-125	
(T) Barium-133			*59.3*		

L1758818-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758818-03 08/05/24 23:32 • (MS) R4103049-4 08/05/24 23:32 • (MSD) R4103049-5 08/05/24 23:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	0.439	18.6	17.8	90.6	86.8	1	75.0-125			4.18		20
(T) Barium-133		*52.8*			*97.5*	*74.5*							

Method Blank (MB)

(MB) R4102715-1 08/01/24 19:17

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0295	J	0.0471	0.0733	0.0525
(T) Barium-133	*74.6*		*74.6*		

L1761598-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1761598-12 08/01/24 23:41 • (DUP) R4102715-5 08/01/24 19:17

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.379	0.256	0.198	0.164	0.237	0.221	0.228	0.188	45.9	0.418		20	3
(T) Barium-133	*79.2*				*69.2*	*69.2*							

Laboratory Control Sample (LCS)

(LCS) R4102715-2 08/01/24 19:17

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.98	99.5	75.0-125	
(T) Barium-133			*77.2*		

L1761598-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1761598-02 08/01/24 19:17 • (MS) R4102715-3 08/01/24 19:17 • (MSD) R4102715-4 08/01/24 19:17

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.487	19.9	19.8	96.9	96.4	1	75.0-125			0.505		20
(T) Barium-133		*80.5*			*69.5*	*73.4*							

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.
U	Below Detectable Limits: Indicates that the analyte was not detected.

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	LA000356
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.

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Bryant, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to:
Jonathan Brown

Email To:
Jonathan.brown@alliancetg.com;dbraund@gb

Project Description:
Entergy - Independence

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: **501-847-7077**

Client Project #
1145-21-081

Lab Project #
GBMCBAR-ENTERGYINDY

Collected by (print):
JLC / BLS

Site/Facility ID #
RECYCLE PONDS

P.O. #

Collected by (signature):

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

Immediately Packed on Ice N ___ Y X

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
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 # LD61275
D134

Acctnum: **GBMCBAR**
Template: **T256636**
Prelogin: **P1090893**
PM: **829 - Brittnie L Boyd**
PB:
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FLUORIDE 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	RA-226/228 & COMB. 1L-HDPE-Add HNO3	RA-226/228 & COMB. 1L-HDPE-Add HNO3				Remarks	Sample # (lab only)
														pH	
RP-1	G	GW		7.24.24	1800	4	X	X	X	X				6.61	-01
~~RP-2~~		GW													
RP-3	G	GW		7.24.24	1310	4	X	X	X	X				6.74	-02
RP-4	G	GW		7.24.24	1600	4	X	X	X	X				6.54	-03
RP-5	G	GW		7.24.24	1525	4	X	X	X	X				6.95	-04
RP-6	G	GW		7.24.24	1450	4	X	X	X	X				~~6.72~~ 6.72	-05
RP-7	G	GW		7.24.24	1405	4	X	X	X	X				6.92	-06
~~RP-8~~		GW													
RP-9	G	GW		7.24.24	1710	4	X	X	X	X				6.56	-07
RP-10	G	GW		7.24.24	1640	4	X	X	X	X				6.84	-08

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

Remarks: See attached Appendix IV for all required parameters.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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
Jacob Colmer	7/26/24	1230		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 40
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Demyla	Date: 7-27-24 Time: 0900

If pr... PH-10BDH4321 TRC-3223A228 ...te/Time

Holo.

Condition: NCF / OK

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Bryant, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to:
Jonathan Brown

Email To:
Jonathan.brown@alliancetg.com;dbraund@gb

Project Description:
Entergy - Independence

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: **501-847-7077**

Client Project #

Lab Project #
GBMCBAR-ENTERGYINDY

Collected by (print):
JLC/BLS

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Site/Facility ID #
RECYCLE PONDS

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

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
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 # L701235

Table #

Acctnum: **GBMCBAR**

Template: **T256636**

Prelogin: **P1090893**

PM: **829 - Brittnie L Boyd**

PB:

Shipped Via: **FedEx Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FLUORIDE 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	RA-226/228 & COMB. 1L-HDPE-Add HNO3	RA-226/228 & COMB. 1L-HDPE-Add-HNO3	Remarks	Sample # (lab only)
											pH	
FIELD BLANK	G	GW		7.26.24	0955	4	X	X	X	X	-	-09
DUPLICATE (RP-9)	G	GW		7.24.24	1710	4	X	X	X	X	6.56	-10
		GW										

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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

	Date:	Time:		
Relinquished by : (Signature) Jacob Colburn	7/26/24	1230	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 40 — If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Deyang	Date: 7.27.24 Time: 090 — Hold: — Condition: NCF / OK

Appendix IV	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

LA01275

Tracking Numbers	Temperature
9047 5444 4234	2.2 to 3 = 2.5 EDAG
9047 5444 3937	2.2 to 3 = 2.5 EDAG
9041 0470 7795	3.5 to 3 = 3.8 EDAG
9041 0470 7800	3.4 to 3 = 3.7 EDAG
9047 5444 4249	1.2 to 3 = 1.5 EDAG
9047 5444 4256	1.1 to 3 = 1.4 EDAG

Demanty
Name

7.27.24
Date

LB1235

ANALYTICAL REPORT

October 25, 2024

Alliance Technical Group - Bryant, AR

Sample Delivery Group:	L1785828
Samples Received:	10/05/2024
Project Number:	1145-21-081
Description:	Entergy ISES
Site:	ISES
Report To:	Jonathan Brown 219 Brown Lane Little Rock, AR 72022

Entire Report Reviewed By: Myra Ingram

Katie Ingram
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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

TABLE OF CONTENTS

RP-1 L1785828-01 GW

Collected by: JLC/KRS | Collected date/time: 10/01/24 10:10 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 21:25	10/07/24 21:25	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:26	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:40	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 12:37	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 14:45	JPD	Mt. Juliet, TN

RP-3 L1785828-02 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:10 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 22:18	10/07/24 22:18	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:28	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:41	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 12:40	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 14:55	JPD	Mt. Juliet, TN

RP-4 L1785828-03 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 14:25 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 22:59	10/07/24 22:59	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:31	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:43	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 12:44	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 14:58	JPD	Mt. Juliet, TN

RP-5 L1785828-04 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 23:12	10/07/24 23:12	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:33	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:45	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 12:47	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 15:02	JPD	Mt. Juliet, TN

RP-6 L1785828-05 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 15:55 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 23:26	10/07/24 23:26	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:35	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:50	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 13:25	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 15:05	JPD	Mt. Juliet, TN

RP-7 L1785828-06 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 16:35 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 23:39	10/07/24 23:39	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:38	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:51	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 13:28	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 15:08	JPD	Mt. Juliet, TN

RP-9 L1785828-07 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 15:25 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/07/24 23:53	10/07/24 23:53	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:40	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:53	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 13:31	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 15:11	JPD	Mt. Juliet, TN

RP-10 L1785828-08 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 14:55 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/08/24 00:06	10/08/24 00:06	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:43	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:55	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 13:35	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379593	1	10/24/24 00:51	10/24/24 15:15	JPD	Mt. Juliet, TN

DUPLICATE (RP-5) L1785828-09 GW

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/08/24 00:19	10/08/24 00:19	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:50	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379523	1	10/20/24 22:49	10/21/24 21:56	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379598	1	10/20/24 23:44	10/21/24 18:23	LD	Mt. Juliet, TN

FIELD BLANK L1785828-10 GW

Collected by: JLC/KRS | Collected date/time: 10/01/24 09:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/08/24 00:33	10/08/24 00:33	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:09	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379526	1	10/20/24 23:45	10/23/24 07:33	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2379598	1	10/20/24 23:44	10/21/24 18:26	LD	Mt. Juliet, TN

TRIP BLANK L1785828-11 GW

Collected by: JLC/KRS | Collected date/time: 10/01/24 09:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2376891	1	10/08/24 01:13	10/08/24 01:13	DLH	Mt. Juliet, TN
Mercury by Method 7470A	WG2376960	1	10/08/24 14:09	10/10/24 12:52	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2379526	1	10/20/24 23:45	10/23/24 07:35	DJS	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

TRIP BLANK L1785828-11 GW

Collected by	Collected date/time	Received date/time
JLC/KRS	10/01/24 09:50	10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2379598	1	10/20/24 23:44	10/21/24 18:29	LD	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.

Katie Ingram
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND	P1	0.150	1	10/07/2024 21:25	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:26	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:40	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 12:37	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 12:37	WG2379593
Barium	0.0433		0.00200	1	10/24/2024 14:45	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 12:37	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 12:37	WG2379593
Chromium	ND		0.00200	1	10/24/2024 12:37	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 12:37	WG2379593
Lead	ND		0.00200	1	10/24/2024 12:37	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 12:37	WG2379593
Selenium	ND		0.00200	1	10/24/2024 12:37	WG2379593
Thallium	ND		0.00200	1	10/24/2024 12:37	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Fluoride	0.235	P1	0.150	1	10/07/2024 22:18	WG2376891

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/10/2024 12:28	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lithium	ND		0.0150	1	10/21/2024 21:41	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	10/24/2024 12:40	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 12:40	WG2379593
Barium	0.0334		0.00200	1	10/24/2024 14:55	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 12:40	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 12:40	WG2379593
Chromium	ND		0.00200	1	10/24/2024 12:40	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 12:40	WG2379593
Lead	ND		0.00200	1	10/24/2024 12:40	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 12:40	WG2379593
Selenium	ND		0.00200	1	10/24/2024 12:40	WG2379593
Thallium	ND		0.00200	1	10/24/2024 12:40	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.190		0.150	1	10/07/2024 22:59	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:31	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:43	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 12:44	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 12:44	WG2379593
Barium	0.0704		0.00200	1	10/24/2024 14:58	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 12:44	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 12:44	WG2379593
Chromium	ND		0.00200	1	10/24/2024 12:44	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 12:44	WG2379593
Lead	ND		0.00200	1	10/24/2024 12:44	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 12:44	WG2379593
Selenium	0.00258		0.00200	1	10/24/2024 12:44	WG2379593
Thallium	ND		0.00200	1	10/24/2024 12:44	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.256		0.150	1	10/07/2024 23:12	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:33	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:45	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 12:47	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 12:47	WG2379593
Barium	0.0318		0.00200	1	10/24/2024 15:02	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 12:47	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 12:47	WG2379593
Chromium	ND		0.00200	1	10/24/2024 12:47	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 12:47	WG2379593
Lead	ND		0.00200	1	10/24/2024 12:47	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 12:47	WG2379593
Selenium	0.00488		0.00200	1	10/24/2024 12:47	WG2379593
Thallium	ND		0.00200	1	10/24/2024 12:47	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.221		0.150	1	10/07/2024 23:26	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:35	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	0.0169		0.0150	1	10/21/2024 21:50	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 13:25	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 13:25	WG2379593
Barium	0.0502		0.00200	1	10/24/2024 15:05	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 13:25	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 13:25	WG2379593
Chromium	ND		0.00200	1	10/24/2024 13:25	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 13:25	WG2379593
Lead	ND		0.00200	1	10/24/2024 13:25	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 13:25	WG2379593
Selenium	0.00310		0.00200	1	10/24/2024 13:25	WG2379593
Thallium	ND		0.00200	1	10/24/2024 13:25	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.178		0.150	1	10/07/2024 23:39	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:38	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:51	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 13:28	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 13:28	WG2379593
Barium	0.0321		0.00200	1	10/24/2024 15:08	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 13:28	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 13:28	WG2379593
Chromium	ND		0.00200	1	10/24/2024 13:28	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 13:28	WG2379593
Lead	ND		0.00200	1	10/24/2024 13:28	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 13:28	WG2379593
Selenium	0.00336		0.00200	1	10/24/2024 13:28	WG2379593
Thallium	ND		0.00200	1	10/24/2024 13:28	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	10/07/2024 23:53	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:40	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:53	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 13:31	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 13:31	WG2379593
Barium	0.0409		0.00200	1	10/24/2024 15:11	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 13:31	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 13:31	WG2379593
Chromium	ND		0.00200	1	10/24/2024 13:31	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 13:31	WG2379593
Lead	ND		0.00200	1	10/24/2024 13:31	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 13:31	WG2379593
Selenium	ND		0.00200	1	10/24/2024 13:31	WG2379593
Thallium	ND		0.00200	1	10/24/2024 13:31	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	10/08/2024 00:06	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:43	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:55	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/24/2024 13:35	WG2379593
Arsenic	ND		0.00200	1	10/24/2024 13:35	WG2379593
Barium	0.0621		0.00200	1	10/24/2024 15:15	WG2379593
Beryllium	ND		0.00200	1	10/24/2024 13:35	WG2379593
Cadmium	ND		0.00100	1	10/24/2024 13:35	WG2379593
Chromium	ND		0.00200	1	10/24/2024 13:35	WG2379593
Cobalt	ND		0.00200	1	10/24/2024 13:35	WG2379593
Lead	ND		0.00200	1	10/24/2024 13:35	WG2379593
Molybdenum	ND		0.00500	1	10/24/2024 13:35	WG2379593
Selenium	ND		0.00200	1	10/24/2024 13:35	WG2379593
Thallium	ND		0.00200	1	10/24/2024 13:35	WG2379593

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	0.295		0.150	1	10/08/2024 00:19	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:50	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/21/2024 21:56	WG2379523

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/21/2024 18:23	WG2379598
Arsenic	ND		0.00200	1	10/21/2024 18:23	WG2379598
Barium	0.0304		0.00200	1	10/21/2024 18:23	WG2379598
Beryllium	ND		0.00200	1	10/21/2024 18:23	WG2379598
Cadmium	ND		0.00100	1	10/21/2024 18:23	WG2379598
Chromium	ND		0.00200	1	10/21/2024 18:23	WG2379598
Cobalt	ND		0.00200	1	10/21/2024 18:23	WG2379598
Lead	ND		0.00200	1	10/21/2024 18:23	WG2379598
Molybdenum	ND		0.00500	1	10/21/2024 18:23	WG2379598
Selenium	0.00459		0.00200	1	10/21/2024 18:23	WG2379598
Thallium	ND		0.00200	1	10/21/2024 18:23	WG2379598

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Fluoride	ND		0.150	1	10/08/2024 00:33	WG2376891

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/10/2024 12:09	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Lithium	ND		0.0150	1	10/23/2024 07:33	WG2379526

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00400	1	10/21/2024 18:26	WG2379598
Arsenic	ND		0.00200	1	10/21/2024 18:26	WG2379598
Barium	0.00475		0.00200	1	10/21/2024 18:26	WG2379598
Beryllium	ND		0.00200	1	10/21/2024 18:26	WG2379598
Cadmium	ND		0.00100	1	10/21/2024 18:26	WG2379598
Chromium	ND		0.00200	1	10/21/2024 18:26	WG2379598
Cobalt	ND		0.00200	1	10/21/2024 18:26	WG2379598
Lead	ND		0.00200	1	10/21/2024 18:26	WG2379598
Molybdenum	ND		0.00500	1	10/21/2024 18:26	WG2379598
Selenium	ND		0.00200	1	10/21/2024 18:26	WG2379598
Thallium	ND		0.00200	1	10/21/2024 18:26	WG2379598

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Fluoride	ND		0.150	1	10/08/2024 01:13	WG2376891

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/10/2024 12:52	WG2376960

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lithium	ND		0.0150	1	10/23/2024 07:35	WG2379526

Metals (ICPMS) by Method 6020B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	10/21/2024 18:29	WG2379598
Arsenic	0.00568		0.00200	1	10/21/2024 18:29	WG2379598
Barium	ND		0.00200	1	10/21/2024 18:29	WG2379598
Beryllium	ND		0.00200	1	10/21/2024 18:29	WG2379598
Cadmium	0.00105		0.00100	1	10/21/2024 18:29	WG2379598
Chromium	ND		0.00200	1	10/21/2024 18:29	WG2379598
Cobalt	ND		0.00200	1	10/21/2024 18:29	WG2379598
Lead	ND		0.00200	1	10/21/2024 18:29	WG2379598
Molybdenum	ND		0.00500	1	10/21/2024 18:29	WG2379598
Selenium	ND		0.00200	1	10/21/2024 18:29	WG2379598
Thallium	ND		0.00200	1	10/21/2024 18:29	WG2379598

Method Blank (MB)

(MB) R4132364-1 10/07/24 20:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Fluoride	U		0.0761	0.150

L1785828-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1785828-01 10/07/24 21:25 • (DUP) R4132364-3 10/07/24 21:38

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	ND	ND	1	200	P1	15

L1785828-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1785828-02 10/07/24 22:18 • (DUP) R4132364-6 10/07/24 22:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	0.235	ND	1	200	P1	15

Laboratory Control Sample (LCS)

(LCS) R4132364-2 10/07/24 21:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluoride	8.00	8.68	109	80.0-120	

L1785828-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785828-01 10/07/24 21:25 • (MS) R4132364-4 10/07/24 21:52 • (MSD) R4132364-5 10/07/24 22:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	8.00	ND	8.17	8.55	100	105	1	80.0-120			4.48	15

L1785828-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1785828-02 10/07/24 22:18 • (MS) R4132364-7 10/07/24 22:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Fluoride	8.00	0.235	8.24	100	1	80.0-120	

Method Blank (MB)

(MB) R4130993-1 10/10/24 12:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000700	0.000200

Laboratory Control Sample (LCS)

(LCS) R4130993-2 10/10/24 12:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00286	95.2	80.0-120	

L1785828-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785828-10 10/10/24 12:09 • (MS) R4130993-4 10/10/24 12:13 • (MSD) R4130993-5 10/10/24 12:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00297	0.00296	99.0	98.5	1	75.0-125			0.482	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4135608-1 10/21/24 21:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium	U		0.00485	0.0150

Laboratory Control Sample (LCS)

(LCS) R4135608-2 10/21/24 21:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium	1.00	0.997	99.7	80.0-120	

L1785814-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785814-11 10/21/24 21:13 • (MS) R4135608-4 10/21/24 21:16 • (MSD) R4135608-5 10/21/24 21:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	ND	0.967	0.994	96.0	98.7	1	75.0-125			2.77	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4136460-1 10/23/24 07:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium	U		0.00485	0.0150

Laboratory Control Sample (LCS)

(LCS) R4136460-2 10/23/24 07:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium	1.00	1.01	101	80.0-120	

L1785861-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785861-02 10/23/24 07:27 • (MS) R4136460-4 10/23/24 07:30 • (MSD) R4136460-5 10/23/24 07:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	0.0297	1.02	1.06	99.5	103	1	75.0-125			3.05	20

Method Blank (MB)

(MB) R4137044-1 10/24/24 10:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000310	0.00400
Arsenic	U		0.000120	0.00200
Beryllium	U		0.000200	0.00200
Cadmium	U		0.000120	0.00100
Chromium	U		0.000900	0.00200
Cobalt	U		0.000100	0.00200
Lead	U		0.000500	0.00200
Molybdenum	U		0.000500	0.00500
Selenium	U		0.000250	0.00200
Thallium	U		0.000130	0.00200

Method Blank (MB)

(MB) R4137176-1 10/24/24 14:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	0.000526	J	0.000500	0.00200

Laboratory Control Sample (LCS)

(LCS) R4137044-2 10/24/24 11:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	0.0500	0.0501	100	80.0-120	
Arsenic	0.0500	0.0484	96.7	80.0-120	
Beryllium	0.0500	0.0456	91.2	80.0-120	
Cadmium	0.0500	0.0495	99.0	80.0-120	
Chromium	0.0500	0.0492	98.4	80.0-120	
Cobalt	0.0500	0.0490	98.1	80.0-120	
Lead	0.0500	0.0465	93.1	80.0-120	
Molybdenum	0.0500	0.0477	95.3	80.0-120	
Selenium	0.0500	0.0485	96.9	80.0-120	
Thallium	0.0500	0.0469	93.8	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4137176-2 10/24/24 14:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	0.0500	0.0474	94.8	80.0-120	

L1785796-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785796-01 10/24/24 11:05 • (MS) R4137044-4 10/24/24 11:11 • (MSD) R4137044-5 10/24/24 11:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0511	0.0519	101	103	1	75.0-125			1.59	20
Arsenic	0.0500	0.0142	0.0593	0.0614	90.2	94.3	1	75.0-125			3.44	20
Beryllium	0.0500	ND	0.0447	0.0437	89.3	87.4	1	75.0-125			2.21	20
Cadmium	0.0500	ND	0.0488	0.0497	97.7	99.3	1	75.0-125			1.68	20
Chromium	0.0500	ND	0.0478	0.0473	93.6	92.7	1	75.0-125			1.02	20
Cobalt	0.0500	ND	0.0474	0.0480	94.6	95.7	1	75.0-125			1.19	20
Lead	0.0500	ND	0.0459	0.0464	91.9	92.9	1	75.0-125			1.11	20
Molybdenum	0.0500	0.416	0.466	0.473	100	113	1	75.0-125			1.34	20
Selenium	0.0500	0.135	0.181	0.186	91.5	101	1	75.0-125			2.68	20
Thallium	0.0500	ND	0.0465	0.0472	93.0	94.4	1	75.0-125			1.50	20

L1785796-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785796-01 10/24/24 14:22 • (MS) R4137176-4 10/24/24 14:28 • (MSD) R4137176-5 10/24/24 14:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	0.0500	0.0253	0.0733	0.0750	96.0	99.5	1	75.0-125			2.37	20

Method Blank (MB)

(MB) R4135564-1 10/21/24 18:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000310	0.00400
Arsenic	U		0.000120	0.00200
Barium	U		0.000500	0.00200
Beryllium	U		0.000200	0.00200
Cadmium	U		0.000120	0.00100
Chromium	U		0.000900	0.00200
Cobalt	U		0.000100	0.00200
Lead	U		0.000500	0.00200
Molybdenum	U		0.000500	0.00500
Selenium	U		0.000250	0.00200
Thallium	U		0.000130	0.00200

Laboratory Control Sample (LCS)

(LCS) R4135564-2 10/21/24 18:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	0.0500	0.0500	100	80.0-120	
Arsenic	0.0500	0.0494	98.8	80.0-120	
Barium	0.0500	0.0477	95.3	80.0-120	
Beryllium	0.0500	0.0485	97.0	80.0-120	
Cadmium	0.0500	0.0510	102	80.0-120	
Chromium	0.0500	0.0506	101	80.0-120	
Cobalt	0.0500	0.0510	102	80.0-120	
Lead	0.0500	0.0475	95.0	80.0-120	
Molybdenum	0.0500	0.0485	96.9	80.0-120	
Selenium	0.0500	0.0478	95.6	80.0-120	
Thallium	0.0500	0.0482	96.5	80.0-120	

L1785861-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785861-01 10/21/24 18:10 • (MS) R4135564-4 10/21/24 18:16 • (MSD) R4135564-5 10/21/24 18:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0522	0.0516	104	103	1	75.0-125			1.26	20
Arsenic	0.0500	0.00340	0.0525	0.0520	98.2	97.3	1	75.0-125			0.870	20
Barium	0.0500	0.116	0.163	0.165	94.4	98.3	1	75.0-125			1.20	20
Beryllium	0.0500	ND	0.0479	0.0475	95.1	94.3	1	75.0-125			0.794	20
Cadmium	0.0500	ND	0.0524	0.0520	103	102	1	75.0-125			0.836	20

L1785861-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785861-01 10/21/24 18:10 • (MS) R4135564-4 10/21/24 18:16 • (MSD) R4135564-5 10/21/24 18:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium	0.0500	ND	0.0519	0.0513	100	99.0	1	75.0-125			1.22	20
Cobalt	0.0500	0.00756	0.0576	0.0572	100	99.4	1	75.0-125			0.701	20
Lead	0.0500	ND	0.0471	0.0473	94.1	94.6	1	75.0-125			0.520	20
Molybdenum	0.0500	ND	0.0496	0.0494	98.1	97.8	1	75.0-125			0.328	20
Selenium	0.0500	ND	0.0506	0.0485	101	97.0	1	75.0-125			4.26	20
Thallium	0.0500	ND	0.0483	0.0490	95.5	96.9	1	75.0-125			1.41	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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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.

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Little Rock, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to: Jonathan Brown

Email To: Jonathan.Brown@AllianceTG.com;Jhouse@trcc

Project Description: Entergy ISES

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: 501-847-7077

Client Project # 1145-21-081

Lab Project # GBMCBAR-ENTERGYISES

Collected by (print): JLC/KRS

Site/Facility ID # ISES

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

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	No. of Cntrs	*Metals 250mlHDPE-HNO3 <2	F 125mlHDPE-NoPres	RA-226/228 1L-HDPE-Add-HNO3 <2	RA-226/228-HDPE-ADJ-HNO3 <2	pH	Remarks	Sample # (lab only)
RP-1	G	GW		10-1-24	1010	4	X	X	X	X	6.05		-01
RP-2		GW											
RP-3	G	GW		9-30-24	1310	4	X	X	X	X	6.26		-02
RP-4	G	GW		9-30-24	1425	4	X	X	X	X	6.47		-03
RP-5	G	GW		9-30-24	1350	4	X	X	X	X	6.58		-04
RP-6	G	GW		9-30-24	1555	4	X	X	X	X	6.66		-05
RP-7	G	GW		9-30-24	1635	4	X	X	X	X	6.64		-06
RP-8		GW											
RP-9	G	GW		9-30-24	1525	4	X	X	X	X	6.43		-07
RP-10	G	GW		9-30-24	1455	4	X	X	X	X	6.56		-08

Chain of Custody Page ___ of ___

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MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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 # L1505828
K064

Acctnum: GBMCBAR
Template: T259439
Prelogin: P1104841
PM: 829 - Brittnie L Boyd
PB: LM 9/25/24

Shipped Via: FedEx Priority

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

Remarks: *Metals = ASG,BAG,BEG,CDG,COG,CRG,HG,LIICP,MOG,PBG,SBG,SEG,TLG

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)
Sarah Colbert	10-4-24	1355	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Jamaem

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received: 44

Date: 10-5-24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Little Rock, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to: Jonathan Brown

Email To: Jonathan.Brown@AllianceTG.com;Jhouse@trcc

Project Description: Entergy ISES

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: 501-847-7077

Client Project # 1145-21-081

Lab Project # GBMCBAR-ENTERGYISES

Collected by (print): JLC/KRS

Site/Facility ID # ISES

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	No. of Cntrs	*Metals 250mlHDPE-HNO3	F 125mlHDPE-NoPres	RA-226/228 1L-HDPE-Add-HNO3	RA-226/228 1L-HDPE-Add-HNO3
		GW								
DUPLICATE -(RP-5)	G	GW		9-30-24	1350	4	X	X	X	X
FIELD BLANK	G	GW		10-1-24	0950	4	X	X	X	X
TRIP BLANK	G	GW		10-1-24	0950	4	X	X	X	X

Chain of Custody Page ___ of ___

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MT JULIET, TN

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SDG # L1785828

Table #

Acctnum: GBMCBAR
Template: T259439
Prelogin: P1104841
PM: 829 - Brittnie L Boyd
PB: LM 9/25/24
Shipped Via: FedEX Priority

Remarks	Sample # (lab only)
pH	
6.58	-09
	-10
	-11

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

Remarks: *Metals = ASG,BAG,BEG,CDG,COG,CRG,HG,LIICP,MOG,PBG,SBG,SEG,TLG

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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
Jacob Collier	10-4-24	1355		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10-5-24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

L1785828

Fed Ex tracking #	Gun ID	Temperature
4041 0487 2820	TLA9	3.1 + 0.3 = 3.4
4041 0487 2738		4.6 + 0.3 = 4.9
4041 0487 2727		0.9 + 0.3 = 1.2
4041 0487 2808		1.3 + 0.3 = 1.6

Name

Date

ANALYTICAL REPORT

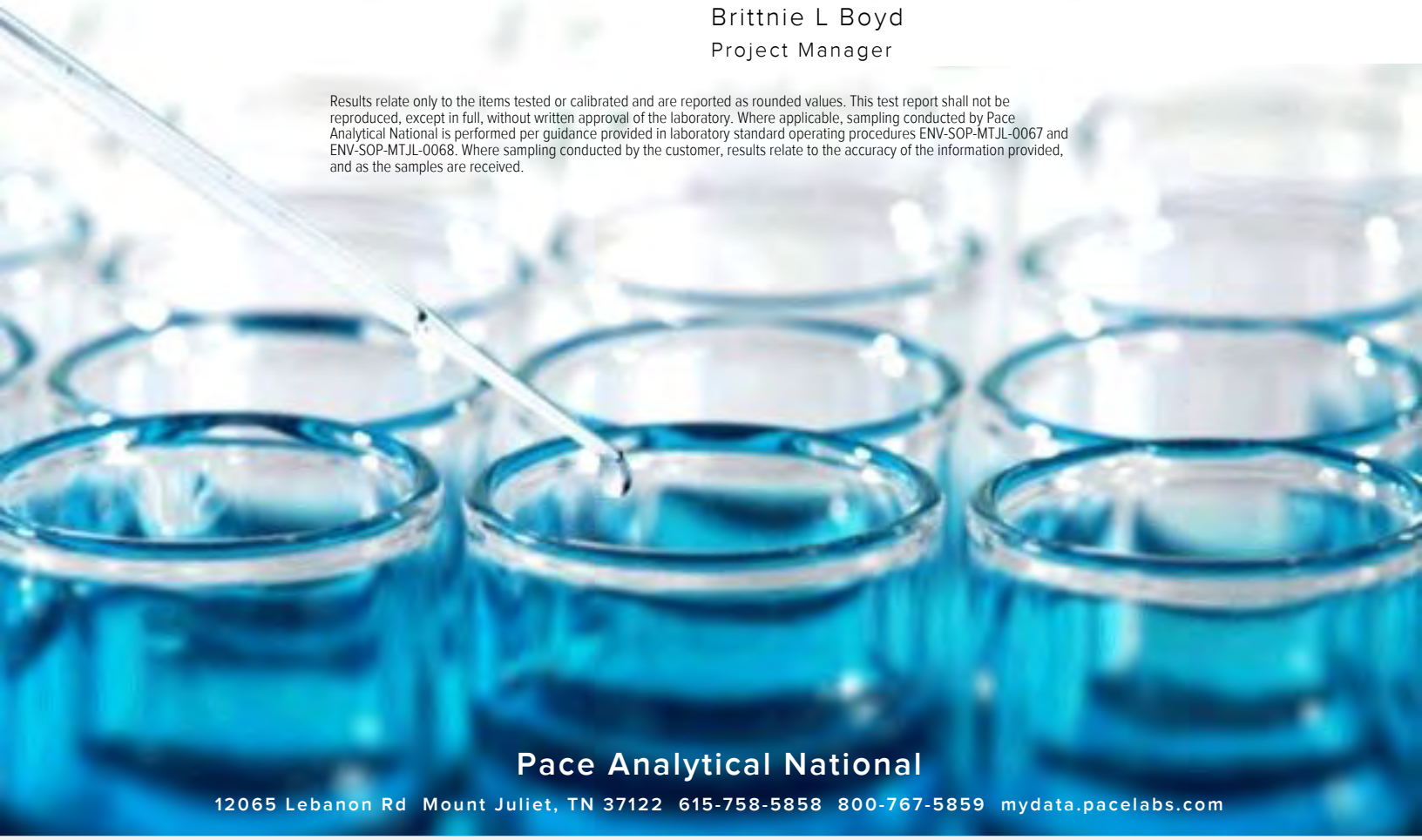
November 01, 2024

Alliance Technical Group - Bryant, AR

Sample Delivery Group:	L1785830
Samples Received:	10/05/2024
Project Number:	1145-21-081
Description:	Entergy ISES
Site:	ISES
Report To:	Jonathan Brown 219 Brown Lane Little Rock, AR 72022

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



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

TABLE OF CONTENTS

RP-1 L1785830-01 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 10/01/24 10:10 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-3 L1785830-02 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:10 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-4 L1785830-03 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 14:25 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-5 L1785830-04 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-6 L1785830-05 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 15:55 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-7 L1785830-06 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 16:35 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388528	1	10/24/24 13:28	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388528	1	10/24/24 13:28	10/28/24 13:41	ZRG	Mt. Juliet, TN

RP-9 L1785830-07 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 15:25 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388900	1	10/25/24 13:34	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388900	1	10/25/24 13:34	10/30/24 10:41	ZRG	Mt. Juliet, TN

RP-10 L1785830-08 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 14:55 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388900	1	10/25/24 13:34	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388900	1	10/25/24 13:34	10/30/24 10:41	ZRG	Mt. Juliet, TN

DUPLICATE (RP-5) L1785830-09 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 09/30/24 13:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388900	1	10/25/24 13:34	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388900	1	10/25/24 13:34	10/30/24 10:41	ZRG	Mt. Juliet, TN

FIELD BLANK L1785830-10 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 10/01/24 09:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388900	1	10/25/24 13:34	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388900	1	10/25/24 13:34	10/30/24 10:41	ZRG	Mt. Juliet, TN

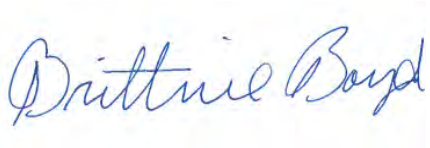
TRIP BLANK L1785830-11 Non-Potable Water

Collected by: JLC/KRS | Collected date/time: 10/01/24 09:50 | Received date/time: 10/05/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2376896	1	10/07/24 14:41	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2388900	1	10/25/24 13:34	10/31/24 15:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2388900	1	10/25/24 13:34	10/30/24 10:41	ZRG	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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Brittnie L Boyd
Project Manager

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.140	U	0.251	0.449	0.464	0.243	10/31/2024 15:33	WG2376896
(T) Barium	*108*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*115*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.114	U	0.330	0.575	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.114	U	0.214	0.343	0.339	0.231	10/28/2024 13:41	WG2388528
(T) Barium-133	*94.8*					*30.0-143*	*10/28/2024 13:41*	WG2388528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.261	U	0.375	0.631	0.680	0.356	10/31/2024 15:33	WG2376896
(T) Barium	*68.7*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*91.0*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.679	J	0.723	1.14	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.418	J	0.618	1.11	0.918	0.625	10/28/2024 13:41	WG2388528
(T) Barium-133	*35.1*					*30.0-143*	*10/28/2024 13:41*	WG2388528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.427	J	0.244	0.445	0.434	0.228	10/31/2024 15:33	WG2376896
(T) Barium	*127*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*96.6*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.973		0.414	0.556	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.546		0.335	0.620	0.347	0.232	10/28/2024 13:41	WG2388528
(T) Barium-133	*105*					*30.0-143*	*10/28/2024 13:41*	WG2388528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.580		0.182	0.380	0.314	0.168	10/31/2024 15:33	WG2376896
(T) Barium	*126*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*106*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.723		0.290	0.464	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.143	J	0.226	0.349	0.341	0.231	10/28/2024 13:41	WG2388528
(T) Barium-133	*97.1*					*30.0-143*	*10/28/2024 13:41*	WG2388528

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0334	U	0.187	0.386	0.349	0.185	10/31/2024 15:33	WG2376896
(T) Barium	*123*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*102*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.199	J	0.319	0.506	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.199	J	0.258	0.422	0.367	0.244	10/28/2024 13:41	WG2388528
(T) Barium-133	*97.2*					*30.0-143*	*10/28/2024 13:41*	WG2388528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.0686	U	0.195	0.395	0.359	0.190	10/31/2024 15:33	WG2376896
(T) Barium	*118*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*97.9*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.212	U	0.331	0.547	10/31/2024 15:33	WG2388528

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.143	U	0.268	0.383	0.413	0.270	10/28/2024 13:41	WG2388528
(T) Barium-133	*90.3*					*30.0-143*	*10/28/2024 13:41*	WG2388528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.572		0.290	0.498	0.513	0.268	10/31/2024 15:33	WG2376896
(T) Barium	*137*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*91.1*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.11		0.442	0.578	10/31/2024 15:33	WG2388900

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.535		0.334	0.739	0.267	0.209	10/30/2024 10:41	WG2388900
(T) Barium-133	*67.4*					*30.0-143*	*10/30/2024 10:41*	WG2388900

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.112	U	0.216	0.414	0.401	0.211	10/31/2024 15:33	WG2376896
(T) Barium	*110*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*115*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.168	U	0.262	0.431	10/31/2024 15:33	WG2388900

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.168		0.148	0.286	0.158	0.124	10/30/2024 10:41	WG2388900
(T) Barium-133	*95.5*					*30.0-143*	*10/30/2024 10:41*	WG2388900

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.324	J	0.230	0.433	0.413	0.217	10/31/2024 15:33	WG2376896
(T) Barium	*114*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*95.4*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.386	J	0.268	0.476	10/31/2024 15:33	WG2388900

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0615	U	0.137	0.219	0.237	0.170	10/30/2024 10:41	WG2388900
(T) Barium-133	*93.5*					*30.0-143*	*10/30/2024 10:41*	WG2388900

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.438	U	0.229	0.427	0.434	0.227	10/31/2024 15:33	WG2376896
(T) Barium	*130*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*100*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0541	U	0.268	0.499	10/31/2024 15:33	WG2388900

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0541	U	0.139	0.229	0.246	0.174	10/30/2024 10:41	WG2388900
(T) Barium-133	*104*					*30.0-143*	*10/30/2024 10:41*	WG2388900

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0673	U	0.206	0.404	0.383	0.202	10/31/2024 15:33	WG2376896
(T) Barium	*117*					*30.0-143*	*10/31/2024 15:33*	WG2376896
(T) Yttrium	*110*					*30.0-136*	*10/31/2024 15:33*	WG2376896

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.907		0.467	0.544	10/31/2024 15:33	WG2388900

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.907		0.419	0.915	0.386	0.250	10/30/2024 10:41	WG2388900
(T) Barium-133	*108*					*30.0-143*	*10/30/2024 10:41*	WG2388900

Method Blank (MB)

(MB) R4140550-1 10/31/24 15:33

Analyte	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc
	pCi/l		+ / -	pCi/l	pCi/l
Radium-228	-0.312	U	0.159	0.305	0.160
(T) Barium	*123*		*123*		
(T) Yttrium	*87.9*		*87.9*		

L1785836-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1785836-01 10/31/24 15:33 • (DUP) R4140550-5 10/31/24 15:33

Analyte	Original Result	Original 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lc	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	pCi/l	+ / -	pCi/l	pCi/l	%			%	
Radium-228	9.93	0.439	0.505	0.267	9.25	0.465	0.621	0.324	7.07	1.06		20	3
(T) Barium	*116*				*122*	*122*							
(T) Yttrium	*114*				*110*	*110*							

Laboratory Control Sample (LCS)

(LCS) R4140550-2 10/31/24 15:33

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	4.54	90.7	80.0-120	
(T) Barium			*135*		
(T) Yttrium			*107*		

L1785635-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1785635-03 10/31/24 15:33 • (MS) R4140550-3 10/31/24 15:33

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	pCi/l	pCi/l	pCi/l	%		%	
Radium-228	16.7	0.191	16.3	96.4	1	70.0-130	
(T) Barium		*111*		*123*			
(T) Yttrium		*101*		*105*			

Method Blank (MB)

(MB) R4139580-1 10/28/24 13:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0141	U	0.0685	0.118	0.0769
(T) Barium-133	*72.0*		*72.0*		

L1785830-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1785830-06 10/28/24 13:41 • (DUP) R4139580-3 10/28/24 13:41

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.143	0.268	0.413	0.270	-0.0661	0.173	0.368	0.240	200	0.655	U	20	3
(T) Barium-133	*90.3*				*92.4*	*92.4*							

Laboratory Control Sample (LCS)

(LCS) R4139580-2 10/28/24 13:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.07	101	80.0-120	
(T) Barium-133			*84.9*		

Method Blank (MB)

(MB) R4139728-1 10/30/24 10:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.00245	U	0.0671	0.123	0.0799
(T) Barium-133	*69.3*		*69.3*		

L1785836-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1785836-13 10/30/24 10:41 • (DUP) R4139728-5 10/30/24 10:41

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.193	0.251	0.357	0.237	-0.129	0.198	0.462	0.301	200	1.01	U	20	3
(T) Barium-133	*110*				*73.6*	*73.6*							

Laboratory Control Sample (LCS)

(LCS) R4139728-2 10/30/24 10:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.70	94.0	80.0-120	
(T) Barium-133			*85.1*		

L1785836-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1785836-01 10/30/24 10:41 • (MS) R4139728-3 10/30/24 10:41 • (MSD) R4139728-4 10/30/24 10:41

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.59	20.4	17.3	94.0	78.6	1	75.0-125			16.3		20
(T) Barium-133		*97.9*			*96.4*	*92.3*							

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.
U	Below Detectable Limits: Indicates that the analyte was not detected.

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.

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Little Rock, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to: **Jonathan Brown**

Email To: Jonathan.Brown@AllianceTG.com;Jhouse@trcc

Project Description: **Entergy ISES**

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: **501-847-7077**

Client Project # **1145-21-081**

Lab Project # **GBMCBAR-ENTERGYISES**

Collected by (print): JLC / KRS

Site/Facility ID # **ISES**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

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

Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 250mlHDPE-HNO3 <2	F 125mlHDPE-NoPres	RA-226/228 1L-HDPE-Add-HNO3 <2	RA-226/228-HDPE-ADJ-HNO3 <2	pH	Remarks	Sample # (lab only)
RP-1	G	GW		10-1-24	1010	4	X	X	X	X	6.05		-01
RP-2		GW											
RP-3	G	GW		9-30-24	1310	4	X	X	X	X	6.26		-02
RP-4	G	GW		9-30-24	1425	4	X	X	X	X	6.47		-03
RP-5	G	GW		9-30-24	1350	4	X	X	X	X	6.58		-04
RP-6	G	GW		9-30-24	1555	4	X	X	X	X	6.66		-05
RP-7	G	GW		9-30-24	1635	4	X	X	X	X	6.64		-06
RP-8		GW											
RP-9	G	GW		9-30-24	1525	4	X	X	X	X	6.43		-07
RP-10	G	GW		9-30-24	1455	4	X	X	X	X	6.56		-08

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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 # L1755830
K064

Acctnum: **GBMCBAR**
Template: **T259439**
Prelogin: **P1104841**
PM: **829 - Brittnie L Boyd**
PB: LM 9/25/24
Shipped Via: **FedEX Priority**

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

Remarks:*Metals = ASG,BAG,BEG,CDG,COG,CRG,HG,LIICP,MOG,PBG,SBG,SEG,TLG

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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
Sarah Colbert	10-4-24	1355		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 44
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10-5-24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Company Name/Address:
Alliance Technical Group - Bryant, AR

219 Brown Lane
Little Rock, AR 72022

Billing Information:
Accounts Payable
219 Brown Ln.
Bryant, AR 72022

Pres Chk

Report to:
Jonathan Brown

Email To:
Jonathan.Brown@AllianceTG.com;Jhouse@trcc

Project Description:
Entergy ISES

City/State Collected: Newark, AR

Please Circle: PT MT CT ET

Phone: 501-847-7077

Client Project #
1145-21-081

Lab Project #
GBMCBAR-ENTERGYISES

Collected by (print):
JL / KRS

Site/Facility ID #
ISES

P.O. #

Collected by (signature):
Immediately Packed on Ice N___ Y___

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	No. of Cntrs	*Metals 250mlHDPE-HNO3	F 125mlHDPE-NoPres	RA-226/228 1L-HDPE-Add-HNO3	RA-226/228 1L-HDPE-Add-HNO3							Remarks	Sample # (lab only)
		GW															pH	
DUPLICATE -(RP-5)	G	GW		9-30-24	1350	4	X	X	X	X							6.58	-09
FIELD BLANK	G	GW		10-1-24	0950	4	X	X	X	X								-10
TRIP BLANK	G	GW		10-1-24	0950	4	X	X	X	X								-11

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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 # L1755830

Table #

Acctnum: GBMCBAR

Template: T259439

Prelogin: P1104841

PM: 829 - Brittnie L Boyd

PB: LL 9/25/24

Shipped Via: FedEX Priority

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

Remarks:*Metals = ASG,BAG,BEG,CDG,COG,CRG,HG,LIICP,MOG,PBG,SBG,SEG,TLG

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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	
Jacob Collier	10-4-24	1355			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10-5-24 Time: 0900	Hold: Condition: NCF / OK

4785830

Fed Ex tracking #	Gun ID	Temperature
4041 0487 2820	TLA9	3.1 + 0.3 = 3.4
4041 0487 2738		4.6 + 0.3 = 4.9
4041 0487 2727		0.9 + 0.3 = 1.2
4041 0487 2808		1.3 + 0.3 = 1.6

Name

Date

APPENDIX D
FIELD SAMPLING FORMS

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-1	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 31.30	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1738	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1750					6.54	18.59	314	1.62	220	3.64	Clear
1755					6.55	18.70	315	1.61	224	4.16	"
1800					6.61	18.57	315	1.57	222	1.37	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1800	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-3	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 26.12	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1250	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1300					6.69	19.72	273	3.35	226	4.58	Clear
1305					6.66	19.59	270	3.10	233	3.98	"
1310					6.74	19.69	269	3.14	234	2.89	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1310	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS: Horiba/HACH recalibrated prior to purging

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

* In-house bladder not functioning. Used rental.

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-W	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 34.78	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: **1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: **1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1535	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1550					6.52	18.70	373	0.76	278	4.86	Clear
1555					6.54	18.73	362	0.71	274	4.52	Clear
1600					6.54	18.73	361	0.68	282	2.59	Clear

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1600	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-5	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 34.79	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1506	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1515					6.95	19.13	570	1.33	250	3.15	clear
1520					6.95	19.03	569	1.32	245	4.34	"
1525					6.95	19.02	568	1.25	251	1.58	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1525	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-6	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 33.96	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1427	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1440					6.75	18.74	469	1.10	249	4.99	Clear
1445					6.71	18.72	469	1.13	253	1.73	}
1450					6.72	18.69	467	1.06	254	2.66	}

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FL): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1450	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: TSES	SITE LOCATION:	
WELL NO: RP-7	SAMPLE ID:	DATE: 7-24-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 33.64	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1340	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1355					6.94	18.65	584	1.62	259	3.44	Clear
1400					6.89	18.74	578	1.62	268	3.34	"
1405					6.92	18.75	574	1.48	269	4.46	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1405	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-9	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 30.69	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1647	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1700					6.58	18.17	306	0.91	288	1.79	Clear
1705					6.57	18.16	306	0.58	287	3.43	"
1710					6.56	18.07	306	0.84	287	0.76	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1710	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION:	
WELL NO: RP-10	SAMPLE ID:	DATE: 7-24-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 35.70	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: **1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: **1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1608	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1620					6.85	18.40	569	3.27	264	5.74	clear
1625					6.84	18.37	559	3.18	262	5.17	"
1630					6.84	18.35	562	3.15	264	3.49	"
1635					6.86	18.32	558	3.09	266	3.13	"
1640					6.84	18.34	552	3.09	272	1.74	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1640	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RR1	SAMPLE ID:	DATE: 10-1-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 30.39	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 0946	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1000					6.02	16.97	335	1.99	269	1.1	Clear
1005					6.04	17.01	335	1.92	268	1.6	"
1010					6.05	17.02	336	1.89	263	0.9	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1010	SAMPLING ENDED AT: 1014

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS: Hach/HACH recalibrated prior to purging

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RP-3	SAMPLE ID:	DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 26.14	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1234	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1300					6.26	19.87	276	5.12	239	3.2	Clear
1305					6.26	19.87	275	4.90	235	1.6	"
1310					6.26	19.63	276	4.66	237	1.1	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1310	SAMPLING ENDED AT: 1317
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: Horiba/HACH recalibrated prior to purging.

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

- Built in bladder not functioning. Used ours instead.

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RP-4	SAMPLE ID:	DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 32.67	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1402	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1415					6.43	17.58	373	1.36	223	1.7	Clear
1420					6.43	17.54	374	1.34	223	1.4	"
1425					6.43	17.55	375	1.30	224	1.2	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1425	SAMPLING ENDED AT: 1429
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RP-5	SAMPLE ID:	DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 34.13	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1327	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1340					6.58	17.62	542	1.99	224	1.8	Clear
1345					6.60	17.62	537	1.94	223	1.5	"
1350					6.58	17.63	533	1.92	222	1.1	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1350	SAMPLING ENDED AT: 1356
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: Duplicate taken

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES		SITE LOCATION: Newark, Ark	
WELL NO: RP-6	SAMPLE ID:		DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 33.44	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1533	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1545					6.67	19.20	727	0.80	217	0.4	Clear
1550					6.66	19.28	720	0.79	214	0.5	"
1555					6.66	19.46	708	0.77	212	0.5	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1555	SAMPLING ENDED AT: 1600
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES		SITE LOCATION: Newark, AR	
WELL NO: RP-7	SAMPLE ID:		DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 33.18	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: **1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: **1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1605	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1620					6.67	20.84	473	3.19	211	0.7	Clear
1625					6.66	19.65	542	3.31	206	1.7	
1630					6.66	19.45	554	3.24	205	4.4	
1635					6.64	19.31	556	3.12	206	1.3	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1635	SAMPLING ENDED AT: 1640
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RP-9	SAMPLE ID:	DATE: 4-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 30.11	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1502	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1515					6.46	20.60	306	1.36	225	0.5	clear
1520					6.44	20.60	306	1.32	226	0.5	"
1525					6.43	20.58	305	1.31	226	0.6	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1525	SAMPLING ENDED AT: 1528
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: ISES	SITE LOCATION: Newark, AR	
WELL NO: RP-10	SAMPLE ID:	DATE: 9-30-24

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	TOTAL WATER DEPTH (feet):	STATIC DEPTH TO WATER (feet): 35.10	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

PUMP OR TUBING DEPTH IN WELL (feet):	WELL SCREEN INTERVAL DEPTH: feet to feet	PURGING INITIATED AT: 1432	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	Turbidity (NTU)	COLOR / ODOR (describe)
1445					6.56	17.42	471	2.52	221	2.2	Clear
1450					6.56	17.42	471	2.50	221	1.3	"
1455					6.56	17.44	471	2.51	222	1.3	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1455	SAMPLING ENDED AT: 1458
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Final pH/ Temp			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

APPENDIX E
ALTERNATE SOURCE DEMONSTRATION

Alternate Source Demonstration

Independence Steam Electric Station
Water Recycle Ponds – East and West

Newark, Arkansas

January 2025

Prepared For

Entergy Arkansas, LLC
Independence Steam Electric Station
Point Ferry Road
Newark, Arkansas 72562

Submitted By

TRC Environmental Corporation
4545 Sherwood Common Blvd.
Building 3, Suite A
Baton Rouge, LA 70809

Jason S. House
Senior Project Manager

Nakia W. Addison, P.E.
Operations Manager

Executive Summary

Entergy Arkansas, LLC (EAL) owns and operates the Entergy Independence Steam Electric Station (Plant), a coal-fired power plant, to generate electricity. The Plant is located at Point Ferry Road near Newark, Independence County, Arkansas. The Plant has been generating electricity since the early 1980s. As a byproduct of electrical generation, coal combustion residuals (CCRs) historically generated at the Plant have been managed at the:

- On-Site Coal Ash Disposal Landfill (CADL); and
- Water Recycle Ponds – East and West (Ponds).

The *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule,* 40 CFR Part 257 (CCR Rule) became effective on October 19, 2015, and established national criteria for the management of CCR at electrical generating facilities. EAL initially identified the CADL as a CCR Unit when the CCR Rule became effective on October 19, 2015.

The Ponds encompass approximately 13 acres and operated as part of its process water system for bottom ash transport. The Ponds provided intermediate storage of waters used in the transport of CCR generated from the combustion of coal at the Plant. After CCR was identified in the Ponds in 2018, EAL determined the Ponds were also a CCR Unit under the CCR Rule. EAL designed and installed a groundwater monitoring system consisting of 10 wells per 40 CFR Part 257.91. Three of the wells were installed as background wells and the other seven wells were installed around the immediate perimeter of the Ponds. The groundwater monitoring system and statistical methods were certified by a Registered Arkansas Professional Engineer (P.E.). EAL implemented a Detection Monitoring Program per 40 CFR Part 257.94.

After installation of a dry bottom ash handling system at the Plant, EAL commenced closure of the West Pond on August 4, 2020, and the East Pond on February 26, 2021. Closure consisted of removal of CCR and decontamination of affected soils (beyond visible CCR) in accordance with accordance with the following:

- 40 CFR 257.102(c) of the CCR Rule;

- *Amendment No. 1 - Closure Plan for Water Recycle Ponds* (August 2020) as approved by the Arkansas Energy and Environment Department, Division of Environmental Quality (DEQ) on December 11, 2020; and

- National Pollutant Discharge Elimination System (NPDES) Permit Number AR0037451.

After closure was successfully completed, the notification of closure was prepared per 40 CFR 257.102(h). The notification of closure was certified by a Registered Arkansas P.E. and a Registered Arkansas Professional Geologist (P.G.) on October 2, 2023, per 40 CFR 257.102(f)(3). The certified notification of closure was placed into the Plants's facility operating record (FOR) as required by 40 CFR 257.105(i)(8) and was posted to the Plant's publicly accessible CCR internet site as required by 40 CFR 257.107(i)(8).

A quarterly Detection Monitoring Program for the Appendix III and Appendix IV CCR constituents for the Ponds was implemented in 2018 per 40 CFR Part 257.94. After completion of eight quarterly background monitoring events, a semi-annual Detection Monitoring Program was implemented in 2020. Statistically significant increases (SSIs) of Appendix III detection monitoring constituents were never documented as part of the Detection Monitoring Program; therefore, assessment monitoring was never initiated for the Ponds and groundwater protection standards (GWPS) were not established per 40 CFR 257.95.

The *Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments* was published by the United States Environmental Protection Agency (USEPA) on May 8, 2024 (Legacy Impoundment/CCRMU Rule). Based on the revised requirements for the closure by removal of CCR provided in the Legacy Impoundment/CCRMU Rule, EAL determined that it would perform additional activities to update the original certification for the closure by removal of CCR for the Ponds before the effective date of the Legacy Impoundment/CCRMU Rule on November 8, 2024. The following activities were performed:

- Perform two additional quarterly groundwater monitoring events at the Ponds during the third and fourth quarters 2024 and analyze the samples for the Appendix IV assessment monitoring constituents;

- Establish GWPS;

- Perform statistical analyses of the Appendix IV assessment monitoring analytical data, identify potential statistically significant levels (SSLs), and prepare an Alternative Source Demonstration (ASD) if appropriate;

- Document that the Appendix IV assessment monitoring groundwater analytical results for the consecutive monitoring events during the third and fourth quarters 2024 are less than GWPS; and

- Prepare an updated certification for the closure by removal of CCR for the Ponds.

EAL performed the two consecutive monitoring events in July 2024 and September/October 2024. Based on statistical analyses of the analytical results, potential SSLs were initially identified for the following three Appendix IV assessment monitoring constituents based on exceedances of intrawell prediction limits:

- Barium (RP-4);

- Selenium (RP-5); and

- Barium (RP-6).

GWPS for the Ponds were established per 40 CFR 257.95(2). In addition, this ASD was prepared per 40 CFR 257.95(g)(3)(ii). Based on the ASD evaluations, none of the potential SSLs were confirmed based on the following lines of reasoning:

- The USEPA primary maximum contaminant levels (MCLs) for barium and selenium under the Clean Water Act are significantly greater than the maximum concentrations for barium and selenium observed at RP-4 through RP-6; and

- The background groundwater quality concentrations for barium and selenium for the Ponds (RP-1 through RP-3) are equivalent to or greater than the highest concentrations detected for RP-4 through RP-6.

The slightly elevated concentrations for barium and selenium observed in the July and September/October 2024 monitoring events are likely related to the following causes:

- Natural variations in groundwater quality, which may be related to fluctuations in seasonal geochemistry conditions in the uppermost aquifer system associated with electrical conductivity (EC), ion strength, oxidation-reduction potential (ORP), pH, and total dissolved solids (TDS).

Based on this ASD successfully documenting that natural variation in groundwater quality is the cause for the exceedances of intrawell prediction limits, the requirements of 40 CFR Part 257.102(c) have been satisfied for closure by removal of CCR for the Ponds.

Based on this successful ASD, the original certification of closure by removal per 40 CFR 257.102(c) was updated and recertified. The updated notification of closure was certified by a Registered Arkansas P.E. and a Registered Arkansas P.G. on November 7, 2024, per 40 CFR 257.102(f)(3). The updated certified notification of closure was placed into the Plant's FOR per 40 CFR 257.105(i)(8) and was posted to the Plants's publicly accessible CCR internet site per 40 CFR 257.107(i)(8).

Table of Contents

Section 1
Introduction

1.1 Background

Entergy Arkansas, LLC (EAL) owns and operates the Entergy Independence Steam Electric Plant (Plant), a coal-fired power plant, to generate electricity. The Plant is located at Point Ferry Road near Newark, Independence County, Arkansas (**Figure 1**). The Plant is located at approximate latitude 35°40'39" N, longitude 91°24'42" W (front gate).

The Plant has been generating electricity since the early 1980s. As a byproduct of electrical generation, coal combustion residuals (CCRs) historically generated at the Plant have been managed at the Plant at the:

- On-Site Coal Ash Disposal Landfill (CADL); and
- Water Recycle Ponds – East and West (Ponds).

The *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule,* 40 CFR Part 257 (CCR Rule) became effective on October 19, 2015, and established national criteria for the management of CCR at electrical generating facilities. EAL initially identified the CADL as a CCR Unit when the CCR Rule became effective on October 19, 2015.

The Ponds encompass approximately 13 acres and operated as part of the Plant's process water system for bottom ash transport. The Ponds provided intermediate storage of waters used in the transport of CCR generated from the combustion of coal at the Plant. After CCR was identified in the Ponds in 2018, EAL determined the Ponds were also a CCR Unit under the CCR Rule. EAL designed and installed a groundwater monitoring system consisting of 10 wells per 40 CFR Part 257.91. Three of the wells were installed as background wells and the other seven wells were installed around the immediate perimeter of the Ponds. The groundwater monitoring system and statistical methods were certified by a Registered Arkansas Professional Engineer (P.E.). EAL implemented a Detection Monitoring Program per 40 CFR Part 257.94.

A quarterly Detection Monitoring Program for the Appendix III and Appendix IV CCR constituents for the Ponds was implemented in 2018 per 40 CFR Part 257.94. After completion of

eight background monitoring events, a semi-annual Detection Monitoring Program was implemented in 2020. Statistically significant increases (SSIs) of Appendix III detection monitoring constituents were never documented; therefore, assessment monitoring was never initiated for the Ponds and groundwater protection standards (GWPS) were not established pursuant to 40 CFR 257.95.

The East and West Ponds and the locations of the 10 wells making up the certified groundwater monitoring system are shown on (**Figure 2)**.

1.1.1 Closure By Removal Certification (October 2, 2023)

After installation of a dry bottom ash handling system at the Plant, EAL commenced closure of the West Pond on August 4, 2020, and the East Pond on February 26, 2021, per 40 CFR Part 257.102(c). Closure consisted of removal of CCR and decontamination of affected soils (beyond visible CCR) in accordance with the following:

- 40 CFR 257.102(c) of the CCR Rule;
- *Amendment No. 1 - Closure Plan for Water Recycle Ponds* (August 2020) as approved by the Arkansas Energy and Environment Department, Division of Environmental Quality (DEQ) on December 11, 2020; and
- National Pollutant Discharge Elimination System (NPDES) Permit Number AR0037451.

All CCR was removed from the Ponds and disposed in the on-site CADL. The on-site CADL is permitted under DEQ Permit No. 0200-S3N-R2. Pursuant to *Amendment No. 1 - Closure Plan for Water Recycle Ponds*, CCR removal was confirmed through visual observations of both Ponds.

Per Amendment No. 1 - Closure Plan for Water Recycle Ponds, both Ponds were decontaminated through excavation of a minimum of 6 inches of the underlying pond liner material (beyond visible CCR) to ensure removal of potential CCR-affected materials. This material was also disposed in the on-Site CADL. Pursuant to *Amendment No. 1 - Closure Plan for Water Recycle Ponds*, CCR decontamination was confirmed through visual observations of both Ponds after excavation.

After closure was successfully completed, the notification of closure was prepared per 40 CFR 257.102(h). The notification of closure was certified by a Registered Arkansas P.E. and a Registered Arkansas Professional Geologist (P.G.) on October 2, 2023 per 40 CFR 257.102(f)(3).

The certified notification of closure was placed into the Plants's facility operating record (FOR) per 40 CFR 257.105(i)(8) and was posted to the Plant's publicly accessible CCR internet site per 40 CFR 257.107(i)(8).

1.1.2 Closure By Removal Recertification (November 7, 2024)

The *Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments* was published by the USEPA on May 8, 2024 (Legacy Impoundment/CCRMU Rule). Based on the revised requirements for the closure by removal of CCR provided in the Legacy Impoundment/CCRMU Rule, EAL determined it would perform additional activities to update the original certification for the closure by removal of CCR for the Ponds by the effective date of the Legacy Impoundment/CCRMU Rule on November 8, 2024. The following additional activities were performed:

- Perform two additional quarterly groundwater monitoring events at the Ponds during the third and fourth quarters 2024 and analyze the samples for the Appendix IV assessment monitoring constituents;
- Establish GWPS;
- Perform statistical analyses of the Appendix IV assessment monitoring analytical data, identify potential statistically significant levels (SSLs), and prepare an Alternative Source Demonstration (ASD) if appropriate;
- Document that the Appendix IV assessment monitoring groundwater analytical results for the consecutive monitoring events during the third and fourth quarters 2024 are less than GWPS; and
- Prepare an updated certification for the closure by removal of CCR for the Ponds.
  EAL performed the two consecutive monitoring events in July 2024 and September/October 2024. Based on statistical analyses of the analytical results, potential SSLs were initially identified for the following three Appendix IV assessment monitoring constituents based on exceedances of intrawell prediction limits:
  - Barium (RP-4);
  - Selenium (RP-5); and
  - Barium (RP-6).

GWPS were established per 40 CFR 257.95(2). In addition, this ASD was prepared per 40 CFR 257.95(g)(3)(ii), which demonstrated that natural variation in groundwater quality was the source for the exceedances observed of the intrawell prediction limits. Based on the ASD evaluations, none of the potential SSLs were confirmed based on the following lines of reasoning:

- The USEPA primary maximum contaminant levels (MCLs) for barium and selenium under the Clean Water Act are significantly greater than the maximum concentrations for barium and selenium observed at RP-4 through RP-6; and
- The background groundwater quality concentrations for barium and selenium for the Ponds (RP-1 through RP-3) are equivalent to or greater than the highest concentrations detected for RP-4 through RP-6.

The slightly elevated concentrations for barium and selenium observed in the July and September/October 2024 monitoring events are likely related to the following causes:

- Natural variations in groundwater quality, which may be related to fluctuations in seasonal geochemistry conditions in the uppermost aquifer system associated with electrical conductivity (EC), ion strength, oxidation-reduction potential (ORP), pH, and total dissolved solids (TDS).

Based on this ASD successfully documenting that natural variation in groundwater quality is the cause for the exceedances of intrawell prediction limits, the requirements of 40 CFR Part 257.102(c) have been satisfied for closure by removal of CCR for the Ponds.

1.2 Groundwater Monitoring and Statistical Analysis

Based on this successful ASD, the original certification of closure by removal per 40 CFR 257.102(c) was updated and recertified. The updated notification of closure was certified by a Registered Arkansas P.E. and a Registered Arkansas P.G. on November 7, 2024, as required by 40 CFR 257.102(f)(3). The updated certified notification of closure was placed into the Plant's FOR per 40 CFR 257.105(i)(8) and was posted to the Plants's publicly accessible CCR internet site per 40 CFR 257.107(i)(8).

1.2.1 Groundwater Monitoring System

In accordance with the requirements of 40 CFR 257.91, EAL installed a groundwater monitoring system at the Ponds and collected groundwater samples from the CCR groundwater monitoring system wells for laboratory analysis for both Appendix III and Appendix IV CCR constituents and performed statistical analysis of the analytical results. The groundwater monitoring network consists of 10 wells installed into the uppermost aquifer system at the Ponds. Three of the wells are background wells for the Ponds (RP-1 through RP-3), and the remaining seven wells are located around the immediate perimeter of the Ponds (RP-4 through RP-10).

Pursuant to 40 CFR 257.91(f), the groundwater monitoring system was certified by a Registered Arkansas P.E. that stated that the network was designed and constructed to meet the requirements of 40 CFR 257.91 (see Groundwater Monitoring System Certification, (TRC, 2019b)).

A groundwater sampling and analysis program including selection of statistical procedures to evaluate groundwater analytical data was prepared per the CCR Rule (see Groundwater Sampling and Analysis Plan (FTN, 2019)). Eight quarterly background CCR detection monitoring events were initially performed from July 2018 through June 2020 in accordance with 40 CFR 257.93(d) and 257.94(b). The eight quarterly detection monitoring background samples were analyzed for the Appendix III to Part 257 – Constituents for Detection Monitoring and the Appendix IV to Part 257 – Constituents for Assessment Monitoring per 40 CFR 257.94(b). After completion of the initial eight background monitoring events and establishment of background groundwater quality, EAL implemented a semi-annual Detection Monitoring Program with laboratory analysis for the Appendix III to Part 257 – Constituents for Detection Monitoring per the requirements of 40 CFR 257.94.

1.2.2 Statistical Analytical Method

Statistical analysis of the semi-annual detection monitoring analytical data was performed per 40 CFR Part 297.93(f). As described in the Statistical Methods Certification (TRC, October 16, 2017), intrawell statistical evaluation was performed due to the low hydraulic conductivity values and low groundwater velocities for the uppermost aquifer system. As described in the certification:

- "Intrawell statistical evaluations are within well comparisons. In the case of intrawell prediction limits, historical data from within a given well for a given parameter will be used to construct a limit. Compliance points will be compared to the limit to determine whether a change is occurring on a per-well/per-parameter basis. If the assumption of normality is not rejected for the background data set, then a parametric prediction limit will be calculated. If the assumption of normality is rejected for the background data set, then a non-parametric prediction limit will be calculated, in which case, the prediction limit will be based on the highest value in the background data set. For pH, both upper and lower prediction limits will be used for intrawell evaluations."

The final detection monitoring event was performed during June 2022 prior to the closure by removal of CCR for the Ponds. The statistical analyses completed for the second semi-annual 2021 and first semi-annual 2022 sampling events analytical data did not identify SSIs, and the Ponds remained in the Detection Monitoring Program. Therefore, ASDs were not prepared for the Ponds.

Section 2
Objectives and Purpose

Pursuant to 40 CFR 257.95(g)(3)(ii), EAL may demonstrate that a source other than the Ponds caused the potential SSLs or that the SSLs resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Therefore, EAL elected to perform an ASD to evaluate the potential SSLs identified for the third and fourth quarters 2024 Appendix IV assessment monitoring constituents. The objectives and purpose of this ASD are:

- Develop GWPS per 40 CFR 257.95(h), based on the Appendix IV assessment monitoring constituents analytical data for the third and fourth quarters 2024;

- Using the certified statistical method, identify potential SSLs for the analytical data per 40 CFR 257.93(f);

- Perform an alternative source demonstration (ASD) per 40 CFR 257.95(g)(3)(ii); and

- Prepare written documentation of the successful ASD for the potential SSLs identified for the third and fourth quarters 2024 groundwater monitoring events, per 40 CFR 257.95(g)(3)(ii).

Section 3
Hydrogeology and Background Groundwater Quality

3.1 Site Hydrogeology

Progressing from the ground surface to the deepest identified stratigraphic unit a description of the units and hydrogeology of the stratigraphic units underlying the Ponds are as follows:

- **Upper Confining Unit**. An upper confining unit consisting of clays and silts is present at the ground surface down to 23 to 28 feet below ground surface (bgs). Vertical hydraulic conductivity of the upper confining unit is estimated to range from 4.0×10^{-9} to 7.8×10^{-7} centimeters per second (cm/s) based on flexible wall permeability tests (FTN Associates, Ltd. (FTN) 2001, FTN and Golder Associates Inc. 2017).

- **Alluvial Aquifer**. An alluvial aquifer consisting of fine to medium grained sandy sub rounded to sub angular chert gravel with varying amounts of silt and clay is present beneath the upper confining unit. The alluvial aquifer is the uppermost laterally continuous water bearing zone beneath the Ponds and represents the uppermost aquifer pursuant to the CCR Rule. The alluvial aquifer extends to depths of 85 to 90 feet bgs. Hydraulic conductivity of the alluvial aquifer is estimated to range from 2.1×10^{-2} to 6×10^{-2} cm/s (FTN 2015).

- **Bedrock**. Pennsylvanian aged bedrock consisting of chert, limestone, sandstone, and carbonaceous shale and associated residuum at the bedrock surface are present beneath the alluvial aquifer (Albin, 1965). The top of the bedrock is approximately 85 to 90 feet bgs.

3.2 Background Groundwater Quality

Background groundwater quality for the Ponds for the Appendix IV assessment monitoring constituents is monitored by background wells (RP-1, RP-2 and PR-3). A measure of background groundwater quality for the Ponds is represented by a comparison of the laboratory analytical results for the Appendix IV assessment monitoring constituents that have primary maximum contaminant levels (MCLs) established by the United States Environmental Protection Agency (USEPA) under the Clean Water Act. USEPA has established primary MCLs for 12 of the 15 Appendix IV assessment monitoring constituents.

A comparison of the Appendix IV laboratory analytical results for the 12 Appendix IV constituents that have primary MCLs for the third and fourth quarters of 2024 to the USEPA primary MCLs is provided in the table below.

Background Groundwater Water Quality

Constituent	Concentration Range		USEPA Primary MCL
	Low	High	
Antimony (mg/L)			0.006
Arsenic (mg/L)			0.010
Barium (mg/L)	0.0255	0.0647	2
Beryllium (mg/L)			0.004
Cadmium (mg/L)			0.005
Chromium (mg/L)			0.1
Fluoride (mg/L)	<0.15	0.235	4
Lead (mg/L)			0.010
Mercury (mg/L)			0.002
Selenium (mg/L)	<0.002	0.00839	0.05
Thallium (mg/L)			0.002
Radium 226/228 (pCi/L)			5

It should be noted that the USEPA has not established primary drinking water MCLs for cobalt, lithium, and molybdenum; therefore, these Appendix IV CCR constituents were not included in the table above. As shown in the table above, the natural range of groundwater quality within the background wells is consistently less than the USEPA primary drinking water MCLs established by the USEPA under the Clean Water Act.

In addition to the primary MCLs, USEPA has established a secondary MCL under the Clean Water Act for pH of 6.5 to 8.5 standard units (s.u.). pH measurements for the background wells ranged from 5.7 to 6.6 s.u. for the third and fourth quarter 2024 monitoring events, which is slightly less than the secondary MCL range. Finally, it should be noted that USEPA has established both primary and secondary MCLs of 4.0 mg/L for fluoride.

Section 4
Alternate Source Demonstration

EAL performed two groundwater monitoring events in July 2024 and October 2024 (third and fourth quarters 2024) for the Ponds and the samples were analyzed for the Appendix IV assessment monitoring constituents. Based on statistical evaluation of the analytical results, potential SSLs were identified for the following three Appendix IV assessment monitoring constituents based on exceedances of intrawell prediction limits:

- Barium (RP-4);
- Selenium (RP-5); and
- Barium (RP-6).

The laboratory analytical results for both monitoring events and intrawell prediction limits for each of the potential SSLs are summarized in the table below.

Table 1 SSLs – Groundwater Monitoring Event 3Q24 and 4Q24

Well	Constituent	3Q24 (7/24/2024)	4Q24 (10/1/2024)	Intrawell Prediction Limit (µg/L)	Confirmed SSL? (Yes/No)
RP-4	Barium	0.0678	0.0704	0.05198	No
RP-5	Selenium	<0.005	0.00488	0.00278	No
RP-6	Barium	0.0403	0.0502	0.04826	No

Likely causes for the potential SSLs and associated lines of reasoning demonstrating that the three SSLs were not caused by a release of CCR constituents from the Ponds to groundwater are provided in the subsections below.

4.1 Barium at RP-4

Barium was detected at a concentration of 0.0678 mg/L in the July 2024 sample and 0.0704 mg/L in the September 2024 sample. Both analytical results exceed the intrawell prediction limit for

barium at RP-4 of 0.05198 mg/L. These slightly elevated concentrations are not SSLs based on the following lines of reasoning:

- The USEPA primary MCL for barium in drinking water is 2 mg/L; therefore, the concentrations for barium at RP-4 were significantly less than USEPA primary MCL; and

- The background concentrations for barium for the Ponds (RP-1 through RP-3) range from 0.0255 to 0.0647 mg/L. The highest background barium concentration of 0.0647 mg/L is comparable to the highest concentration for barium of 0.0704 mg/L for RP-4; therefore, the highest concentrations for RP-4 are consistent with natural variation in seasonal background groundwater quality at the Ponds.

Therefore, based on the lines of reasoning identified above, the potential SSL for barium at RP-4 was not confirmed. The slightly elevated concentrations for barium for RP-4 observed in July and September 2024 are likely related to the following causes:

- Natural variation in groundwater quality.

- Seasonal geochemistry condition changes in groundwater. pH and EC could affect barium concentrations in groundwater. The relatively high EC in groundwater (high chloride concentration and high TDS) could increase the barium concentration. The seasonal increasing of barium could be a result of the natural geochemistry conditions with low pH and high EC.

4.2 Selenium at RP-5

Selenium was detected at a concentration of 0.00488 mg/L in the September 2024 sample, which exceeds the intrawell prediction limit for selenium of 0.00278 mg/L. This slightly elevated concentration is not an SSL based on the following lines of reasoning:

- The USEPA primary MCL for selenium in drinking water is 0.05 mg/L; therefore, the concentrations for selenium at RP-5 were significantly less than USEPA primary MCL;

- The background concentrations for selenium for the Ponds (RP-1 through RP-3) range from <0.0025 to 0.00839 mg/L. The highest background selenium concentration of 0.00839 mg/L is greater than the highest concentration for selenium of 0.00488 mg/L for RP-4; therefore, the highest concentrations for RP-4 are less than the highest background concentrations identified for the Ponds.

Therefore, the potential selenium SSL at RP-5 was not confirmed. The potential SSL was likely related to the following causes:

- Natural variation in groundwater quality.

- Selenium is naturally present in certain rock types, like shale, siltstone, and phosphate rocks. Seasonal geochemistry condition changes in groundwater such as low pH groundwater, can enhance the solubility of selenium-baring minerals in the surrounding rocks and soils. This could lead to increased concentrations of selenium in groundwater.

4.3 Barium at RP-6

Barium was detected at a concentration of 0.0403 mg/L in the July 2024 sample and 0.0502 mg/L in the September 2024 sample. The September 2024analytical result exceeded the intrawell prediction limit for barium at RP-6 of 0.04826 mg/L. This slightly elevated concentration is not a SSL based on the following lines of reasoning:

- The USEPA primary MCL for barium in drinking water is 2 mg/L; therefore, the concentrations for barium at RP-6 were significantly less than USEPA primary MCL;

- The background concentrations for barium for the Ponds (RP-1 through RP-3) range from 0.0255 to 0.0647 mg/L. The highest background barium concentration of 0.0647 mg/L is greater than the highest concentration for barium of 0.0502 mg/L for RP-6; therefore, the highest concentrations for RP-6 are less than the highest background concentrations identified for the Ponds.

Therefore, the potential SSL for barium at RP-6 was not confirmed. The slightly elevated concentration of barium observed in September 2024 could likely be related to the following causes:

- Natural variation in groundwater quality.

- Seasonal geochemistry condition changes in groundwater. pH and EC could affect barium concentrations in groundwater. The relatively high EC in groundwater (high chloride concentration and high TDS) could increase the barium concentration. The seasonal increasing of barium could be a result of the natural geochemistry conditions with low pH and high EC.

Section 5
Conclusions

The information provided in this ASD was prepared in accordance with 40 CFR 257.95(g)(3)(ii) of the CCR Rule. None of the potential SSLs were confirmed for the two consecutive monitoring events (third and fourth quarters 2024), based on the following lines of reasoning:

- The USEPA primary MCLs for barium and selenium under the Clean Water Act are significantly greater than the maximum concentrations for barium and selenium observed at RP-4 through RP-6; and

- The background groundwater quality concentrations for barium and selenium for the Ponds (RP-1 through RP-3) are equivalent to or greater than the highest concentrations detected for RP-4 through RP-6.

The slightly elevated concentrations for barium and selenium observed in July and September/October 2024 are likely related to the following causes:

- Natural variations in groundwater quality, which may be related to fluctuations in seasonal geochemistry conditions in the uppermost aquifer system associated with EC, ion strength, ORP, pH, and TDS.

Based on this ASD successfully documenting that natural variation in groundwater quality is the cause for the exceedances of intrawell prediction limits, the requirements of 40 CFR Part 257.102(c) have been satisfied for closure by removal of CCR for the Ponds.

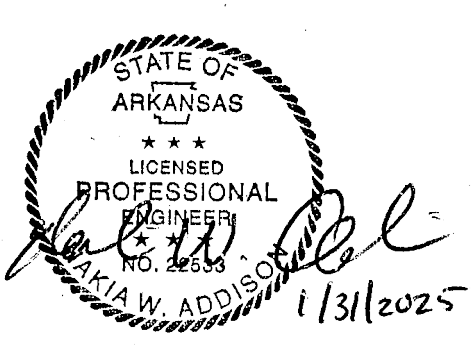
Based on this successful ASD, the original certification of closure by removal per 40 CFR 257.102(c) was updated and recertified. The updated notification of closure was certified by a Registered Arkansas P.E. and a Registered Arkansas P.G. on November 7, 2024, per 40 CFR 257.102(f)(3). The updated certified notification of closure was placed into the Plant's FOR per 40 CFR 257.105(i)(8) and was posted to the Plants's publicly accessible CCR internet site per 40 CFR 257.107(i)(8).

Section 6
Certification

I hereby certify that the alternative source demonstration presented within this document for the Entergy Independence Steam Electric Station Water Recycle Ponds CCR Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e) 2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.94(e) 2.

Name: Nakia W. Addison P.E. **Expiration Date: 12/31/2025**

Company: TRC Environmental Corporation **Date:** 1/31/2025



Section 7
References

Atekwana, E. A., Atekwana, E. A., Rowe, R. S., Werkema, D. D., & Legall, F. D. (2004). The relationship of total dissolved solids measurements to bulk electrical conductivity in an aquifer contaminated with hydrocarbon. *Journal of Applied Geophysics*, *56*(4), 281–294. https://doi.org/10.1016/j.jappgeo.2004.08.003

Olumuyiwa I. Ojo,. (2012). Groundwater: Characteristics, qualities, pollutions and treatments: An overview. *International Journal of Water Resources and Environmental Engineering*, *4*(6), 162–170. https://doi.org/10.5897/ijwree12.038

TRC. 2017. Statistical Methods Certification, White Bluff Steam Electric Generating Station, Redfield, Arkansas. Prepared for Entergy Arkansas Inc. Baton Rouge: TRC Environmental Corporation.

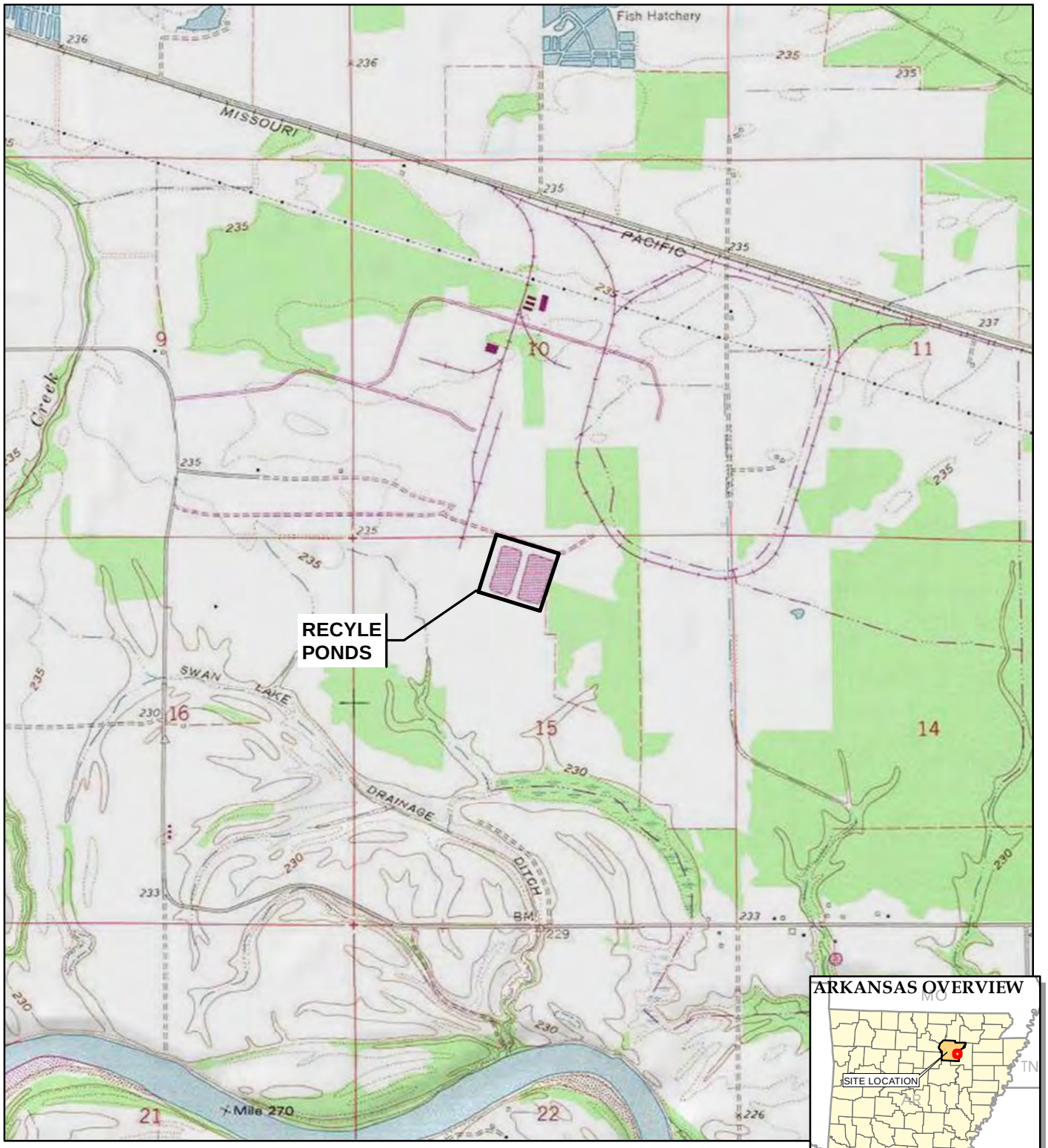
TRC. 2018a. Site Conceptual Model: Entergy White Bluff Plant Coal Ash Disposal Landfill, Redfield, Jefferson County, Arkansas. January 2018.

TRC. 2018b. Groundwater Monitoring System Certification, White Bluff Steam Electric Generating Station, Redfield, Arkansas. Prepared for Entergy Arkansas Inc. Baton Rouge: TRC Environmental Corporation.

USEPA. (2008). Drinking Water Health Advisory For Boron. *Office of Water U.S. Environmental Protection Agency Washington, DC*, *822-R-08–0*. https://www.epa.gov/environmental-topics/water-topics

United States Environmental Protection Agency. 2017. Secondary Drinking Water Standards: Guidance for Nuisance Chemicals, March 8, 2017.

WHO. (2008). *Guidelines for Drinking Water Quality, third ed.* World Health Organization, Geneva.



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

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TRC - GIS

PROJECT:

ENTERGY INDEPENDENCE PLANT
RECYCLE PONDS
NEWARK, INDEPENDENCE COUNTY, ARKANSAS

TITLE:

SITE LOCATION MAP

DRAWN BY:	R. WIXON
CHECKED BY:	C. ALONSO
APPROVED BY:	J. HOUSE
DATE:	JULY 2020
PROJ. NO.:	397572.0000.0000
FILE:	Fig01_397572-001slm.mxd

FIGURE 1

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LEGEND

- RECYCLING POND WELL
- RECYCLING POND BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM DIGITALGLOBE, 2016.

0 300 600 Feet

1 " = 300 '

1:3,600

PROJECT:

ENTERGY INDEPENDENCE PLANT
555 POINT FERRY ROAD
NEWARK, AR

TITLE:

RECYCLING POND WELL LOCATIONS

DRAWN BY:	S. MAJOR	PROJ. NO.:	431479
CHECKED BY:	L. BURRIS		
APPROVED BY:	J. HOUSE		**FIGURE 2**
DATE:	DECEMBER 2020		

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FILE NO.: 431479-001.mxd

Plot Date: 12/29/2020, 14:53:52 PM by SMAJOR -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_3029674\431479-001.mxd
Coordinate System: NAD 1983 StatePlane Arkansas North FIPS 0301 Feet (Foot US)
Map Rotation: 16.75
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