Entergy Arkansas, LLC
White Bluff Steam Electric Station
Landfill Cells 1-4

2020 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:

PO Box 551
Little Rock, Arkansas 72203

Prepared by:

8550 United Plaza Blvd. Suite 502
Baton Rouge, LA 70809

January 29, 2021

TABLE OF CONTENTS

LIST OF APPENDICES

EXECUTIVE SUMMARY

Entergy Arkansas, LLC (Entergy), operates a coal ash disposal landfill (Landfill) for the disposal of coal combustion residuals (CCR) at the White Bluff Steam Electric Station (Plant) located near Redfield, Arkansas. The Landfill receives CCR generated from the combustion of coal at the Plant. Management of the CCR at the Landfill 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 Plant conducted two semi-annual detection monitoring events in 2020 for the Landfill CCR unit monitoring well network per 40 CFR § 257.94. The statistical analyses completed for the second semi-annual 2019 and first semi-annual 2020 sampling event analytical data identified potential statistically significant increases (SSIs); therefore, alternate source demonstrations (ASDs) were performed for both semi-annual detection monitoring events and are attached to this report. Each of the ASDs performed were successful which resulted in the Landfill continuing to operate under the detection monitoring program. The Landfill CCR unit operated under the detection monitoring program (40 CFR § 257.94) during the duration of 2020.

1. INTRODUCTION

Entergy Arkansas, LLC (Entergy), operates the Landfill for the disposal of CCRs at the Plant located near Redfield, Arkansas (Lat: 34.421658 / Long: -92.139455). The Landfill receives CCR generated from the combustion of coal at the Plant. The CCR Landfill is managed in accordance with the national criteria established by the CCR Rule. Entergy installed a groundwater monitoring system at the Landfill 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, Entergy must prepare an annual report that provides information regarding the groundwater monitoring and corrective action program at the Landfill.

2. GROUNDWATER MONITORING SYSTEM

The Landfill's groundwater monitoring system consists of 23 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 2020

Entergy did not install any new wells or decommission any existing wells in the certified groundwater monitoring system during 2020.

4. GROUNDWATER MONITORING DATA

In accordance with §257.90(e)(3), all monitoring data obtained under §§257.90 through 257.98 during 2020 are provided in Appendix B along with a summary of the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was collected as part of detection or assessment monitoring.

5. STATUS SUMMARY OF THE 2020 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring was performed in accordance with the detection monitoring requirements of §257.94. A summary of activities related to groundwater detection monitoring performed during 2020 is provided in the list below:

- In accordance with §257.94(b), semiannual detection monitoring was performed during the first half (March) and second half (December) of 2020 for analysis of Appendix III parameters (boron, calcium, chloride, fluoride, pH, sulfate and total dissolved solids (TDS)).

- Statistical evaluation of the semiannual detection 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 Entergy's CCR Rule Compliance Data and Information website.

- In 2020, Entergy completed a successful alternate source demonstration (ASD) per §257.94(e)(2) in response to potential statistically significant increases (SSIs) identified during the statistical evaluation of the data generated from the second half 2019 semi-annual detection monitoring event. The ASD was certified by an Arkansas-registered professional engineer. As required by §257.94(e)(2), a copy of the ASD is included in Appendix C. Based on the successful evaluation conducted and results presented in the ASD, Entergy continued with detection monitoring in accordance with §257.94.

- The first half 2020 semi-annual detection monitoring sampling was performed during March 2020. Based on statistical evaluation of the data; resampling was performed during April 2020 to verify potential statistical exceedances. Resample results confirmed potential SSIs for boron, calcium, chloride, fluoride, and total dissolved solids (TDS).

- Entergy completed a successful ASD per §257.94(e)(2) for the potential SSIs identified during the first half 2020 semi-annual detection monitoring event. The ASD was certified by an Arkansas-registered professional engineer. As required by §257.94(e)(2), a copy of the ASD is included in Appendix C. Entergy continued with detection monitoring in accordance with §257.94.

- The second half 2020 semi-annual detection monitoring sampling was performed during December 2020. Statistical evaluation of the data will be performed during 2021 to determine if any SSIs are identified in accordance with §257.93(h).

- No problems were encountered during 2020 regarding the detection monitoring and corrective action system. Therefore, no actions were required to modify the system.

- The Landfill CCR unit remained in detection monitoring for the duration of 2020.

6. PROJECTED ACTIVITIES FOR 2021

Planned activities for the program during 2021 are listed below:

- Statistical evaluation of the second half 2020 detection monitoring sampling data will be performed during 2021 to determine if any SSIs are identified.
- Semi-annual detection monitoring is planned for June and December 2021.

APPENDIX A
SITE MAP

LEGEND

- STRATUM I BACKROUND WELL
- STRATUM I MONITORING WELL
- STRATUM III BACKROUND WELL
- STRATUM III MONITORING WELL
- STRATUM III PIEZOMETER APPROX.
- EXTENT OF CLOSED CADL
- CCR UNIT BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2018.
2. COAL ASH DISPOSAL LANDFILL (CADL)

0 400 800 Feet

1 " = 400 '

1:4,800

PROJECT:

ENTERGY WHITE BLUFF PLANT
1100 WHITE BLUFF ROAD
REDFIELD, ARKANSAS

TITLE:

CADL EXTENT AND CCR GROUNDWATER MONITORING LOCATIONS

DRAWN BY:	S. MAJOR	PROJ. NO.:	341458
CHECKED BY:	S. SELLWOOD		
APPROVED BY:	J. HOUSE		**FIGURE 1**
DATE:	OCTOBER 2020		

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

FILE NO.: 341458-002.mxd

TRC - GIS
Plot Date: 10/7/2020, 15:35:24 PM by SMAJOR -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\341458-002.mxd
Coordinate System: NAD 1983 StatePlane Arkansas South FIPS 0302 Feet (Foot US)
Map Rotation: 0

APPENDIX B
GROUNDWATER MONITORING DATA

Sampling Schedule, Entergy White Bluff CADL Network			
	Detection Monitoring Sampling Dates and Wells Sampled		
Well ID	3/25-4/6/2020	12/1-12/15/2020	Number of Samples Collected
MW-101S	X	X	2
MW-102S	X	X	2
MW-103S	X	X	2
MW-104S	X	X	2
MW-105S	X	X	2
MW-106S	X	X	2
MW-110S	X	X	2
MW-111S	X	X	2
MW-101D	X	X	2
MW-102D	X	X	2
MW-103D	X	X	2
MW-104D	X	X	2
MW-105D	X	X	2
MW-106D	X	X	2
MW-107D	X	X	2
MW-108D	X	X	2
MW-109D	X	X	2
MW-110D	X	X	2
MW-112D	X	X	2
MW-113D	X	X	2
MW-114D	X	X	2
MW-115D	X	X	2
MW-118D	X	X	2

Notes: All samples collected through 2020 were part of the detection monitoring program. No samples collected through 2020 were part of an assessment monitoring program.

Field pH Data Collected during 2020, Entergy White Bluff CADL network		
Well ID	Date Collected	pH (su)
MW-101S	3/26/2020	6.09
	12/9/2020	5.69
MW-102S	3/26/2020	5.60
	12/7/2020	5.75
MW-103S	3/26/2020	5.58
	12/1/2020	5.17
MW-104S	3/26/2020	5.14
	12/2/2020	5.30
MW-105S	3/26/2020	5.98
	12/2/2020	6.24
MW-106S	3/25/2020	4.16
	12/2/2020	4.02
MW-110S	3/27/2020	5.62
	12/2/2020	5.14
MW-111S	3/25/2020	4.42
	12/2/2020	3.87
MW-101D	3/26/2020	6.41
	12/9/2020	6.93
MW-102D	3/26/2020	6.41
	12/10/2020	7.15
MW-103D	3/27/2020	7.63
	12/10/2020	7.58
MW-104D	3/27/2020	7.20
	12/11/2020	7.17
MW-105D	3/27/2020	7.14
	12/9/2020	7.45

Field pH Data Collected during 2020, Entergy White Bluff CADL network		
Well ID	Date Collected	pH (su)
MW-106D	3/27/2020	7.29
	12/12/2020	7.46
MW-107D	3/27/2020	7.17
	12/12/2020	7.34
MW-108D	3/27/2020	7.17
	12/4/2020	8.17
MW-109D	3/27/2020	7.25
	12/11/2020	7.23
MW-110D	3/25/2020	7.24
	12/8/2020	7.93
MW-112D	3/25/2020	7.38
	12/15/2020	6.83
MW-113D	3/25/2020	6.61
	12/11/2020	6.77
MW-114D	3/25/2020	7.43
	12/4/2020	7.97
MW-115D	3/25/2020	7.37
	12/15/2020	6.88
MW-118D	4/6/2020	6.75
	12/9/2020	6.77

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

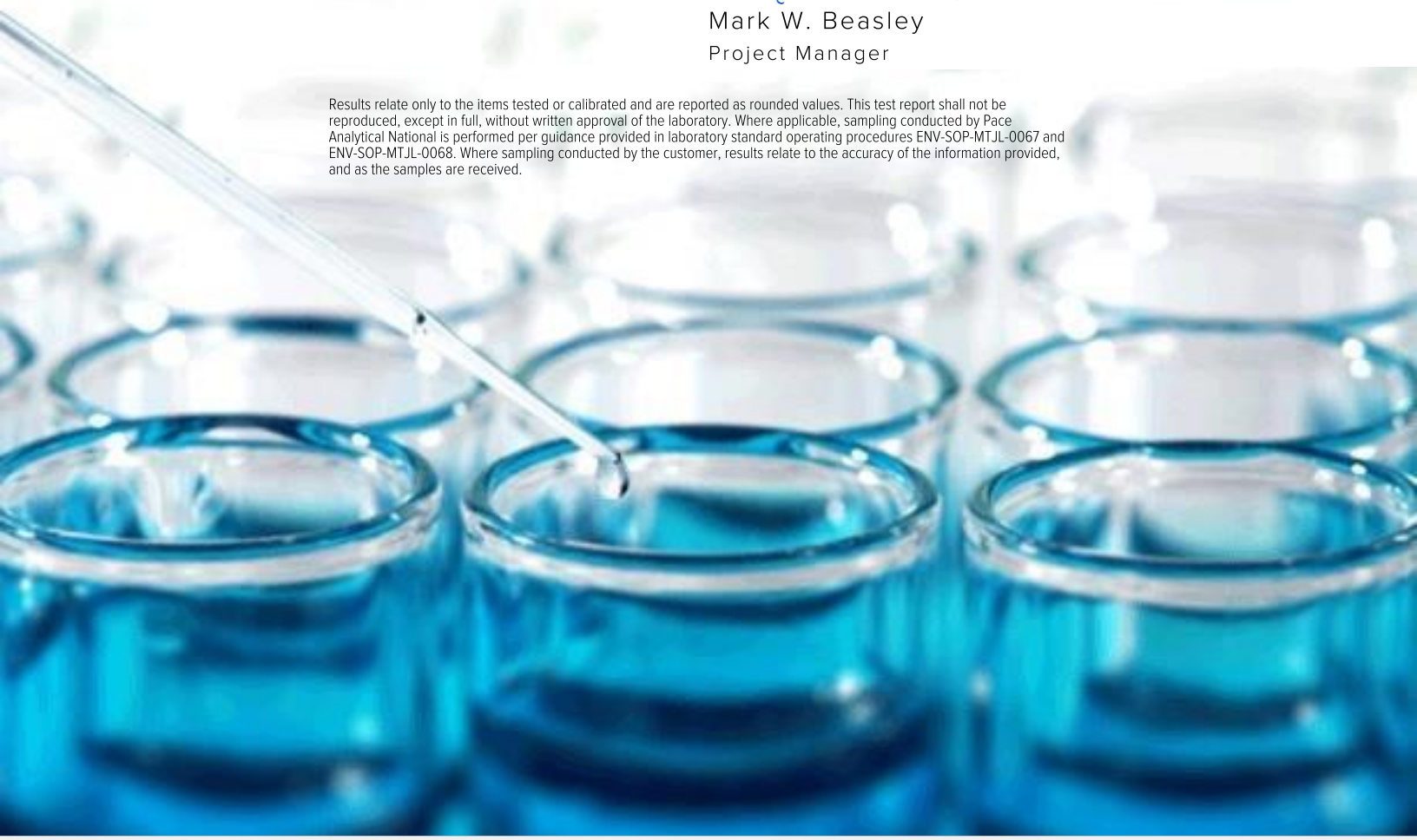
April 06, 2020

Terracon - Little Rock, AR

Sample Delivery Group:	L1203808
Samples Received:	03/28/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHIT BLUFF
Report To:	David Jaros 25809 I-30 Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



MW 101 D L1203808-01 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 16:40 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452281	1	03/31/20 13:38	03/31/20 14:29	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 00:06	03/31/20 00:06	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:37	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:38	LD	Mt. Juliet, TN

MW 101 S L1203808-02 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 16:00 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452281	1	03/31/20 13:38	03/31/20 14:29	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 00:17	03/31/20 00:17	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:39	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:42	LD	Mt. Juliet, TN

MW 102 D L1203808-03 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 17:11 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1454794	1	04/02/20 17:31	04/02/20 22:31	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 00:28	03/31/20 00:28	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:42	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:45	LD	Mt. Juliet, TN

MW 103 S L1203808-04 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 12:00 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452281	1	03/31/20 13:38	03/31/20 14:29	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 00:38	03/31/20 00:38	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:45	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:49	LD	Mt. Juliet, TN

MW 104 S L1203808-05 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 13:45 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1454794	1	04/02/20 17:31	04/02/20 22:31	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 00:49	03/31/20 00:49	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:47	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:52	LD	Mt. Juliet, TN

MW 105 S L1203808-06 GW

Collected by: Matt Acree | Collected date/time: 03/26/20 13:03 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452281	1	03/31/20 13:38	03/31/20 14:29	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 01:00	03/31/20 01:00	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:50	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:56	LD	Mt. Juliet, TN

MW 106 S L1203808-07 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 16:40 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 01:33	03/31/20 01:33	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	10	03/31/20 02:05	03/31/20 02:05	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 16:53	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 15:59	LD	Mt. Juliet, TN

MW 110 D L1203808-08 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 11:10 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 02:16	03/31/20 02:16	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 17:01	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:03	LD	Mt. Juliet, TN

MW 111 S L1203808-09 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 15:52 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 02:38	03/31/20 02:38	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	10	03/31/20 02:49	03/31/20 02:49	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 17:03	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:06	LD	Mt. Juliet, TN

MW 112 D L1203808-10 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 12:40 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 03:00	03/31/20 03:00	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 17:06	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:19	LD	Mt. Juliet, TN

MW 113 D L1203808-11 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 14:48 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 03:21	03/31/20 03:21	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	10	03/31/20 03:32	03/31/20 03:32	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 17:09	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:22	LD	Mt. Juliet, TN

MW 114 D L1203808-12 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 14:00 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 03:43	03/31/20 03:43	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452442	1	03/30/20 11:02	03/30/20 17:11	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:25	LD	Mt. Juliet, TN

MW 115 D L1203808-13 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 12:15 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 04:26	03/31/20 04:26	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452722	1	03/31/20 08:13	03/31/20 14:13	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:29	LD	Mt. Juliet, TN

DUP L1203808-14 GW

Collected by: Matt Acree | Collected date/time: 03/25/20 12:42 | Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1452276	1	03/30/20 07:09	03/30/20 08:21	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1452837	1	03/31/20 11:00	03/31/20 11:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1452362	1	03/31/20 04:37	03/31/20 04:37	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1452722	1	03/31/20 08:13	03/31/20 14:16	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1452448	1	03/30/20 11:49	03/30/20 16:32	LD	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	263000		2820	10000	1	03/31/2020 14:29	WG1452281

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.88	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-01 WG1452837: 6.88 at 20.5C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6250		51.9	1000	1	03/31/2020 00:06	WG1452362
Fluoride	125		9.90	100	1	03/31/2020 00:06	WG1452362
Sulfate	41000		77.4	5000	1	03/31/2020 00:06	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	62.1	J	12.6	200	1	03/30/2020 16:37	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	26900		46.0	1000	1	03/30/2020 15:38	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	261000		2820	10000	1	03/31/2020 14:29	WG1452281

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.64	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-02 WG1452837: 6.64 at 20.5C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7450		51.9	1000	1	03/31/2020 00:17	WG1452362
Fluoride	105		9.90	100	1	03/31/2020 00:17	WG1452362
Sulfate	44400		77.4	5000	1	03/31/2020 00:17	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	43.3	J	12.6	200	1	03/30/2020 16:39	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	36300		46.0	1000	1	03/30/2020 15:42	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	463000		2820	10000	1	04/02/2020 22:31	WG1454794

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.60	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-03 WG1452837: 7.6 at 20.4C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9550		51.9	1000	1	03/31/2020 00:28	WG1452362
Fluoride	114		9.90	100	1	03/31/2020 00:28	WG1452362
Sulfate	55800		77.4	5000	1	03/31/2020 00:28	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	278		12.6	200	1	03/30/2020 16:42	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	76100		46.0	1000	1	03/30/2020 15:45	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	134000		2820	10000	1	03/31/2020 14:29	WG1452281

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.13	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-04 WG1452837: 6.13 at 20.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	3140		51.9	1000	1	03/31/2020 00:38	WG1452362
Fluoride	119		9.90	100	1	03/31/2020 00:38	WG1452362
Sulfate	31900		77.4	5000	1	03/31/2020 00:38	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	186	J	12.6	200	1	03/30/2020 16:45	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	10300		46.0	1000	1	03/30/2020 15:49	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	269000		2820	10000	1	04/02/2020 22:31	WG1454794

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.57	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-05 WG1452837: 5.57 at 20.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	3950		51.9	1000	1	03/31/2020 00:49	WG1452362
Fluoride	87.4	J	9.90	100	1	03/31/2020 00:49	WG1452362
Sulfate	74600		77.4	5000	1	03/31/2020 00:49	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	853		12.6	200	1	03/30/2020 16:47	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	20700		46.0	1000	1	03/30/2020 15:52	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	238000		2820	10000	1	03/31/2020 14:29	WG1452281

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.55	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-06 WG1452837: 6.55 at 20.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4990		51.9	1000	1	03/31/2020 01:00	WG1452362
Fluoride	107		9.90	100	1	03/31/2020 01:00	WG1452362
Sulfate	44500		77.4	5000	1	03/31/2020 01:00	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	263		12.6	200	1	03/30/2020 16:50	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	24900		46.0	1000	1	03/30/2020 15:56	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	769000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	4.31	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-07 WG1452837: 4.31 at 19.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9010		51.9	1000	1	03/31/2020 01:33	WG1452362
Fluoride	519		9.90	100	1	03/31/2020 01:33	WG1452362
Sulfate	497000		774	50000	10	03/31/2020 02:05	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	5860		12.6	200	1	03/30/2020 16:53	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	31600		46.0	1000	1	03/30/2020 15:59	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	338000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.78	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-08 WG1452837: 7.78 at 19.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6900		51.9	1000	1	03/31/2020 02:16	WG1452362
Fluoride	117		9.90	100	1	03/31/2020 02:16	WG1452362
Sulfate	26400		77.4	5000	1	03/31/2020 02:16	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	298		12.6	200	1	03/30/2020 17:01	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	43900		46.0	1000	1	03/30/2020 16:03	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	735000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	4.68	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-09 WG1452837: 4.68 at 19.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	5970		51.9	1000	1	03/31/2020 02:38	WG1452362
Fluoride	330		9.90	100	1	03/31/2020 02:38	WG1452362
Sulfate	442000		774	50000	10	03/31/2020 02:49	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	4250		12.6	200	1	03/30/2020 17:03	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	59000		46.0	1000	1	03/30/2020 16:06	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	249000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.65	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-10 WG1452837: 7.65 at 19.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4780		51.9	1000	1	03/31/2020 03:00	WG1452362
Fluoride	U		9.90	100	1	03/31/2020 03:00	WG1452362
Sulfate	835	J	77.4	5000	1	03/31/2020 03:00	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	261		12.6	200	1	03/30/2020 17:06	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	31800		46.0	1000	1	03/30/2020 16:19	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	1100000		3750	13300	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.41	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-11 WG1452837: 7.41 at 19.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	13700		51.9	1000	1	03/31/2020 03:21	WG1452362
Fluoride	87.9	J	9.90	100	1	03/31/2020 03:21	WG1452362
Sulfate	648000		774	50000	10	03/31/2020 03:32	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	458		12.6	200	1	03/30/2020 17:09	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	171000		46.0	1000	1	03/30/2020 16:22	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	288000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.84	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-12 WG1452837: 7.84 at 19.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8070		51.9	1000	1	03/31/2020 03:43	WG1452362
Fluoride	110		9.90	100	1	03/31/2020 03:43	WG1452362
Sulfate	14800		77.4	5000	1	03/31/2020 03:43	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	256		12.6	200	1	03/30/2020 17:11	WG1452442

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	45100		46.0	1000	1	03/30/2020 16:25	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	361000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.73	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-13 WG1452837: 7.73 at 19.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	5030		51.9	1000	1	03/31/2020 04:26	WG1452362
Fluoride	122		9.90	100	1	03/31/2020 04:26	WG1452362
Sulfate	3080	J	77.4	5000	1	03/31/2020 04:26	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	341		12.6	200	1	03/31/2020 14:13	WG1452722

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	48300		46.0	1000	1	03/30/2020 16:29	WG1452448

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	246000		2820	10000	1	03/30/2020 08:21	WG1452276

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.65	T8	1	03/31/2020 11:00	WG1452837

Sample Narrative:

L1203808-14 WG1452837: 7.65 at 19C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	5030		51.9	1000	1	03/31/2020 04:37	WG1452362
Fluoride	127		9.90	100	1	03/31/2020 04:37	WG1452362
Sulfate	754	J	77.4	5000	1	03/31/2020 04:37	WG1452362

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	263		12.6	200	1	03/31/2020 14:16	WG1452722

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	32100		46.0	1000	1	03/30/2020 16:32	WG1452448

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
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.
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.
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.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

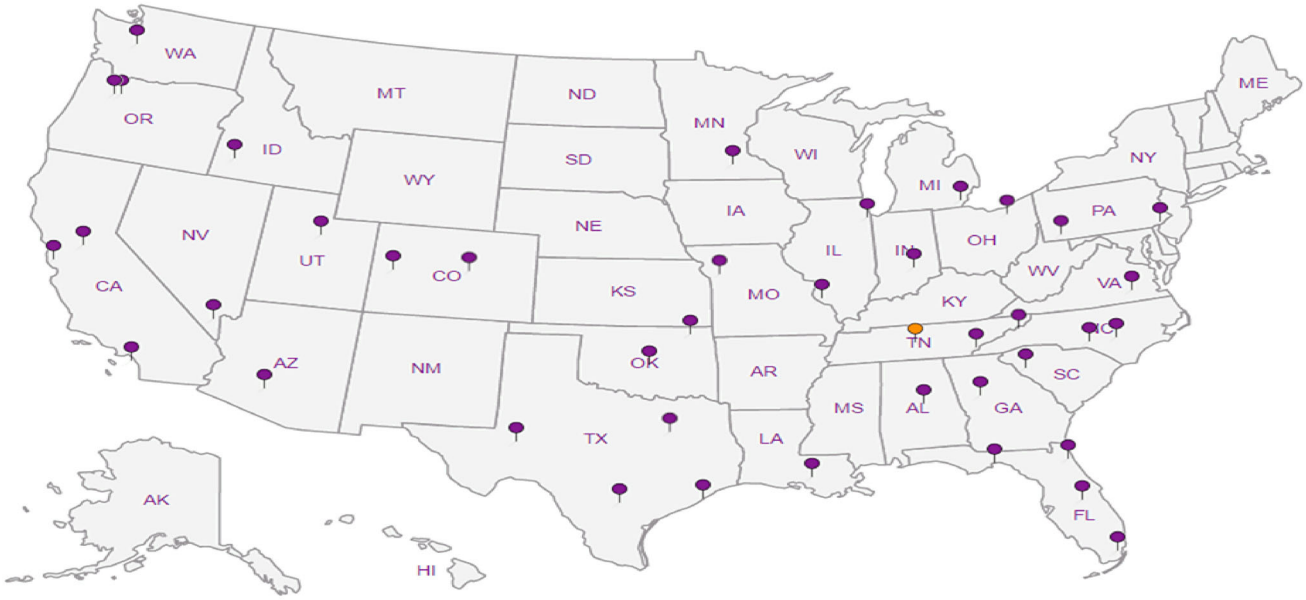
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Report to: David Jaros

Email To: David.Jaros@terracon.com;JHouse@trccompanies.

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292
Fax:

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW 101 D	Grab	GW		3-26-20	1640	3	1	1	1		-01
MW 101 S	Grab	GW		3-26-20	1600	3	1	1	1		-02
MW 102 D	Grab	GW		3-26-20	1711	3	1	1	1		-03
MW 103 S	Grab	GW		3-26-20	1200	3	1	1	1		-04
MW 104 S	Grab	GW		3-26-20	1345	3	1	1	1		-05
MW 105 S	Grab	GW		3-26-20	1303	3	1	1	1		-06
MW 106 S	Grab	GW		3-25-20	1640	3	1	1	1		-07
MW 110 D	Grab	GW		3-25-20	1110	3	1	1	1		-08
MW 111 S	Grab	GW		3-25-20	1552	3	1	1	1		-09
MW 112 D	Grab	GW		3-25-20	1240	3	1	1	1		-10

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

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

SDG # L1203868

A047

Acctnum: GENENLAR

Template: T164843

Prelogin: P762351

PM: 134 - Mark W. Beasley

PB: LC 3/11/20

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)	Trip Blank Received: Yes / No HCl / MeoH TBR
Kim Tr	3-27-20	11:05AM		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 0,8+0,1:0.9 12
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7-28-20 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF OK

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Report to: David Jaros

Email To: David.Jaros@terracon.com;JHouse@trccompanies.

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292
Fax:

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Reece

Site/Facility ID # White Bluff

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3 (2)	Remarks	Sample # (lab only)
MW 113 D	Grab	GW		3-25-20	1448	3	1	1	1		-11
MW 114 D	Grab	GW		3-25-20	1400	3	1	1	1		-12
MW 115 D	Grab	GW		3-25-20	1215	3	1	1	1		-13
Dup	Grab	GW		3-25-20	1242	3	1	1	1		-14

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1203868

Table #

Acctnum: GENENLAR
Template: T164843
Prelogin: P762351
PM: 134 - Mark W. Beasley
PB: MC 3/16

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)	Trip Blank Received: Yes / No HCL / MeoH TBR
Matt Reece	3-27-20	11:05AM		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 12
				0.8+0.1=0.9
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3-28-20 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

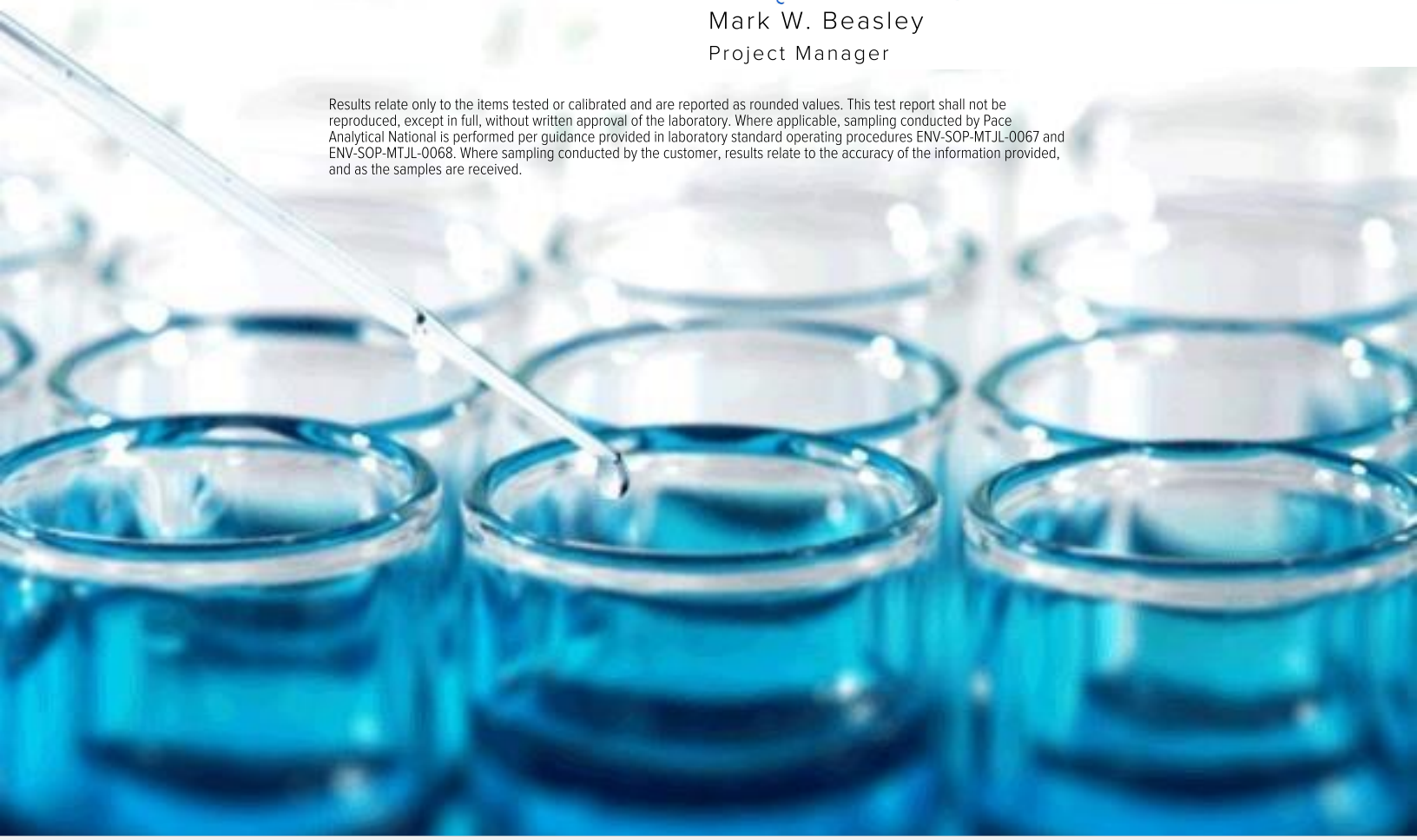
April 06, 2020

Terracon - Little Rock, AR

Sample Delivery Group:	L1204271
Samples Received:	03/31/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHITE BLUFF
Report To:	David Jaros 25809 I-30 Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



MW-103D L1204271-01 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 14:55 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453666	1	04/01/20 18:10	04/01/20 19:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 03:03	04/01/20 03:03	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	5	04/01/20 14:36	04/01/20 14:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 07:43	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:38	LAT	Mt. Juliet, TN

MW-104D L1204271-02 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 15:45 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453666	1	04/01/20 18:10	04/01/20 19:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 03:20	04/01/20 03:20	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 07:46	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 10:23	LAT	Mt. Juliet, TN

MW-105D L1204271-03 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 14:10 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453666	1	04/01/20 18:10	04/01/20 19:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 03:45	04/01/20 03:45	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 07:48	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:42	LAT	Mt. Juliet, TN

MW-106D L1204271-04 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 13:40 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453666	1	04/01/20 18:10	04/01/20 19:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 04:03	04/01/20 04:03	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 07:51	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:45	LAT	Mt. Juliet, TN

MW-107D L1204271-05 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 13:10 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453666	1	04/01/20 18:10	04/01/20 19:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 04:21	04/01/20 04:21	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 07:59	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:49	LAT	Mt. Juliet, TN

MW-108D L1204271-06 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 11:26 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 04:39	04/01/20 04:39	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:01	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:53	LAT	Mt. Juliet, TN

MW-109D L1204271-07 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 12:30 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 04:57	04/01/20 04:57	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:04	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 12:56	LAT	Mt. Juliet, TN

MW-110S L1204271-08 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 10:45 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 05:15	04/01/20 05:15	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	5	04/01/20 14:53	04/01/20 14:53	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:07	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 13:19	LAT	Mt. Juliet, TN

MW-102S L1204271-09 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 15:15 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 06:08	04/01/20 06:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:10	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 13:23	LAT	Mt. Juliet, TN

DUP L1204271-10 GW

Collected by: Matt Acree | Collected date/time: 03/27/20 10:50 | Received date/time: 03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 06:26	04/01/20 06:26	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	5	04/01/20 15:11	04/01/20 15:11	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:12	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 13:27	LAT	Mt. Juliet, TN

FB L1204271-11 GW

Collected by	Collected date/time	Received date/time
Matt Acree	03/27/20 10:37	03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 06:44	04/01/20 06:44	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:15	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 13:30	LAT	Mt. Juliet, TN

FB L1204271-12 GW

Collected by	Collected date/time	Received date/time
Matt Acree	03/27/20 15:40	03/31/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1453667	1	04/01/20 18:12	04/01/20 20:11	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1453938	1	04/01/20 17:34	04/01/20 17:34	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1453579	1	04/01/20 07:02	04/01/20 07:02	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1453559	1	04/01/20 00:24	04/01/20 08:18	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1453380	1	03/31/20 20:11	04/01/20 13:34	LAT	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	407000		2820	10000	1	04/01/2020 19:49	WG1453666

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.13	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-01 WG1453938: 8.13 at 21.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	11600		51.9	1000	1	04/01/2020 03:03	WG1453579
Fluoride	217		9.90	100	1	04/01/2020 03:03	WG1453579
Sulfate	94000		387	25000	5	04/01/2020 14:36	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	242		12.6	200	1	04/01/2020 07:43	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	45000		46.0	1000	1	04/01/2020 12:38	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	304000		2820	10000	1	04/01/2020 19:49	WG1453666

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.81	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-02 WG1453938: 7.81 at 20.9C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9720		51.9	1000	1	04/01/2020 03:20	WG1453579
Fluoride	105		9.90	100	1	04/01/2020 03:20	WG1453579
Sulfate	13400		77.4	5000	1	04/01/2020 03:20	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	211		12.6	200	1	04/01/2020 07:46	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	47600		46.0	1000	1	04/01/2020 10:23	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	290000		2820	10000	1	04/01/2020 19:49	WG1453666

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.66	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-03 WG1453938: 7.66 at 20.6C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7300		51.9	1000	1	04/01/2020 03:45	WG1453579
Fluoride	118		9.90	100	1	04/01/2020 03:45	WG1453579
Sulfate	7020		77.4	5000	1	04/01/2020 03:45	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	260		12.6	200	1	04/01/2020 07:48	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	53200		46.0	1000	1	04/01/2020 12:42	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	333000		2820	10000	1	04/01/2020 19:49	WG1453666

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	9.09	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-04 WG1453938: 9.09 at 20.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	5530		51.9	1000	1	04/01/2020 04:03	WG1453579
Fluoride	117		9.90	100	1	04/01/2020 04:03	WG1453579
Sulfate	8850		77.4	5000	1	04/01/2020 04:03	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	291		12.6	200	1	04/01/2020 07:51	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	51300		46.0	1000	1	04/01/2020 12:45	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	401000		2820	10000	1	04/01/2020 19:49	WG1453666

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.18	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-05 WG1453938: 8.18 at 20.5C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	16000		51.9	1000	1	04/01/2020 04:21	WG1453579
Fluoride	116		9.90	100	1	04/01/2020 04:21	WG1453579
Sulfate	34200		77.4	5000	1	04/01/2020 04:21	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	256		12.6	200	1	04/01/2020 07:59	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	63500		46.0	1000	1	04/01/2020 12:49	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	575000		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.60	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-06 WG1453938: 7.6 at 21.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	15300		51.9	1000	1	04/01/2020 04:39	WG1453579
Fluoride	112		9.90	100	1	04/01/2020 04:39	WG1453579
Sulfate	61200		77.4	5000	1	04/01/2020 04:39	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	324		12.6	200	1	04/01/2020 08:01	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	83000		46.0	1000	1	04/01/2020 12:53	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	382000		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.90	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-07 WG1453938: 7.9 at 21C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7280		51.9	1000	1	04/01/2020 04:57	WG1453579
Fluoride	119		9.90	100	1	04/01/2020 04:57	WG1453579
Sulfate	62200		77.4	5000	1	04/01/2020 04:57	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	306		12.6	200	1	04/01/2020 08:04	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	51900		46.0	1000	1	04/01/2020 12:56	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	412000		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.14	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-08 WG1453938: 6.14 at 20.7C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7850		51.9	1000	1	04/01/2020 05:15	WG1453579
Fluoride	204		9.90	100	1	04/01/2020 05:15	WG1453579
Sulfate	162000		387	25000	5	04/01/2020 14:53	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1300		12.6	200	1	04/01/2020 08:07	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	24200		46.0	1000	1	04/01/2020 13:19	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	173000		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.44	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-09 WG1453938: 6.44 at 21C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6550		51.9	1000	1	04/01/2020 06:08	WG1453579
Fluoride	117		9.90	100	1	04/01/2020 06:08	WG1453579
Sulfate	16600		77.4	5000	1	04/01/2020 06:08	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	30.5	J	12.6	200	1	04/01/2020 08:10	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	8740		46.0	1000	1	04/01/2020 13:23	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	412000		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.44	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-10 WG1453938: 6.44 at 20.6C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7840		51.9	1000	1	04/01/2020 06:26	WG1453579
Fluoride	210		9.90	100	1	04/01/2020 06:26	WG1453579
Sulfate	163000		387	25000	5	04/01/2020 15:11	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1310		12.6	200	1	04/01/2020 08:12	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	23900		46.0	1000	1	04/01/2020 13:27	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	U		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.70	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-11 WG1453938: 6.7 at 20.7C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	327	B J	51.9	1000	1	04/01/2020 06:44	WG1453579
Fluoride	52.2	J	9.90	100	1	04/01/2020 06:44	WG1453579
Sulfate	467	J	77.4	5000	1	04/01/2020 06:44	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		12.6	200	1	04/01/2020 08:15	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	U		46.0	1000	1	04/01/2020 13:30	WG1453380

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	U		2820	10000	1	04/01/2020 20:11	WG1453667

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.64	T8	1	04/01/2020 17:34	WG1453938

Sample Narrative:

L1204271-12 WG1453938: 6.64 at 20.4C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	338	B J	51.9	1000	1	04/01/2020 07:02	WG1453579
Fluoride	U		9.90	100	1	04/01/2020 07:02	WG1453579
Sulfate	454	J	77.4	5000	1	04/01/2020 07:02	WG1453579

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		12.6	200	1	04/01/2020 08:18	WG1453559

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	U		46.0	1000	1	04/01/2020 13:34	WG1453380

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
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.
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.
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.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

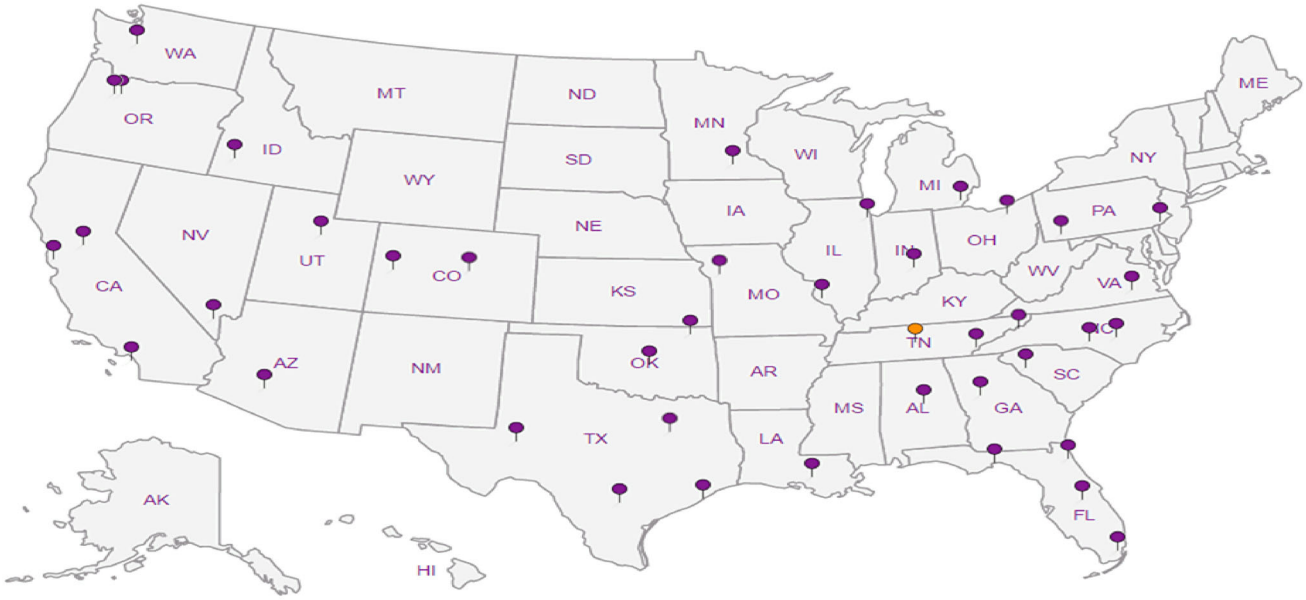
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Report to: David Jaros

Email To: David.Jaros@terracon.com;JHouse@trccompanies.

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292
Fax:

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-103D	Grab	GW		3.27.20	1455		1	1	1		-01
MW-104D	Grab	GW		3.27.20	1545		1	1	1		-02
MW-105D	Grab	GW		3.27.20	1410		1	1	1		-03
MW-106D	Grab	GW		3.27.20	1340		1	1	1		-04
MW-107D	Grab	GW		3.27.20	1310		1	1	1		-05
MW-108D	Grab	GW		3.27.20	1126		1	1	1		-06
MW-109D	Grab	GW		3.27.20	1230		1	1	1		-07
MW-110S	Grab	GW		3.27.20	1045		1	1	1		-08
MW-102S	Grab	GW		3.30.20	1515						-09
		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 # 166357516070

Relinquished by: (Signature) — Date: 3.30.20 — Time: 1302 — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 4.7 °C Bottles Received: 36
.9+.2=1.1

Date: 3-31-20 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

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

SDG # 120427
H193
Table
Acctnum: GENENLAR
Template: T164843
Prelogin: P762351
PM: 134 - Mark W. Beasley
PB: LC 3/16
Shipped Via: FedEX Ground

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Report to: David Jaros

Email To: David.Jaros@terracon.com;JHouse@trccompanies.

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292
Fax:

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Horee

Site/Facility ID # White Bluff

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 ___

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # 120427

Table #

Acctnum: GENENLAR
Template: T164843
Prelogin: P762351
PM: 134 - Mark W. Beasley
PB: LC 3/16

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
Dup	Grab	GW		3.27.20	1050		1	1	1		-10
FB	Grab	GW		3.27.20	1037		1	1	1		-11
FB	Grab	GW		3.27.20	1540		1	1	1		-12
		GW									
		GW									
		GW									
		GW									
		GW									
		GW									
		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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Matt Horee	3.30.20	1305			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.7 °C 4.2=1.1 Bottles Received: 36	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/1/20 Time: 0870	Hold: / Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 14, 2020

Terracon - Little Rock, AR

Sample Delivery Group:	L1207020
Samples Received:	04/08/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHITE BLUFF
Report To:	David Jaros 25809 I-30 Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

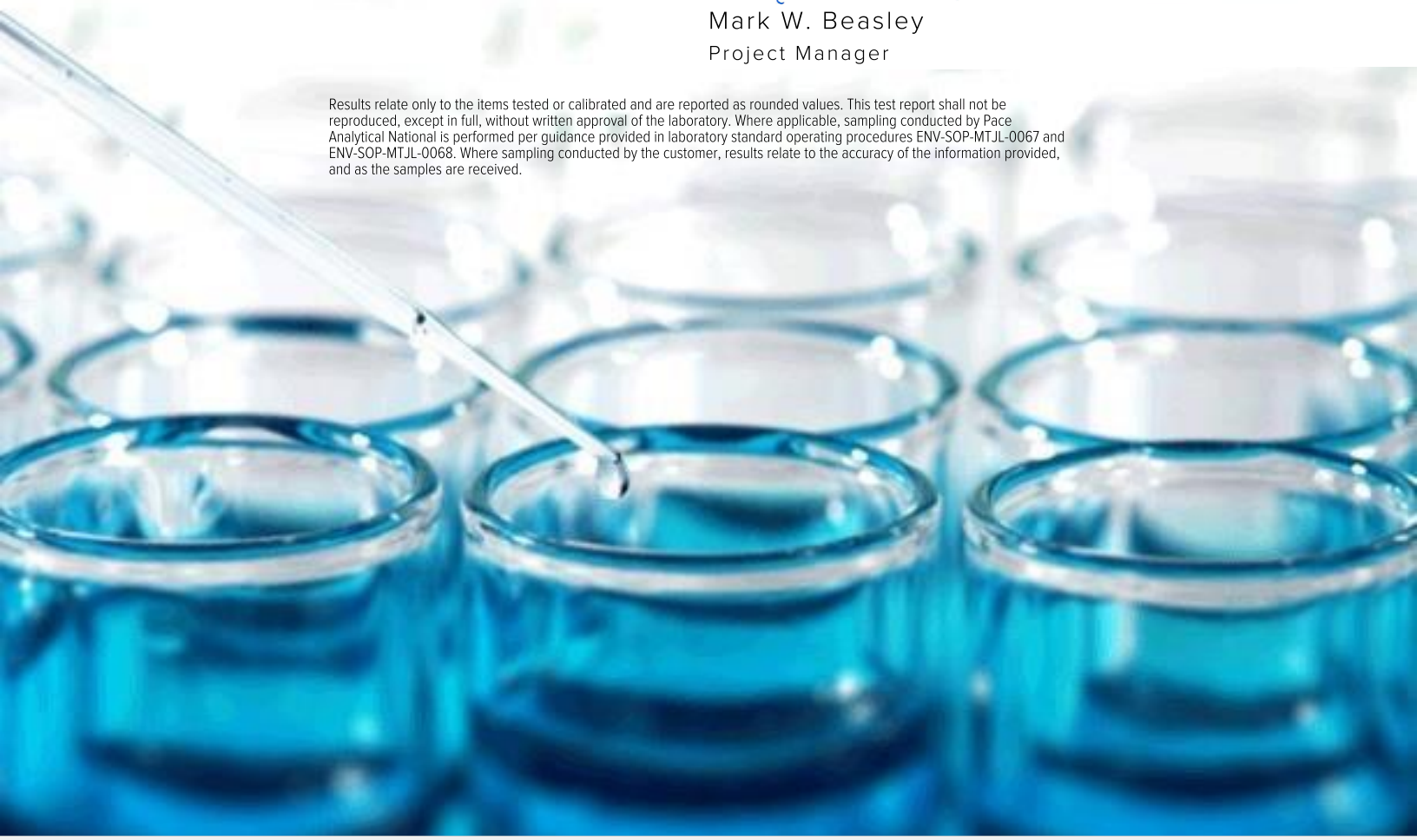


TABLE OF CONTENTS

MW-118D L1207020-01 GW

Collected by	Collected date/time	Received date/time
Matt Acree	04/06/20 16:20	04/08/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1458195	1	04/11/20 18:33	04/11/20 22:49	TH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1458946	1	04/13/20 13:05	04/13/20 13:05	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458675	1	04/10/20 17:40	04/10/20 17:40	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458675	5	04/11/20 17:52	04/11/20 17:52	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1457863	1	04/09/20 22:04	04/10/20 10:03	TRB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1457865	1	04/09/20 17:14	04/09/20 22:03	LD	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	519000		2820	10000	1	04/11/2020 22:49	WG1458195

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.41	T8	1	04/13/2020 13:05	WG1458946

Sample Narrative:

L1207020-01 WG1458946: 7.41 at 19.7C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9270		379	1000	1	04/10/2020 17:40	WG1458675
Fluoride	69.9	J	64.0	150	1	04/10/2020 17:40	WG1458675
Sulfate	161000		2970	25000	5	04/11/2020 17:52	WG1458675

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	336		25.4	200	1	04/10/2020 10:03	WG1457863

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	84400		480	1000	1	04/09/2020 22:03	WG1457865

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
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.
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.
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.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

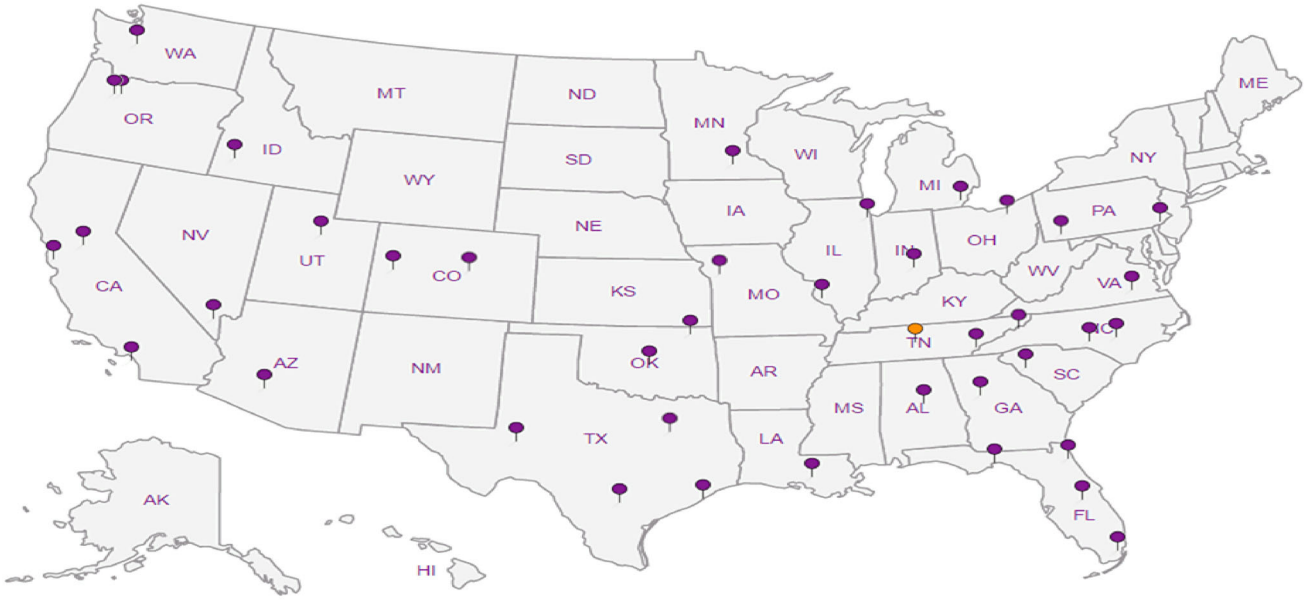
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Report to: **David Jaros**

Email To: **David.Jaros@terracon.com;JHouse@trccompanies.**

Project Description: **Entergy - White Bluff Landfill**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **501-847-9292**
Fax:

Client Project # 35207045

Lab Project # **GENENLAR-ENTERGYWB**

Collected by (print): Matt Jones

Site/Facility ID # White Bluff

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

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

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

SDG # 1207020
H097

Acctnum: **GENENLAR**
Template: **T164843**
Prelogin: **P762351**
PM: **134 - Mark W. Beasley**
PB: LC 3/16
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-118D	Grab	GW		4.6.20	1620			1	1	1		-01
		GW										
		GW										
		GW										
		GW										
		GW										
		GW										
		GW										
		GW										
		GW										

Analysis / Container / Preservative

* 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)	Trip Blank Received: Yes / No HCL / MeoH TBR
	4.7.2020	1230		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 5±0=.5 °C Bottles Received: 18
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4-8-20 Time: 0852

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 26, 2021

Revised Report

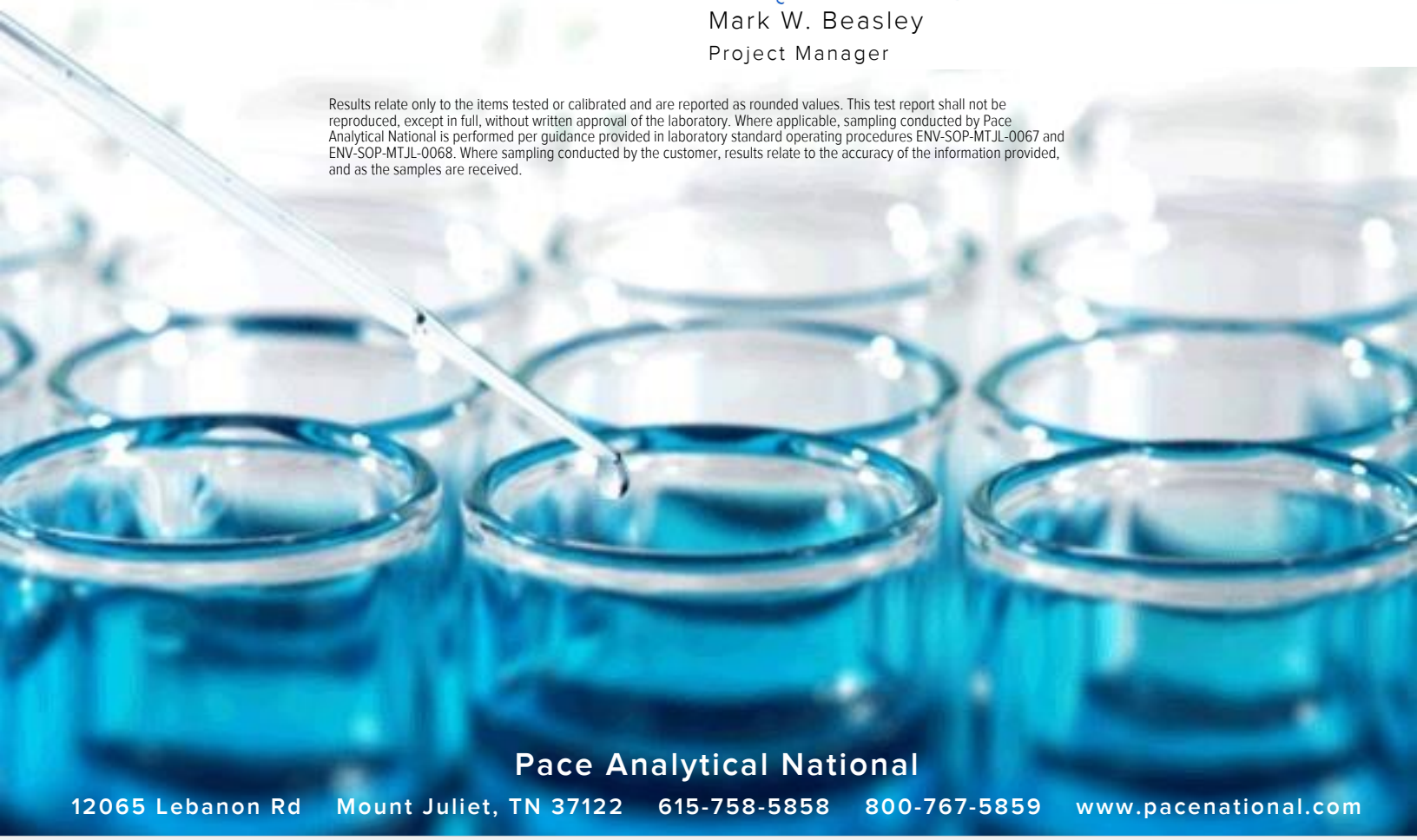
Terracon - Little Rock, AR

Sample Delivery Group:	L1292729
Samples Received:	12/04/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill

Report To: David Jaros
25809 I-30
Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



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

TABLE OF CONTENTS

MW-103S L1292729-01 GW

Collected by: Matt Acree | Collected date/time: 12/02/20 11:10 | Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 13:36	12/12/20 13:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:34	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588065	1	12/08/20 19:48	12/09/20 18:30	JPD	Mt. Juliet, TN

MW-104S L1292729-02 GW

Collected by: Matt Acree | Collected date/time: 12/02/20 13:05 | Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 14:12	12/12/20 14:12	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:42	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588065	1	12/08/20 19:48	12/09/20 18:33	JPD	Mt. Juliet, TN

MW-105S L1292729-03 GW

Collected by: Matt Acree | Collected date/time: 12/02/20 13:55 | Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 15:07	12/12/20 15:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:45	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588065	1	12/08/20 19:48	12/09/20 18:36	JPD	Mt. Juliet, TN

MW-106S L1292729-04 GW

Collected by: Matt Acree | Collected date/time: 12/02/20 14:40 | Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 16:30	12/12/20 16:30	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	10	12/12/20 17:25	12/12/20 17:25	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:48	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588065	1	12/08/20 19:48	12/09/20 11:01	LAT	Mt. Juliet, TN

MW-110S L1292729-05 GW

Collected by: Matt Acree | Collected date/time: 12/02/20 11:53 | Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 17:43	12/12/20 17:43	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	5	12/12/20 18:02	12/12/20 18:02	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:50	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588131	1	12/08/20 10:23	12/09/20 00:57	JPD	Mt. Juliet, TN

MW-111S L1292729-06 GW

Collected by: Matt Acree
Collected date/time: 12/02/20 15:47
Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588504	1	12/08/20 16:46	12/08/20 17:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 18:20	12/12/20 18:20	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	10	12/12/20 18:39	12/12/20 18:39	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:53	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588131	1	12/08/20 10:23	12/09/20 01:11	JPD	Mt. Juliet, TN

DUP-2 L1292729-07 GW

Collected by: Matt Acree
Collected date/time: 12/02/20 11:58
Received date/time: 12/04/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1588510	1	12/09/20 02:29	12/09/20 03:08	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1589715	1	12/10/20 20:51	12/10/20 20:51	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	1	12/12/20 18:57	12/12/20 18:57	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1589872	5	12/12/20 19:15	12/12/20 19:15	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1588621	1	12/08/20 23:38	12/09/20 16:56	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1588131	1	12/08/20 10:23	12/09/20 01:14	JPD	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 12/14/20 11:25

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	229000		2820	10000	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.36	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-01 WG1589715: 5.36 at 18.4C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4820		379	1000	1	12/12/2020 13:36	WG1589872
Fluoride	69.6	J	64.0	150	1	12/12/2020 13:36	WG1589872
Sulfate	68300		594	5000	1	12/12/2020 13:36	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	123	J	20.0	200	1	12/09/2020 16:34	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	3990		93.6	1000	1	12/09/2020 18:30	WG1588065

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	250000		2820	10000	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.55	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-02 WG1589715: 5.55 at 18.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	3860		379	1000	1	12/12/2020 14:12	WG1589872
Fluoride	U		64.0	150	1	12/12/2020 14:12	WG1589872
Sulfate	76200		594	5000	1	12/12/2020 14:12	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	727		20.0	200	1	12/09/2020 16:42	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	20300		93.6	1000	1	12/09/2020 18:33	WG1588065

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	228000		2820	10000	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.28	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-03 WG1589715: 6.28 at 19.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4180		379	1000	1	12/12/2020 15:07	WG1589872
Fluoride	77.4	J	64.0	150	1	12/12/2020 15:07	WG1589872
Sulfate	33600		594	5000	1	12/12/2020 15:07	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	73.7	J	20.0	200	1	12/09/2020 16:45	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	22200		93.6	1000	1	12/09/2020 18:36	WG1588065

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	899000		3750	13300	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	4.04	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-04 WG1589715: 4.04 at 18.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	10300		379	1000	1	12/12/2020 16:30	WG1589872
Fluoride	687		64.0	150	1	12/12/2020 16:30	WG1589872
Sulfate	615000		5940	50000	10	12/12/2020 17:25	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	6610		20.0	200	1	12/09/2020 16:48	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	33500		93.6	1000	1	12/09/2020 11:01	WG1588065

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	461000		2820	10000	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.26	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-05 WG1589715: 5.26 at 18C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8470		379	1000	1	12/12/2020 17:43	WG1589872
Fluoride	312		64.0	150	1	12/12/2020 17:43	WG1589872
Sulfate	229000		2970	25000	5	12/12/2020 18:02	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1700		20.0	200	1	12/09/2020 16:50	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	9500		93.6	1000	1	12/09/2020 00:57	WG1588131

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	915000		3750	13300	1	12/08/2020 17:42	WG1588504

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	3.98	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-06 WG1589715: 3.98 at 19.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6560		379	1000	1	12/12/2020 18:20	WG1589872
Fluoride	519		64.0	150	1	12/12/2020 18:20	WG1589872
Sulfate	614000		5940	50000	10	12/12/2020 18:39	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	4920		20.0	200	1	12/09/2020 16:53	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	72500		93.6	1000	1	12/09/2020 01:11	WG1588131

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	452000		2820	10000	1	12/09/2020 03:08	WG1588510

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.26	T8	1	12/10/2020 20:51	WG1589715

Sample Narrative:

L1292729-07 WG1589715: 5.26 at 19C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8560		379	1000	1	12/12/2020 18:57	WG1589872
Fluoride	305		64.0	150	1	12/12/2020 18:57	WG1589872
Sulfate	228000		2970	25000	5	12/12/2020 19:15	WG1589872

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1680		20.0	200	1	12/09/2020 16:56	WG1588621

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	9500		93.6	1000	1	12/09/2020 01:14	WG1588131

Method Blank (MB)

(MB) R3601995-1 12/08/20 17:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1291970-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1291970-01 12/08/20 17:42 • (DUP) R3601995-3 12/08/20 17:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	697000	705000	1	1.14		5

L1292359-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1292359-02 12/08/20 17:42 • (DUP) R3601995-4 12/08/20 17:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	11000000	10800000	1	1.16		5

Laboratory Control Sample (LCS)

(LCS) R3601995-2 12/08/20 17:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8200000	93.2	77.4-123	

Method Blank (MB)

(MB) R3601985-1 12/09/20 03:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1292762-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1292762-11 12/09/20 03:08 • (DUP) R3601985-3 12/09/20 03:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	6100000	6100000	1	0.131		5

L1292903-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292903-01 12/09/20 03:08 • (DUP) R3601985-4 12/09/20 03:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1730000	1720000	1	0.463		5

Laboratory Control Sample (LCS)

(LCS) R3601985-2 12/09/20 03:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8640000	98.2	77.4-123	

L1292329-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292329-01 12/10/20 20:51 • (DUP) R3602375-2 12/10/20 20:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.80	7.84	1	0.512		1

Sample Narrative:

OS: 7.8 at 18.5C

DUP: 7.84 at 19.4C

L1294393-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1294393-01 12/10/20 20:51 • (DUP) R3602375-3 12/10/20 20:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.17	6.16	1	0.162		1

Sample Narrative:

OS: 6.17 at 20.4C

DUP: 6.16 at 21.9C

Laboratory Control Sample (LCS)

(LCS) R3602375-1 12/10/20 20:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 19.6C

Method Blank (MB)

(MB) R3602933-1 12/12/20 09:50

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

L1292729-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292729-01 12/12/20 13:36 • (DUP) R3602933-3 12/12/20 13:54

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4820	4850	1	0.526		15
Fluoride	69.6	70.1	1	0.716	J	15
Sulfate	68300	69000	1	1.02		15

L1292755-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1292755-05 12/12/20 21:43 • (DUP) R3602933-6 12/12/20 22:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1100	1080	1	2.47		15
Fluoride	1820	1830	1	0.454		15
Sulfate	10800	10900	1	1.60		15

Laboratory Control Sample (LCS)

(LCS) R3602933-2 12/12/20 10:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39100	97.7	80.0-120	
Fluoride	8000	8090	101	80.0-120	
Sulfate	40000	39500	98.7	80.0-120	

L1292729-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292729-02 12/12/20 14:12 • (MS) R3602933-4 12/12/20 14:31 • (MSD) R3602933-5 12/12/20 14:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	3860	55000	55700	102	104	1	80.0-120			1.40	15
Fluoride	5000	U	5250	5320	105	106	1	80.0-120			1.35	15
Sulfate	50000	76200	126000	126000	99.0	99.5	1	80.0-120	E	E	0.221	15

L1292755-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1292755-06 12/12/20 22:20 • (MS) R3602933-7 12/12/20 22:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	U	50400	101	1	80.0-120	
Fluoride	5000	U	5070	101	1	80.0-120	
Sulfate	50000	U	50500	101	1	80.0-120	

Method Blank (MB)

(MB) R3601975-1 12/09/20 16:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		20.0	200

Laboratory Control Sample (LCS)

(LCS) R3601975-2 12/09/20 16:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1000	945	94.5	80.0-120	

L1292626-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292626-01 12/09/20 16:16 • (MS) R3601975-4 12/09/20 16:21 • (MSD) R3601975-5 12/09/20 16:24

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1000	53.4	985	978	93.1	92.4	1	75.0-125			0.721	20

Method Blank (MB)

(MB) R3601817-1 12/09/20 10:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3601817-2 12/09/20 10:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	5000	4760	95.2	80.0-120	

L1292729-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292729-04 12/09/20 11:01 • (MS) R3601817-4 12/09/20 11:08 • (MSD) R3601817-5 12/09/20 11:11

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	5000	33500	38900	38300	109	97.6	1	75.0-125			1.42	20

Method Blank (MB)

(MB) R3601645-1 12/09/20 00:51

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3601645-2 12/09/20 00:54

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	5000	4740	94.7	80.0-120	

L1292729-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292729-05 12/09/20 00:57 • (MS) R3601645-4 12/09/20 01:04 • (MSD) R3601645-5 12/09/20 01:07

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5000	9500	14200	14000	94.1	90.5	1	75.0-125			1.28	20

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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 National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Report to: David Jaros

Email To: David.Jaros@terracon.com;Paul.Gramling@terr

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-103S		GW		12-2-20	1110	3	1	1	1		-01
MW-104S		GW		12-2-20	~~1304~~ 1305	3	1	1	1		02
MW-105S		GW		12-2-20	1355	3	1	1	1		03
MW-106S		GW		12-2-20	1440	3	1	1	1		04
MW-110S		GW		12-2-20	1153	3	1	1	1		05
MW-111S		GW		12-2-20	1547	3	1	1	1		06
Dup-2		GW		12-2-20	1158	3	1	1	1		07
		GW									
		GW									
		GW									

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # 1292729

G088

Acctnum: GENENLAR
Template: T164843
Prelogin: P807148
PM: 134 - Mark W. Beasley
PB: BF 10/28/20
Shipped Via: FedEX Ground

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

Remarks: Appendix III list

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 9348 1599 0180

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	
	12/3/20	1230			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4-1=1.3 °C	Bottles Received: 21
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/4/20	Time: 9:30

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 26, 2021

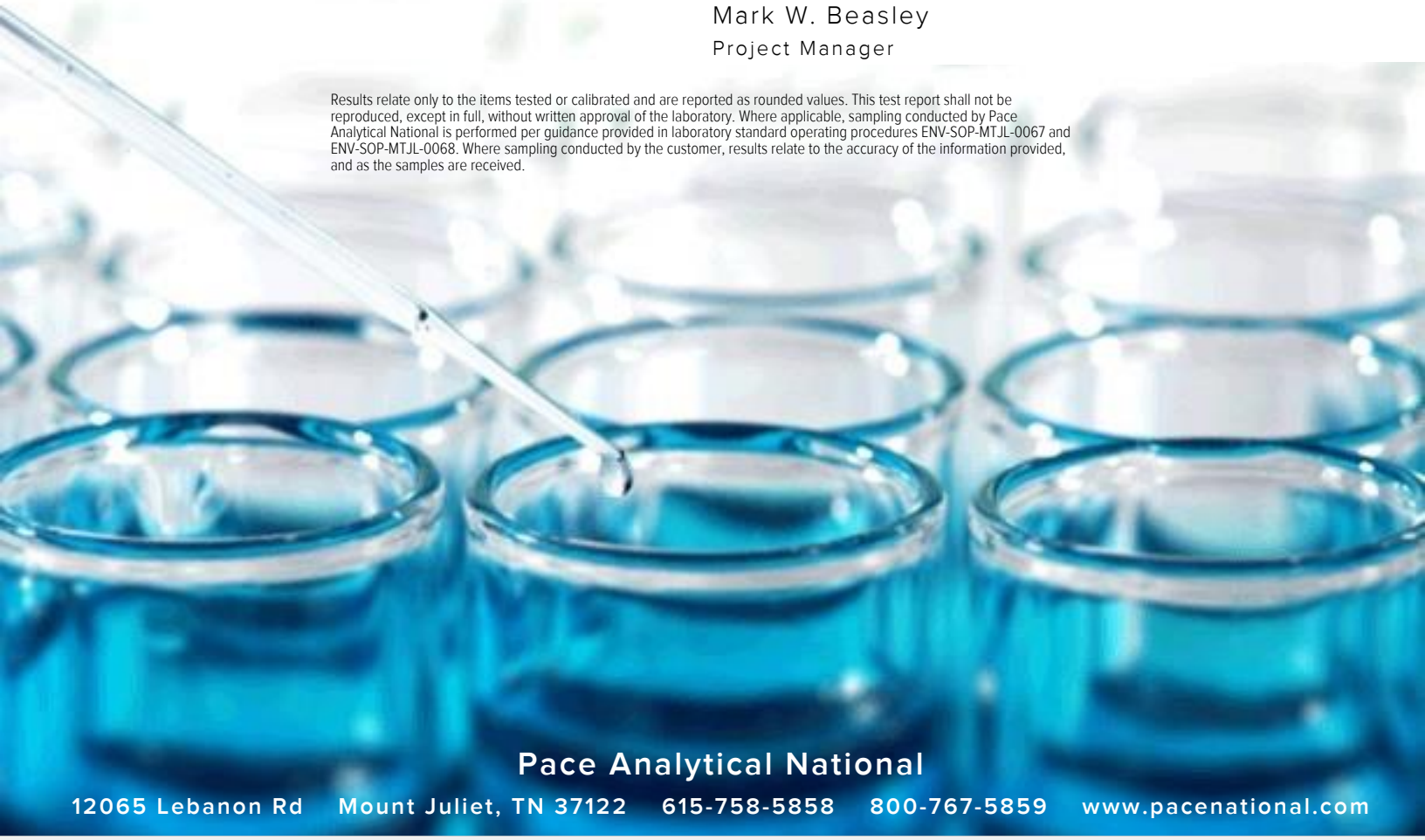
Revised Report

Terracon - Little Rock, AR

Sample Delivery Group:	L1294705
Samples Received:	12/09/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHITE BLUFF
Report To:	David Jaros
	25809 I-30
	Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



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

TABLE OF CONTENTS

MW-108D L1294705-01 GW

Collected by: Matt Acree | Collected date/time: 12/04/20 14:31 | Received date/time: 12/09/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1589693	1	12/10/20 11:40	12/10/20 13:40	MML	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592968	1	12/16/20 21:24	12/16/20 21:24	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592019	1	12/15/20 22:39	12/15/20 22:39	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1591713	1	12/15/20 10:04	12/15/20 22:23	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1591715	1	12/15/20 15:49	12/15/20 21:51	LD	Mt. Juliet, TN

MW-114D L1294705-02 GW

Collected by: Matt Acree | Collected date/time: 12/04/20 11:31 | Received date/time: 12/09/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1589693	1	12/10/20 11:40	12/10/20 13:40	MML	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592968	1	12/16/20 21:24	12/16/20 21:24	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592019	1	12/15/20 22:57	12/15/20 22:57	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1591713	1	12/15/20 10:04	12/15/20 22:26	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1591715	1	12/15/20 15:49	12/15/20 21:55	LD	Mt. Juliet, TN

MW-102S L1294705-03 GW

Collected by: Matt Acree | Collected date/time: 12/07/20 16:17 | Received date/time: 12/09/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1590336	1	12/12/20 08:20	12/12/20 10:22	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592968	1	12/16/20 21:24	12/16/20 21:24	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592019	1	12/15/20 23:14	12/15/20 23:14	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1591713	1	12/15/20 10:04	12/15/20 22:28	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1591715	1	12/15/20 15:49	12/15/20 21:58	LD	Mt. Juliet, TN

MW-110D L1294705-04 GW

Collected by: Matt Acree | Collected date/time: 12/08/20 15:48 | Received date/time: 12/09/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1590782	1	12/12/20 12:28	12/12/20 13:18	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592968	1	12/16/20 21:24	12/16/20 21:24	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592019	1	12/15/20 23:31	12/15/20 23:31	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1591713	1	12/15/20 10:04	12/15/20 22:31	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1591715	1	12/15/20 15:49	12/15/20 22:01	LD	Mt. Juliet, TN

FB-2 L1294705-05 GW

Collected by: Matt Acree | Collected date/time: 12/08/20 15:55 | Received date/time: 12/09/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1590782	1	12/12/20 12:28	12/12/20 13:18	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592968	1	12/16/20 21:24	12/16/20 21:24	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592019	1	12/15/20 23:49	12/15/20 23:49	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1591713	1	12/15/20 10:04	12/15/20 22:39	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1591715	1	12/15/20 15:49	12/15/20 22:05	LD	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 12/17/20 09:40

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	568000		2820	10000	1	12/10/2020 13:40	WG1589693

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.35	T8	1	12/16/2020 21:24	WG1592968

Sample Narrative:

L1294705-01 WG1592968: 8.35 at 19.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	14200		379	1000	1	12/15/2020 22:39	WG1592019
Fluoride	93.0	J	64.0	150	1	12/15/2020 22:39	WG1592019
Sulfate	95200		594	5000	1	12/15/2020 22:39	WG1592019

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	333		20.0	200	1	12/15/2020 22:23	WG1591713

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	81700		93.6	1000	1	12/15/2020 21:51	WG1591715

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	361000		2820	10000	1	12/10/2020 13:40	WG1589693

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.35	T8	1	12/16/2020 21:24	WG1592968

Sample Narrative:

L1294705-02 WG1592968: 8.35 at 19.5C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7870		379	1000	1	12/15/2020 22:57	WG1592019
Fluoride	U		64.0	150	1	12/15/2020 22:57	WG1592019
Sulfate	36200		594	5000	1	12/15/2020 22:57	WG1592019

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	283		20.0	200	1	12/15/2020 22:26	WG1591713

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	56800		93.6	1000	1	12/15/2020 21:55	WG1591715

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	223000		2820	10000	1	12/12/2020 10:22	WG1590336

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.49	T8	1	12/16/2020 21:24	WG1592968

Sample Narrative:

L1294705-03 WG1592968: 8.49 at 19.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6350		379	1000	1	12/15/2020 23:14	WG1592019
Fluoride	76.8	J	64.0	150	1	12/15/2020 23:14	WG1592019
Sulfate	16900		594	5000	1	12/15/2020 23:14	WG1592019

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	26.0	J	20.0	200	1	12/15/2020 22:28	WG1591713

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	10100		93.6	1000	1	12/15/2020 21:58	WG1591715

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	352000		2820	10000	1	12/12/2020 13:18	WG1590782

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.60	T8	1	12/16/2020 21:24	WG1592968

Sample Narrative:

L1294705-04 WG1592968: 6.6 at 19.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6650		379	1000	1	12/15/2020 23:31	WG1592019
Fluoride	69.8	J	64.0	150	1	12/15/2020 23:31	WG1592019
Sulfate	45600		594	5000	1	12/15/2020 23:31	WG1592019

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	303		20.0	200	1	12/15/2020 22:31	WG1591713

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	52600		93.6	1000	1	12/15/2020 22:01	WG1591715

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	U		2820	10000	1	12/12/2020 13:18	WG1590782

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.41	T8	1	12/16/2020 21:24	WG1592968

Sample Narrative:

L1294705-05 WG1592968: 8.41 at 19.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	U		379	1000	1	12/15/2020 23:49	WG1592019
Fluoride	U		64.0	150	1	12/15/2020 23:49	WG1592019
Sulfate	U		594	5000	1	12/15/2020 23:49	WG1592019

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		20.0	200	1	12/15/2020 22:39	WG1591713

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	U		93.6	1000	1	12/15/2020 22:05	WG1591715

Method Blank (MB)

(MB) R3602693-1 12/10/20 13:40

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	9000	J	2820	10000

L1291962-26 Original Sample (OS) • Duplicate (DUP)

(OS) L1291962-26 12/10/20 13:40 • (DUP) R3602693-3 12/10/20 13:40

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	183000	179000	1	2.21		5

L1294757-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1294757-01 12/10/20 13:40 • (DUP) R3602693-4 12/10/20 13:40

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	457000	453000	1	0.879		5

Laboratory Control Sample (LCS)

(LCS) R3602693-2 12/10/20 13:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8750000	99.4	77.4-123	

Method Blank (MB)

(MB) R3603083-1 12/12/20 10:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1293939-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1293939-01 12/12/20 10:22 • (DUP) R3603083-3 12/12/20 10:22

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	461000	473000	1	2.57		5

L1295145-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1295145-23 12/12/20 10:22 • (DUP) R3603083-4 12/12/20 10:22

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	125000	127000	1	1.59		5

Laboratory Control Sample (LCS)

(LCS) R3603083-2 12/12/20 10:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8540000	97.0	77.4-123	

Method Blank (MB)

(MB) R3603129-1 12/12/20 13:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1294346-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1294346-17 12/12/20 13:18 • (DUP) R3603129-3 12/12/20 13:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	442000	447000	1	1.12		5

L1294705-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1294705-04 12/12/20 13:18 • (DUP) R3603129-4 12/12/20 13:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	352000	365000	1	3.63		5

Laboratory Control Sample (LCS)

(LCS) R3603129-2 12/12/20 13:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8460000	96.1	77.4-123	

L1294591-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1294591-03 12/16/20 21:24 • (DUP) R3604423-2 12/16/20 21:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.16	7.13	1	0.420		1

Sample Narrative:

OS: 7.16 at 20.4C

DUP: 7.13 at 20.3C

L1294754-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1294754-02 12/16/20 21:24 • (DUP) R3604423-3 12/16/20 21:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.15	8.14	1	0.123		1

Sample Narrative:

OS: 8.15 at 20C

DUP: 8.14 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R3604423-1 12/16/20 21:24

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 18.4C

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

Method Blank (MB)

(MB) R3604096-1 12/15/20 13:58

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

L1291962-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1291962-02 12/15/20 19:46 • (DUP) R3604096-3 12/15/20 20:02

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	11700	11800	1	0.983		15
Sulfate		5500	1	0.259		15

L1294724-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1294724-07 12/16/20 03:18 • (DUP) R3604096-6 12/16/20 03:35

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4280	4270	1	0.126		15
Fluoride	143	144	1	0.349	J	15
Sulfate	12700	12700	1	0.0662		15

Laboratory Control Sample (LCS)

(LCS) R3604096-2 12/15/20 14:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	40500	101	80.0-120	
Fluoride	8000	8130	102	80.0-120	
Sulfate	40000	41400	104	80.0-120	

L1291962-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1291962-04 12/15/20 20:20 • (MS) R3604096-4 12/15/20 20:37 • (MSD) R3604096-5 12/15/20 20:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	21500	69500	69200	96.1	95.4	1	80.0-120			0.469	15
Fluoride	5000		5030	5000	101	100	1	80.0-120			0.478	15

L1291962-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1291962-04 12/15/20 20:20 • (MS) R3604096-4 12/15/20 20:37 • (MSD) R3604096-5 12/15/20 20:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50000		64600	64400	96.3	95.9	1	80.0-120			0.318	15

L1294724-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1294724-07 12/16/20 03:18 • (MS) R3604096-7 12/16/20 03:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	4280	55500	102	1	80.0-120	
Fluoride	5000	143	5330	104	1	80.0-120	
Sulfate	50000	12700	63700	102	1	80.0-120	

Method Blank (MB)

(MB) R3603867-1 12/15/20 21:26

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200

Laboratory Control Sample (LCS)

(LCS) R3603867-2 12/15/20 21:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	994	99.4	80.0-120	

L1294704-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1294704-15 12/15/20 21:31 • (MS) R3603867-4 12/15/20 21:37 • (MSD) R3603867-5 12/15/20 21:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	57.9	1060	1030	100	97.1	1	75.0-125			3.10	20

Method Blank (MB)

(MB) R3603843-1 12/15/20 21:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3603843-2 12/15/20 21:06

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	5000	5040	101	80.0-120	

L1294675-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1294675-01 12/15/20 21:09 • (MS) R3603843-4 12/15/20 21:16 • (MSD) R3603843-5 12/15/20 21:19

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	5000	20400	25700	26100	107	115	1	75.0-125			1.67	20

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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 National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Report to: David Jaros

Email To: David.Jaros@terracon.com;Paul.Gramling@terr

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

P.O. #

Collected by (signature): Matt A

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	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3 ✓	Remarks	Sample # (lab only)
MW-108D		GW		12-4-20	1431	3	1	1	1		-01
MW-114D		GW		12-4-20	1131	3	1	1	1		02
MW-102S		GW		12-7-20	1617	3	1	1	1		03
MW-110D		GW		12-8-20	1548	3	1	1	1		04
FB-2		GW		12-8-20	1555	3	1	1	1		05
		GW									
		GW									
		GW									
		GW									
		GW									

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1294705

F075

Acctnum: GENENLAR

Template: T164843

Prelogin: P807148

PM: 134 - Mark W. Beasley

PB: BF 10/28/20

Shipped Via: FedEX Ground

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

Remarks: Appendix III list

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 934815990141

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	
Matt A	12-8-2020	1800			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.0 °C	Bottles Received: 15
				7-2-5	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 120920	Time: 1000

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 26, 2021

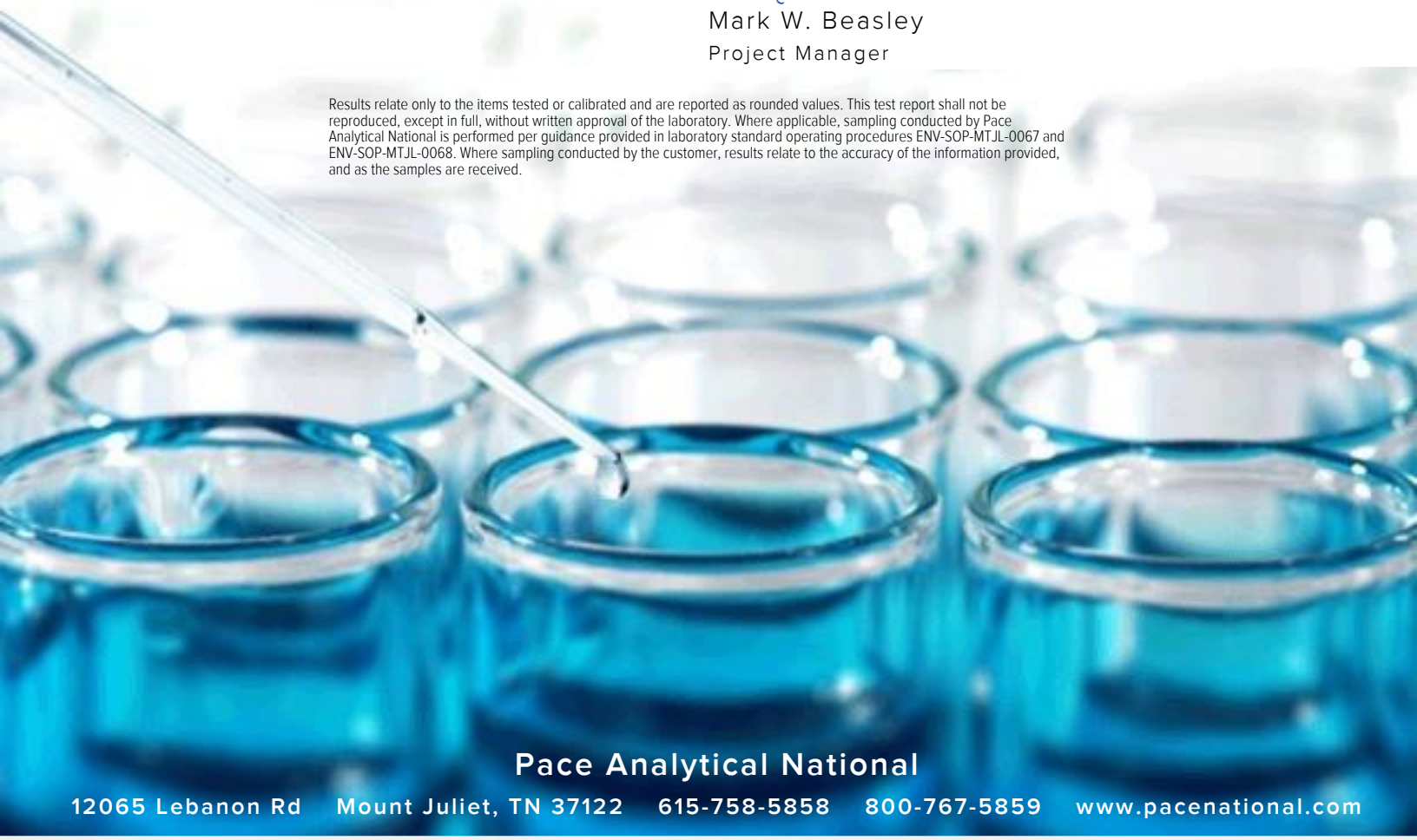
Revised Report

Terracon - Little Rock, AR

Sample Delivery Group:	L1296293
Samples Received:	12/12/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHITE BLUFF
Report To:	David Jaros
	25809 I-30
	Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



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

TABLE OF CONTENTS

MW-102D L1296293-01 GW

Collected by: Matt Acree | Collected date/time: 12/10/20 12:07 | Received date/time: 12/12/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1593083	1	12/17/20 00:43	12/17/20 04:10	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1594657	1	12/19/20 12:01	12/19/20 12:01	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	1	12/21/20 21:17	12/21/20 21:17	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1594792	1	12/19/20 21:03	12/21/20 06:39	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595304	1	12/21/20 11:30	12/22/20 01:16	LAT	Mt. Juliet, TN

MW-103D L1296293-02 GW

Collected by: Matt Acree | Collected date/time: 12/10/20 15:15 | Received date/time: 12/12/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1593083	1	12/17/20 00:43	12/17/20 04:10	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1594657	1	12/19/20 12:01	12/19/20 12:01	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	1	12/21/20 22:24	12/21/20 22:24	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1594792	1	12/19/20 21:03	12/21/20 06:42	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595304	1	12/21/20 11:30	12/22/20 01:20	LAT	Mt. Juliet, TN

MW-104D L1296293-03 GW

Collected by: Matt Acree | Collected date/time: 12/11/20 10:23 | Received date/time: 12/12/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1593411	1	12/17/20 09:44	12/17/20 10:53	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1594657	1	12/19/20 12:01	12/19/20 12:01	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	1	12/21/20 22:58	12/21/20 22:58	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1594792	1	12/19/20 21:03	12/21/20 06:45	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595304	1	12/21/20 11:30	12/22/20 01:23	LAT	Mt. Juliet, TN

MW-109D L1296293-04 GW

Collected by: Matt Acree | Collected date/time: 12/11/20 13:41 | Received date/time: 12/12/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1593411	1	12/17/20 09:44	12/17/20 10:53	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1594657	1	12/19/20 12:01	12/19/20 12:01	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	1	12/21/20 23:15	12/21/20 23:15	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1594792	1	12/19/20 21:03	12/21/20 06:48	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595304	1	12/21/20 11:30	12/22/20 01:26	LAT	Mt. Juliet, TN

MW-113D L1296293-05 GW

Collected by: Matt Acree | Collected date/time: 12/11/20 16:19 | Received date/time: 12/12/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1593411	1	12/17/20 09:44	12/17/20 10:53	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1594657	1	12/19/20 12:01	12/19/20 12:01	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	1	12/21/20 23:32	12/21/20 23:32	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1595007	10	12/22/20 11:59	12/22/20 11:59	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1594792	1	12/19/20 21:03	12/21/20 06:51	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595304	1	12/21/20 11:30	12/22/20 01:29	LAT	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 12/23/20 09:20

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	445000		2820	10000	1	12/17/2020 04:10	WG1593083

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.40	T8	1	12/19/2020 12:01	WG1594657

Sample Narrative:

L1296293-01 WG1594657: 7.4 at 19.9C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8520		379	1000	1	12/21/2020 21:17	WG1595007
Fluoride	102	J	64.0	150	1	12/21/2020 21:17	WG1595007
Sulfate	39300		594	5000	1	12/21/2020 21:17	WG1595007

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	280		20.0	200	1	12/21/2020 06:39	WG1594792

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	76100		93.6	1000	1	12/22/2020 01:16	WG1595304

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	399000		2820	10000	1	12/17/2020 04:10	WG1593083

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.84	T8	1	12/19/2020 12:01	WG1594657

Sample Narrative:

L1296293-02 WG1594657: 7.84 at 18.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9630		379	1000	1	12/21/2020 22:24	WG1595007
Fluoride	198		64.0	150	1	12/21/2020 22:24	WG1595007
Sulfate	86400		594	5000	1	12/21/2020 22:24	WG1595007

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	247		20.0	200	1	12/21/2020 06:42	WG1594792

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	48000		93.6	1000	1	12/22/2020 01:20	WG1595304

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	319000		2820	10000	1	12/17/2020 10:53	WG1593411

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.47	T8	1	12/19/2020 12:01	WG1594657

Sample Narrative:

L1296293-03 WG1594657: 7.47 at 18.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9430		379	1000	1	12/21/2020 22:58	WG1595007
Fluoride	99.0	J	64.0	150	1	12/21/2020 22:58	WG1595007
Sulfate	14000		594	5000	1	12/21/2020 22:58	WG1595007

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	223		20.0	200	1	12/21/2020 06:45	WG1594792

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	55700		93.6	1000	1	12/22/2020 01:23	WG1595304

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	375000		2820	10000	1	12/17/2020 10:53	WG1593411

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.40	T8	1	12/19/2020 12:01	WG1594657

Sample Narrative:

L1296293-04 WG1594657: 7.4 at 18.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7380		379	1000	1	12/21/2020 23:15	WG1595007
Fluoride	106	J	64.0	150	1	12/21/2020 23:15	WG1595007
Sulfate	39900		594	5000	1	12/21/2020 23:15	WG1595007

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	294		20.0	200	1	12/21/2020 06:48	WG1594792

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	52300		93.6	1000	1	12/22/2020 01:26	WG1595304

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	1250000		5640	20000	1	12/17/2020 10:53	WG1593411

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.86	T8	1	12/19/2020 12:01	WG1594657

Sample Narrative:

L1296293-05 WG1594657: 6.86 at 18.1C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	13700		379	1000	1	12/21/2020 23:32	WG1595007
Fluoride	73.8	J	64.0	150	1	12/21/2020 23:32	WG1595007
Sulfate	680000		5940	50000	10	12/22/2020 11:59	WG1595007

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	488		20.0	200	1	12/21/2020 06:51	WG1594792

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	212000		93.6	1000	1	12/22/2020 01:29	WG1595304

Method Blank (MB)

(MB) R3605262-1 12/17/20 04:10

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1296144-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1296144-09 12/17/20 04:10 • (DUP) R3605262-3 12/17/20 04:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	217000	223000	1	2.73		5

L1296432-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1296432-01 12/17/20 04:10 • (DUP) R3605262-4 12/17/20 04:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1160000	1150000	1	0.782		5

Laboratory Control Sample (LCS)

(LCS) R3605262-2 12/17/20 04:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8720000	99.1	77.4-123	

Method Blank (MB)

(MB) R3605260-1 12/17/20 10:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1296637-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1296637-01 12/17/20 10:53 • (DUP) R3605260-3 12/17/20 10:53

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	476000	476000	1	0.000		5

L1296641-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1296641-01 12/17/20 10:53 • (DUP) R3605260-4 12/17/20 10:53

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	342000	341000	1	0.293		5

Laboratory Control Sample (LCS)

(LCS) R3605260-2 12/17/20 10:53

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8650000	98.3	77.4-123	

L1295995-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1295995-01 12/19/20 12:01 • (DUP) R3605372-2 12/19/20 12:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.85	7.85	1	0.000		1

Sample Narrative:

OS: 7.85 at 19.1C

DUP: 7.85 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R3605372-1 12/19/20 12:01

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.06 at 18.7C

Method Blank (MB)

(MB) R3606117-1 12/21/20 12:04

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

L1296141-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1296141-14 12/21/20 15:55 • (DUP) R3606117-3 12/21/20 16:12

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	3490	3480	1	0.152		15
Fluoride	234	235	1	0.640		15
Sulfate	23500	23500	1	0.122		15

L1296293-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1296293-01 12/21/20 21:17 • (DUP) R3606117-6 12/21/20 22:07

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8520	8500	1	0.199		15
Fluoride	102	99.7	1	2.57	J	15
Sulfate	39300	39300	1	0.0333		15

Laboratory Control Sample (LCS)

(LCS) R3606117-2 12/21/20 12:21

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38900	97.3	80.0-120	
Fluoride	8000	7990	99.9	80.0-120	
Sulfate	40000	38800	97.0	80.0-120	

L1296141-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1296141-15 12/21/20 16:29 • (MS) R3606117-4 12/21/20 16:45 • (MSD) R3606117-5 12/21/20 17:02

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	6500	58000	58500	103	104	1	80.0-120			0.933	15
Fluoride	5000	279	5270	5320	99.8	101	1	80.0-120			0.967	15
Sulfate	50000	91700	140000	140000	95.9	96.8	1	80.0-120	E	E	0.305	15

L1296293-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1296293-02 12/21/20 22:24 • (MS) R3606117-7 12/21/20 22:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	9630	61200	103	1	80.0-120	
Fluoride	5000	198	5340	103	1	80.0-120	
Sulfate	50000	86400	134000	95.7	1	80.0-120	E

Method Blank (MB)

(MB) R3605810-1 12/21/20 05:59

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		20.0	200

Laboratory Control Sample (LCS)

(LCS) R3605810-2 12/21/20 06:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1000	955	95.5	80.0-120	

L1296369-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1296369-01 12/21/20 06:05 • (MS) R3605810-4 12/21/20 06:10 • (MSD) R3605810-5 12/21/20 06:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1000	1200	2190	2150	99.0	95.0	1	75.0-125			1.80	20

Method Blank (MB)

(MB) R3606114-1 12/22/20 00:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3606114-2 12/22/20 00:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	5000	5070	101	80.0-120	

L1296160-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1296160-08 12/22/20 00:41 • (MS) R3606114-4 12/22/20 00:47 • (MSD) R3606114-5 12/22/20 00:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	5000	60300	65100	64600	96.8	85.6	1	75.0-125			0.861	20

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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		

Pace Analytical National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Report to: David Jaros

Email To: David.Jaros@terracon.com;Paul.Gramling@terr

Project Description: Entergy - White Bluff Landfill

City/State Collected: Redfield, AR

Please Circle: PT MT CT ET

Phone: 501-847-9292

Client Project # 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

P.O. #

Collected by (signature): Matt A

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3							Remarks	Sample # (lab only)
MW-102D		GW		12-10-20	1207	3	1	1	1								-01
MW-103D		GW		12-10-20	1515	3	1	1	1								02
MW-104D		GW		12-11-20	1023	3	1	1	1								03
MW-109D		GW		12-11-20	1341	3	1	1	1								04
MW-113D		GW		12-11-20	1619	3	1	1	1								05
		GW															
		GW															
		GW															
		GW															
		GW															

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

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

SDG # L1296293

F001

Acctnum: GENENLAR

Template: T164843

Prelogin: P807148

PM: 134 - Mark W. Beasley

PB: BF 10/28/20

Shipped Via: FedEX Ground

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

Remarks: Appendix III list

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 9348 1599 0239

Sample Receipt Checklist

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Matt A	12/11/20	1800		O	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7+2=9 °C Bottles Received: 15	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/12/2020 Time: 09:00	Hold: / Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 26, 2021

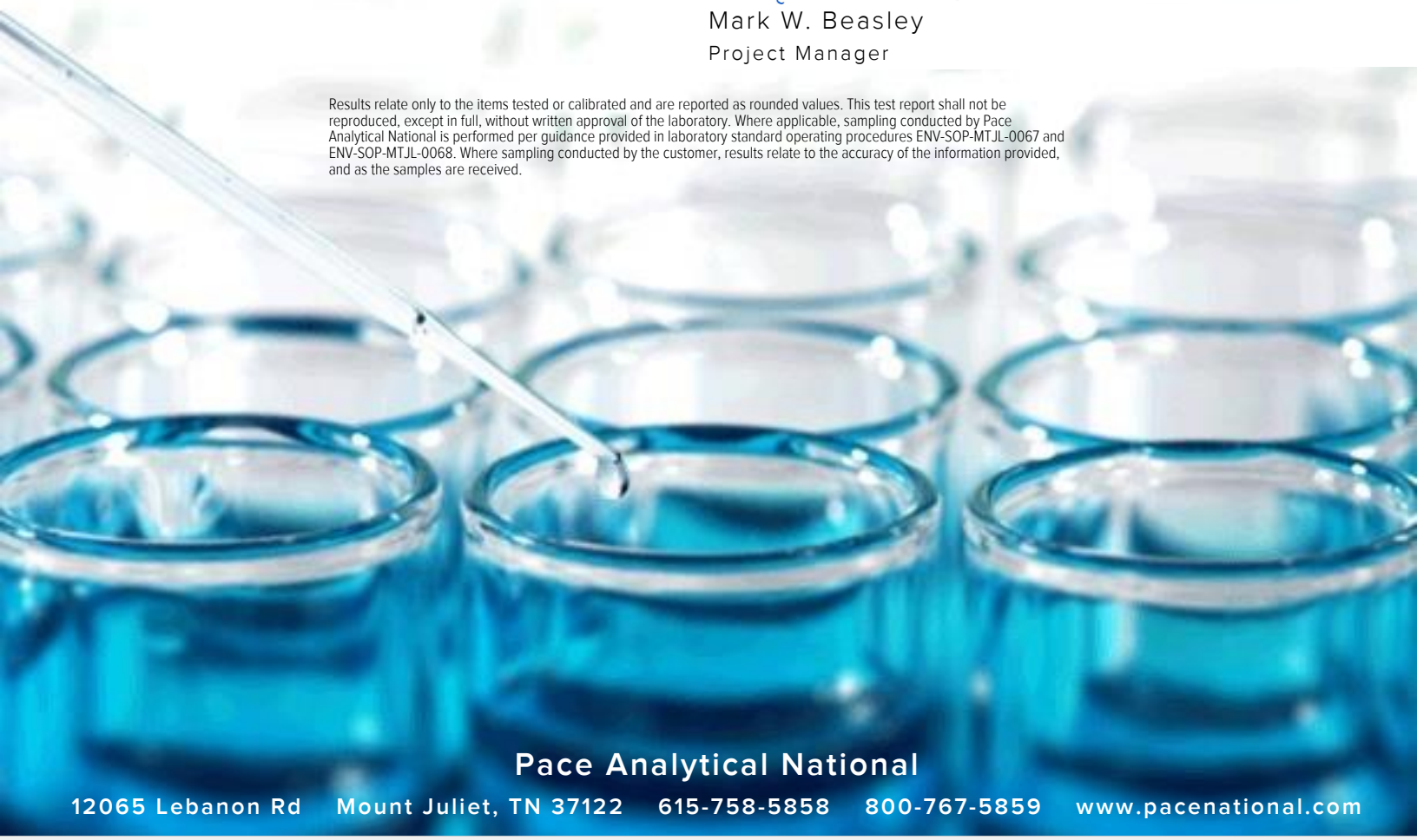
Revised Report

Terracon - Little Rock, AR

Sample Delivery Group:	L1297090
Samples Received:	12/16/2020
Project Number:	35207045
Description:	Entergy - White Bluff Landfill
Site:	WHITE BLUFF
Report To:	David Jaros
	25809 I-30
	Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



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

TABLE OF CONTENTS

MW-101D L1297090-01 GW

Collected by: Matt Acree | Collected date/time: 12/09/20 10:50 | Received date/time: 12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592839	1	12/16/20 14:06	12/16/20 15:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592969	1	12/16/20 18:56	12/16/20 18:56	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 21:38	12/16/20 21:38	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 07:57	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:30	LAT	Mt. Juliet, TN

MW-105D L1297090-02 GW

Collected by: Matt Acree | Collected date/time: 12/09/20 14:01 | Received date/time: 12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592839	1	12/16/20 14:06	12/16/20 15:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592969	1	12/16/20 18:56	12/16/20 18:56	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 21:56	12/16/20 21:56	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 07:59	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:33	LAT	Mt. Juliet, TN

MW-118D L1297090-03 GW

Collected by: Matt Acree | Collected date/time: 12/09/20 12:05 | Received date/time: 12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592839	1	12/16/20 14:06	12/16/20 15:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1592966	1	12/16/20 18:57	12/16/20 18:57	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 22:13	12/16/20 22:13	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	5	12/17/20 00:09	12/17/20 00:09	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 08:02	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:37	LAT	Mt. Juliet, TN

MW-101S L1297090-04 GW

Collected by: Matt Acree | Collected date/time: 12/09/20 15:51 | Received date/time: 12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592839	1	12/16/20 14:06	12/16/20 15:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1593216	1	12/17/20 10:59	12/17/20 10:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 19:19	12/16/20 19:19	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 08:05	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:40	LAT	Mt. Juliet, TN

MW-107D L1297090-05 GW

Collected by: Matt Acree | Collected date/time: 12/12/20 14:20 | Received date/time: 12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592841	1	12/16/20 15:14	12/16/20 16:28	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1593216	1	12/17/20 10:59	12/17/20 10:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 20:29	12/16/20 20:29	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	5	12/17/20 00:26	12/17/20 00:26	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 06:58	RDS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:43	LAT	Mt. Juliet, TN

MW-106D L1297090-06 GW

Collected by	Collected date/time	Received date/time
Matt Acree	12/12/20 11:15	12/16/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1592841	1	12/16/20 15:14	12/16/20 16:28	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1593216	1	12/17/20 10:59	12/17/20 10:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1592861	1	12/16/20 21:21	12/16/20 21:21	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1592083	1	12/17/20 03:48	12/17/20 08:07	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1593139	1	12/16/20 20:47	12/17/20 00:47	LAT	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 12/17/20 16:03

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	384000		2820	10000	1	12/16/2020 15:02	WG1592839

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.23	T8	1	12/16/2020 18:56	WG1592969

Sample Narrative:

L1297090-01 WG1592969: 7.23 at 19.2C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	6280		379	1000	1	12/16/2020 21:38	WG1592861
Fluoride	U		64.0	150	1	12/16/2020 21:38	WG1592861
Sulfate	80600		594	5000	1	12/16/2020 21:38	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	180	J	20.0	200	1	12/17/2020 07:57	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	56800		93.6	1000	1	12/17/2020 00:30	WG1593139

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	368000		2820	10000	1	12/16/2020 15:02	WG1592839

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.77	T8	1	12/16/2020 18:56	WG1592969

Sample Narrative:

L1297090-02 WG1592969: 7.77 at 19C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8810		379	1000	1	12/16/2020 21:56	WG1592861
Fluoride	80.5	J	64.0	150	1	12/16/2020 21:56	WG1592861
Sulfate	31400		594	5000	1	12/16/2020 21:56	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	270		20.0	200	1	12/17/2020 07:59	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	58100		93.6	1000	1	12/17/2020 00:33	WG1593139

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	572000		2820	10000	1	12/16/2020 15:02	WG1592839

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.25	T8	1	12/16/2020 18:57	WG1592966

Sample Narrative:

L1297090-03 WG1592966: 7.25 at 18.6C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	9610		379	1000	1	12/16/2020 22:13	WG1592861
Fluoride	128	J	64.0	150	1	12/16/2020 22:13	WG1592861
Sulfate	166000		2970	25000	5	12/17/2020 00:09	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	285		20.0	200	1	12/17/2020 08:02	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	83200		93.6	1000	1	12/17/2020 00:37	WG1593139

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	200000		2820	10000	1	12/16/2020 15:02	WG1592839

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	6.20	T8	1	12/17/2020 10:59	WG1593216

Sample Narrative:

L1297090-04 WG1593216: 6.2 at 18.9C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	7520		379	1000	1	12/16/2020 19:19	WG1592861
Fluoride	U		64.0	150	1	12/16/2020 19:19	WG1592861
Sulfate	48700		594	5000	1	12/16/2020 19:19	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	23.8	J	20.0	200	1	12/17/2020 08:05	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	14800		93.6	1000	1	12/17/2020 00:40	WG1593139

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	530000		2820	10000	1	12/16/2020 16:28	WG1592841

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.74	T8	1	12/17/2020 10:59	WG1593216

Sample Narrative:

L1297090-05 WG1593216: 7.74 at 19C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	20200		379	1000	1	12/16/2020 20:29	WG1592861
Fluoride	68.1	J	64.0	150	1	12/16/2020 20:29	WG1592861
Sulfate	113000		2970	25000	5	12/17/2020 00:26	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	320		20.0	200	1	12/17/2020 06:58	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	81200		93.6	1000	1	12/17/2020 00:43	WG1593139

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	352000		2820	10000	1	12/16/2020 16:28	WG1592841

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.63	T8	1	12/17/2020 10:59	WG1593216

Sample Narrative:

L1297090-06 WG1593216: 7.63 at 18.9C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	5440		379	1000	1	12/16/2020 21:21	WG1592861
Fluoride	77.0	J	64.0	150	1	12/16/2020 21:21	WG1592861
Sulfate	13300		594	5000	1	12/16/2020 21:21	WG1592861

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	296		20.0	200	1	12/17/2020 08:07	WG1592083

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	55200		93.6	1000	1	12/17/2020 00:47	WG1593139

Method Blank (MB)

(MB) R3604680-1 12/16/20 15:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

L1297114-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1297114-02 12/16/20 15:02 • (DUP) R3604680-3 12/16/20 15:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	303000	306000	1	0.985		5

L1297140-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1297140-01 12/16/20 15:02 • (DUP) R3604680-4 12/16/20 15:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	264000	266000	1	0.755		5

Laboratory Control Sample (LCS)

(LCS) R3604680-2 12/16/20 15:02

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8480000	96.4	77.4-123	

Method Blank (MB)

(MB) R3604668-1 12/16/20 16:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1296144-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1296144-05 12/16/20 16:28 • (DUP) R3604668-3 12/16/20 16:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	330000	329000	1	0.303		5

L1297140-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1297140-05 12/16/20 16:28 • (DUP) R3604668-4 12/16/20 16:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	296000	290000	1	2.05		5

Laboratory Control Sample (LCS)

(LCS) R3604668-2 12/16/20 16:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8560000	97.3	77.4-123	

L1293077-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1293077-01 12/16/20 18:57 • (DUP) R3604297-2 12/16/20 18:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.73	7.68	1	0.649		1

Sample Narrative:

OS: 7.73 at 18C

DUP: 7.68 at 18.6C

L1297090-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1297090-03 12/16/20 18:57 • (DUP) R3604297-3 12/16/20 18:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.25	7.21	1	0.553		1

Sample Narrative:

OS: 7.25 at 18.6C

DUP: 7.21 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3604297-1 12/16/20 18:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 18.9C

L1291835-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1291835-02 12/16/20 18:56 • (DUP) R3604291-2 12/16/20 18:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.96	6.96	1	0.000		1

Sample Narrative:

OS: 6.96 at 18.9C

DUP: 6.96 at 18.9C

L1297090-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1297090-02 12/16/20 18:56 • (DUP) R3604291-3 12/16/20 18:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.77	7.74	1	0.387		1

Sample Narrative:

OS: 7.77 at 19C

DUP: 7.74 at 18.7C

Laboratory Control Sample (LCS)

(LCS) R3604291-1 12/16/20 18:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 18.8C

L1295181-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1295181-22 12/17/20 10:59 • (DUP) R3604494-2 12/17/20 10:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.49	6.47	1	0.309		1

Sample Narrative:

OS: 6.49 at 19.3C

DUP: 6.47 at 18.9C

L1297145-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1297145-01 12/17/20 10:59 • (DUP) R3604494-3 12/17/20 10:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.75	8.76	1	0.114		1

Sample Narrative:

OS: 8.75 at 19C

DUP: 8.76 at 18.9C

Laboratory Control Sample (LCS)

(LCS) R3604494-1 12/17/20 10:59

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 19.1C

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

Method Blank (MB)

(MB) R3604469-1 12/16/20 09:53

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

L1297090-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1297090-04 12/16/20 19:19 • (DUP) R3604469-3 12/16/20 19:36

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	7520	7520	1	0.0412		15
Fluoride	U	U	1	0.000		15
Sulfate	48700	48200	1	1.02		15

L1297116-25 Original Sample (OS) • Duplicate (DUP)

(OS) L1297116-25 12/16/20 17:35 • (DUP) R3604469-7 12/16/20 22:59

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	117000	119000	10	1.54		15
Fluoride	2640	2690	10	1.73		15
Sulfate	612000	624000	10	1.82		15

Laboratory Control Sample (LCS)

(LCS) R3604469-2 12/16/20 10:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39100	97.8	80.0-120	
Fluoride	8000	7840	98.0	80.0-120	
Sulfate	40000	39700	99.2	80.0-120	

L1297090-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1297090-05 12/16/20 20:29 • (MS) R3604469-4 12/16/20 20:46 • (MSD) R3604469-5 12/16/20 21:03

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	20200	69900	70100	99.4	99.8	1	80.0-120			0.340	15
Fluoride	5000	68.1	5150	5170	102	102	1	80.0-120			0.252	15
Sulfate	50000	114000	159000	159000	88.6	89.2	1	80.0-120	E	E	0.178	15

L1295406-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1295406-01 12/17/20 00:44 • (MS) R3604469-6 12/17/20 01:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	483	50600	100	1	80.0-120	
Fluoride	5000	U	5190	104	1	80.0-120	
Sulfate	50000	94400	141000	92.3	1	80.0-120	E

Method Blank (MB)

(MB) R3604521-1 12/17/20 06:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		20.0	200

Laboratory Control Sample (LCS)

(LCS) R3604521-2 12/17/20 06:55

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1000	939	93.9	80.0-120	

L1297090-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1297090-05 12/17/20 06:58 • (MS) R3604521-4 12/17/20 07:03 • (MSD) R3604521-5 12/17/20 07:05

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1000	320	1260	1270	93.9	94.7	1	75.0-125			0.659	20

Method Blank (MB)

(MB) R3604462-1 12/17/20 00:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3604462-2 12/17/20 00:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	5000	4890	97.9	80.0-120	

L1295688-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1295688-01 12/17/20 00:09 • (MS) R3604462-4 12/17/20 00:15 • (MSD) R3604462-5 12/17/20 00:19

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5000	6350	11200	12000	96.4	113	1	75.0-125			7.21	20

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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 National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Report to: David Jaros

Email To: David.Jaros@terracon.com;Paul.Gramling@terr

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292

Client Project # ~~35207046~~ 35207045

Lab Project # GENENLAR-ENTERGYWB

Collected by (print): Matt Acree

Site/Facility ID # White Bluff

P.O. #

Collected by (signature): Matt A

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	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-101D		GW		12/9/20	1050	3	1	1	1		-01
MW-105D		GW	Rush	12/9/20	1401	3	1	1	1		-02
MW-118D			Please	12/9/20	1205	3	1	1	1		-03
MW-101S				12/9/20	1551	3	1	1	1		-04
MW-107D				12/12/20	1420	3	1	1	1		-05
MW-106D				12/12/20	1115	3	1	1	1		-06
						3	1	1	1		

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

L129790

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

SDG # D095

Acctnum: GENENLAR
Template: T164843
Prelogin: P807148
PM: 134 - Mark W. Beasley
PB: BF 10/28/20
Shipped Via: FedEx Ground

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

Remarks: Appendix III list

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	If preservation required by Login: Date/Time
Matt A	12/14/20	1030			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.6 °C 1.6-0=1.6 Bottles Received: 18	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/14 Time: 0730	Hold: / Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 26, 2021

Revised Report

Terracon - Little Rock, AR

Sample Delivery Group:	L1298065
Samples Received:	12/17/2020
Project Number:	
Description:	Entergy - White Bluff Landfill

Report To:

David Jaros
25809 I-30
Bryant, AR 72022

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

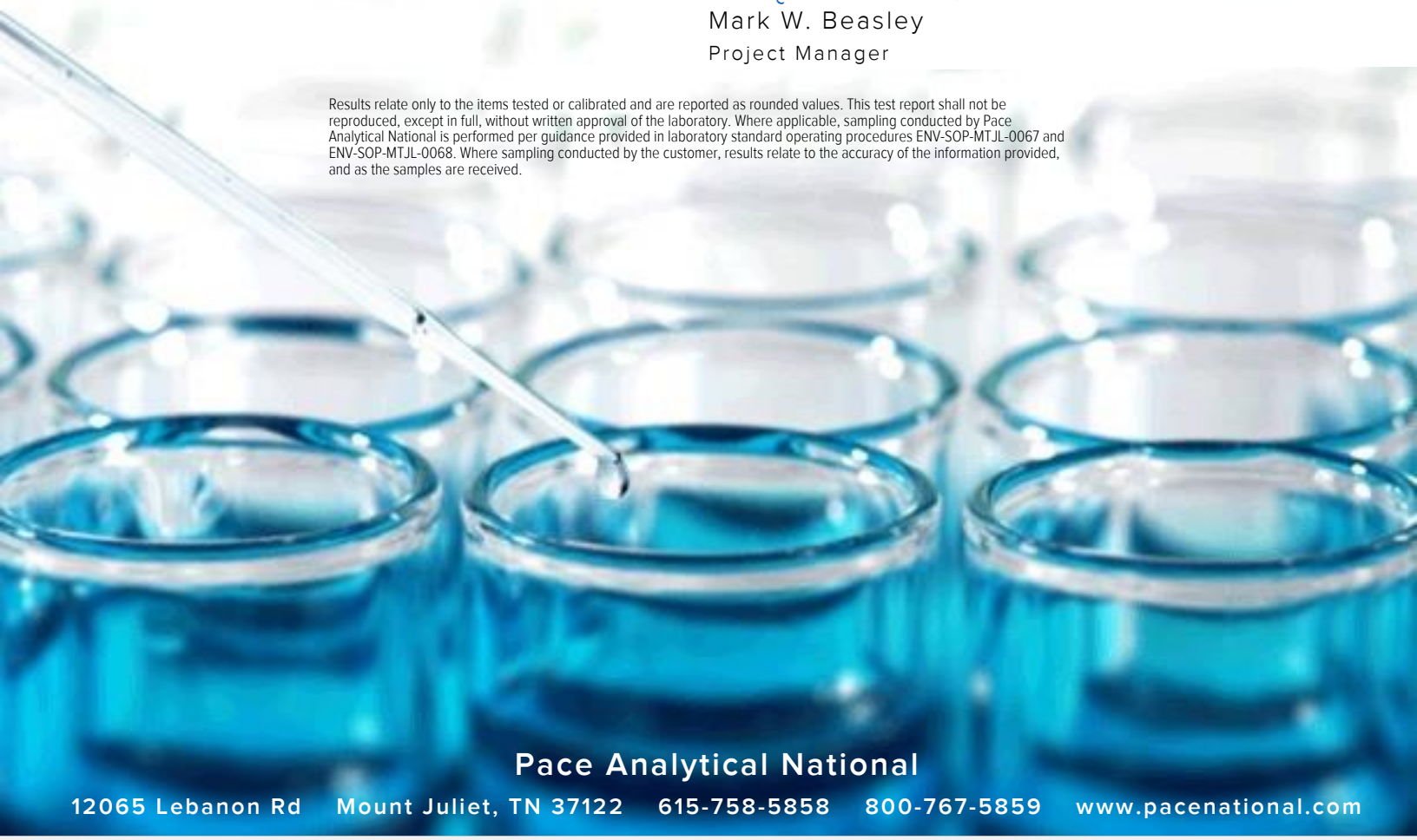


TABLE OF CONTENTS

MW-112D L1298065-01 GW

Collected by	Collected date/time	Received date/time
Wes Williams	12/15/20 12:08	12/17/20 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1594745	1	12/19/20 17:34	12/19/20 18:38	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1596670	1	12/23/20 18:59	12/23/20 18:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1596574	1	12/24/20 03:42	12/24/20 03:42	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1596436	1	12/24/20 03:33	12/24/20 19:53	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595640	1	12/22/20 03:36	12/22/20 23:31	LD	Mt. Juliet, TN

MW-115D L1298065-02 GW

Collected by	Collected date/time	Received date/time
Wes Williams	12/15/20 15:05	12/17/20 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1594745	1	12/19/20 17:34	12/19/20 18:38	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1596670	1	12/23/20 18:59	12/23/20 18:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1596574	1	12/24/20 04:08	12/24/20 04:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1596436	1	12/24/20 03:33	12/24/20 19:56	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1595640	1	12/22/20 03:36	12/22/20 23:34	LD	Mt. Juliet, TN

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 12/28/20 09:43

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	226000		2820	10000	1	12/19/2020 18:38	WG1594745

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.07	T8	1	12/23/2020 18:59	WG1596670

Sample Narrative:

L1298065-01 WG1596670: 7.07 at 18.6C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4390		379	1000	1	12/24/2020 03:42	WG1596574
Fluoride	83.6	J	64.0	150	1	12/24/2020 03:42	WG1596574
Sulfate	4570	J	594	5000	1	12/24/2020 03:42	WG1596574

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	261		20.0	200	1	12/24/2020 19:53	WG1596436

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	35400		93.6	1000	1	12/22/2020 23:31	WG1595640

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Dissolved Solids	355000		2820	10000	1	12/19/2020 18:38	WG1594745

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.46	T8	1	12/23/2020 18:59	WG1596670

Sample Narrative:

L1298065-02 WG1596670: 7.46 at 18.3C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	4560		379	1000	1	12/24/2020 04:08	WG1596574
Fluoride	115	J	64.0	150	1	12/24/2020 04:08	WG1596574
Sulfate	3430	J	594	5000	1	12/24/2020 04:08	WG1596574

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	334		20.0	200	1	12/24/2020 19:56	WG1596436

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium	47500		93.6	1000	1	12/22/2020 23:34	WG1595640

Method Blank (MB)

(MB) R3606871-1 12/19/20 18:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1298355-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1298355-01 12/19/20 18:38 • (DUP) R3606871-3 12/19/20 18:38

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	406000	424000	1	4.34		5

L1298355-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1298355-08 12/19/20 18:38 • (DUP) R3606871-4 12/19/20 18:38

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	73000	75000	1	2.70		5

Laboratory Control Sample (LCS)

(LCS) R3606871-2 12/19/20 18:38

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8740000	99.3	77.4-123	

L1298032-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1298032-01 12/23/20 18:59 • (DUP) R3606813-2 12/23/20 18:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.08	7.10	1	0.282		1

Sample Narrative:

OS: 7.08 at 19.3C

DUP: 7.1 at 19.4C

L1299490-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1299490-01 12/23/20 18:59 • (DUP) R3606813-3 12/23/20 18:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.98	6.97	1	0.143		1

Sample Narrative:

OS: 6.98 at 19.3C

DUP: 6.97 at 19.2C

Laboratory Control Sample (LCS)

(LCS) R3606813-1 12/23/20 18:59

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.07 at 19.4C

Method Blank (MB)

(MB) R3607139-1 12/24/20 00:18

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

L1297845-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1297845-01 12/24/20 01:22 • (DUP) R3607139-3 12/24/20 01:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	68900	68700	1	0.257		15
Fluoride	535	536	1	0.205		15
Sulfate	79900	79800	1	0.0819		15

L1298071-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1298071-06 12/24/20 06:28 • (DUP) R3607139-7 12/24/20 06:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	2540	2500	1	1.27		15
Fluoride	U	U	1	0.000		15
Sulfate	3020	3030	1	0.228	J	15

Laboratory Control Sample (LCS)

(LCS) R3607139-2 12/24/20 00:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39400	98.6	80.0-120	
Fluoride	8000	8120	101	80.0-120	
Sulfate	40000	39500	98.6	80.0-120	

L1297872-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1297872-01 12/24/20 02:00 • (MS) R3607139-4 12/24/20 02:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	70900	120000	97.7	1	80.0-120	E
Fluoride	5000	514	5780	105	1	80.0-120	
Sulfate	50000	86800	136000	97.7	1	80.0-120	E

L1298071-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1298071-02 12/24/20 05:24 • (MS) R3607139-5 12/24/20 05:37 • (MSD) R3607139-6 12/24/20 05:50

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	2020	53800	54000	104	104	1	80.0-120			0.336	15
Fluoride	5000	U	5210	5220	104	104	1	80.0-120			0.293	15
Sulfate	50000	1450	53300	53600	104	104	1	80.0-120			0.467	15

Method Blank (MB)

(MB) R3607484-1 12/24/20 19:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200

Laboratory Control Sample (LCS)

(LCS) R3607484-2 12/24/20 19:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	940	94.0	80.0-120	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3607484-4 12/24/20 19:29 • (MSD) R3607484-5 12/24/20 19:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l		ug/l	ug/l	%	%		%			%	%
Boron	1000		955	961	95.5	96.1	1	75.0-125			0.689	20

Method Blank (MB)

(MB) R3606400-1 12/22/20 22:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		93.6	1000

Laboratory Control Sample (LCS)

(LCS) R3606400-2 12/22/20 22:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	5000	5240	105	80.0-120	

L1297308-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1297308-12 12/22/20 22:12 • (MS) R3606400-4 12/22/20 22:19 • (MSD) R3606400-5 12/22/20 22:22

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	5000	U	5120	5340	102	107	1	75.0-125			4.12	20

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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 National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

Terracon - Little Rock, AR

25809 I-30
Bryant, AR 72022

Billing Information:
Accounts Payable
25809 I-30
Bryant, AR 72022

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

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

Report to: David Jaros

Email To: David.Jaros@terracon.com;Paul.Gramling@terr

Project Description: Entergy - White Bluff Landfill

City/State Collected:

Please Circle: PT MT CT ET

Phone: 501-847-9292

Client Project #

Lab Project # GENENLAR-ENTERGYWB

SDG # L129865

C113

Collected by (print): Wes Williams

Site/Facility ID #

P.O. #

Acctnum: GENENLAR

Template: T164843

Prelogin: P807148

PM: 134 - Mark W. Beasley

PB: BF 10/28/20

Collected by (signature): Wes Williams

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

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, PH 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3 (1/2)	Remarks	Sample # (lab only)
MW-112D		GW		12-15-20	1208	3					-01
MW-115D		GW		12-15-20	1505	3					-02

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

Remarks: Appendix III list

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 1790 3034 5150

Sample Receipt Checklist

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Wes Williams	12-16-20	1400			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4 °C Bottles Received: 6	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/17/20 Time: 1020	Hold: Condition: NCF / OK

APPENDIX C
ALTERNATE SOURCE DEMONSTRATIONS

Alternate Source Demonstration

2nd Half 2019 Sampling Event

Entergy White Bluff Plant
Coal Ash Disposal Landfill
Redfield, Jefferson County, Arkansas

March 2020

Prepared For
Entergy Arkansas, LLC
White Bluff Plant
1100 White Bluff Road
Redfield, Arkansas 72132

3/13/20

R. Kent Nilsson, PE
Senior Engineer

Jason S. House
Project Manager

Executive Summary

Entergy Arkansas, LLC (Entergy) performed the most recent semiannual detection monitoring sampling (2nd Half 2019) in August 2019 for Cells 1 through 4 of the coal ash disposal landfill (CADL) pursuant to the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Part 257 (CCR Rule). Cells 1 through 4 of the CADL constitute the coal combustion residuals (CCR) Unit per the CCR Rule. Per 40 CFR 257.94, the samples were analyzed for the Appendix III detection monitoring parameters. Upon receipt of the laboratory analytical results, statistical analysis was performed, verification samples were collected during November 2019, and the statistical analysis was then re-evaluated for the resampled parameters.

Based on the statistical analyses, the following three statistically significant increases (SSIs) above background concentrations were identified in three wells monitoring Stratum III based on increasing trends at the 98% confidence levels using Sen's Slope test:

- Calcium and Total Dissolved Solids (TDS) (MW-105D); and
- Calcium (MW-112D).

In addition, the following 19 SSIs were identified in four wells monitoring Stratum I and in six wells monitoring Stratum III based on exceedances of intrawell prediction limits:

- Calcium (MW-104S);
- Boron and Sulfate (MW-105S);
- Calcium and Fluoride (MW-106S);
- Boron, Calcium, Fluoride, Sulfate and TDS (MW-111S);
- Sulfate (MW-101D);
- Calcium and TDS (MW-105D);
- Chloride (MW-108D);
- Boron, Calcium and TDS (MW-112D);
- Chloride (MW-113D); and
- Calcium (MW-115D).

It should be noted that the three SSIs identified based on increasing trends at the 98% confidence levels using Sen's Slope test were also identified as SSIs based on exceedances of intrawell prediction limits. Therefore, a total of 19 SSIs were identified for the 2nd Half 2019 semiannual detection monitoring event.

The information provided in this report serves as Entergy's alternate source demonstration (ASD) prepared in accordance with 40 CFR 257.94(e)(2) and successfully demonstrates that the SSIs are not due to a release from the CCR Unit to groundwater, but are due to the following:

- Releases from portions of the CADL closed before the effective date of the CCR Rule (October 19, 2015);
- Surface water that has come into contact with on-site CCR and has migrated into the subsurface; and/or
- Natural variation in groundwater quality.

Therefore, based on the information provided in this ASD report, Entergy will continue to conduct semiannual detection monitoring for the Appendix III constituents in accordance with 40 CFR 257.94 at the certified groundwater monitoring well system for the CCR Unit and will continue to develop and implement plans to improve stormwater management practices at the CADL.

Table of Contents

List of Figures

Section 1
Introduction

1.1 Background

Entergy Arkansas, LLC (Entergy) operates the Entergy White Bluff Plant (Plant), a coal-fired power plant, to generate electricity. The Plant is located at 1100 White Bluff Road in Redfield, Jefferson County, Arkansas as shown on Figure 1. Coal combustion residuals (CCR) are produced as part of the electrical generation operations. The Plant has been generating and disposing of CCR in a portion of the on-site coal ash disposal landfill (CADL) since it began operations in 1981. The CADL is a Class 3N non-commercial industrial landfill and operates under Arkansas Division of Environmental Quality (ADEQ) Solid Waste Permit No. 0199-S3N-R3.

The ADEQ-permitted CADL consists of approximately 153-acres at the Plant and encompasses the following three areas:

- Approximately 50-acre portion of the CADL historically used for CCR disposal from 1981 until prior to the effective date of the CCR Rule (October 19, 2015). CCR was placed into ravines. This area was closed in accordance with the Plant's original solid waste permit (TRC, 2018a);
- Cells 1 through 4, which are the current cells used for CCR disposal and were constructed on top of, and adjacent to, the above-noted closed CCR disposal areas prior to the effective date of the CCR Rule. Cells 1 through 4 encompass approximately 30 acres and were constructed as follows:
  - Cells 1, 2, and 3 were constructed with an 18-inch thick compacted clay bottom liner;
  - Cell 4 was constructed with a two-foot thick compacted clay bottom liner and a leachate collection system; and
- Approximately 100-acre portion of the CADL that is currently undeveloped and may be used for CCR and/or non-CCR disposal.

Cells 1 through 4 accept CCR for disposal in accordance with the federal *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule* (CCR Rule), effective October 19, 2015, and subsequent Final Rules promulgated by the United States Environmental Protection Agency (USEPA). Cells 1 through 4 comprise the CCR management unit (CCR Unit) per the CCR Rule and are the focus of this ASD. The approximate limits of Cells

1 through 4, the closed disposal areas, and the undeveloped, future disposal areas within the ADEQ-permitted footprint of the CADL are shown in Figure 2.

Historical CCR management by Entergy has consisted of the following activities:

- Beneficial use in local construction projects;
- Beneficial use as roadbed material at the CADL; and
- Placement into the CADL.

1.1.1 Groundwater Monitoring and Statistical Analysis

In accordance with 40 CFR 257.90 through 257.94, Entergy installed a groundwater monitoring system for Cells 1 through 4 and has collected samples from the CCR groundwater monitoring system wells for laboratory analysis for CCR constituents and performed statistical analysis of the collected samples. Entergy installed a groundwater monitoring system for the CCR Unit in accordance with 40 CFR 257.90 and 257.91. The groundwater monitoring system consists of 23 wells installed into two stratigraphic units as follows:

- Eight wells are installed into an upper silty and clayey sand unit (Stratum I), which are designated as "S" monitoring wells; and
- Fifteen wells are installed into a lower silty and clayey sand and clay unit (Stratum III), which are designated as "D" monitoring wells.

Pursuant to 40 CFR 257.91(f), Entergy obtained certification by a qualified Arkansas-registered professional engineer (P.E.) stating that the groundwater monitoring system has been designed and constructed to meet the requirements of 40 CFR 257.91 (see Groundwater Monitoring System Certification, TRC, February 26, 2018) of the CCR Rule (TRC 2018b).

As discussed above, Stratum I and Stratum III are currently being monitored pursuant to the CCR Rule. A groundwater sampling and analysis program including selection of statistical procedures to evaluate groundwater data was prepared per the CCR Rule (see Groundwater Sampling and Analysis Plan (FTN, 2017b)). Eight quarterly background CCR detection monitoring events were performed from October 2015 through June 2017 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 for the Appendix IV to Part 257 – Constituents for Assessment Monitoring.

Following completion of quarterly background detection monitoring in June 2017, Entergy implemented semiannual detection monitoring per 40 CFR 257.94(b) for the CCR Unit. The first

semiannual detection monitoring event was performed in August 2017 (2nd Half 2017). Three subsequent semiannual detection monitoring events were performed during 2018 (1st and 2nd Half 2018) and during March 2019 (1st half 2019). Entergy performed the most recent semiannual detection monitoring event (2nd Half 2019) in August 2019 (additional verification sampling was performed in November 2019). Per the CCR Rule, the semiannual detection monitoring event samples were analyzed for the Appendix III constituents.

After completion of each semiannual detection monitoring event, the Appendix III laboratory analytical data were statistically evaluated to identify potential SSIs for Appendix III constituents above background levels. In accordance with 40 CFR 257.93(f)(6), Entergy obtained certification by a qualified Arkansas-registered P.E. stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR Unit (see Statistical Methods Certification, TRC, October 16, 2017).

Pursuant to 40 CFR 257.93(h), statistical analysis and statistical re-analysis of the laboratory analytical data were performed to identify potential SSIs for the 2nd Half 2019 semiannual detection monitoring event. A total of 19 SSIs were identified for six Appendix III constituents: boron, calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS). SSIs were identified in four Stratum I and six Stratum III monitoring wells.

1.2 Purpose

Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR Unit caused the SSIs identified or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The purpose of this report is to provide written documentation of the successful ASD for the SSIs identified for the 2nd Half 2019 semiannual detection monitoring event, pursuant to 40 CFR 257.94(e)(2) of the CCR Rule.

1.3 Site Hydrogeology

Historical subsurface investigations have identified the following three stratigraphic horizons of the Jackson Group (Kresse, et. al., 2014) and their associated hydrogeology for the CCR Unit and the CADL:

- **Stratum I.** Stratum I consists of interbedded silty sand, clayey sand, silt, and clay. Stratum I ranges from 0 feet (ft) to 54 ft in thickness and ranges in elevation from 378 ft above mean sea level (amsl) to 320 ft amsl. Stratum I underlies the CCR Unit, but stratigraphically pinches out to the immediate east of Cells 1 and 2 of the CCR Unit. Stratum I is not continuous to the east across the entirety of the CADL.

Where present, Stratum I is unconfined, and the direction of groundwater flow is to the southeast and does not appear to be subject to seasonal changes in flow direction. Stratum I has an estimated in-situ hydraulic conductivity ranging from 4×10^{-4} centimeters per second (cm/s) to 4×10^{-5} cm/s. Groundwater velocities range from approximately 2 ft/year to 20 ft/year (TRC 2018a).

- **Stratum II.** Stratum II underlies Stratum I and is generally composed of very stiff fat clay and ranges from 25 ft to 55 ft in thickness with elevations from 337 ft amsl to 268 ft amsl (TRC 2018a). Based on review of historical hydrogeological investigations, Stratum II is considered to be a confining layer. Therefore, Stratum II is not monitored as part of the certified CCR groundwater monitoring system for the CCR Unit.
- **Stratum III.** Stratum III underlies Stratum II and is heterogeneous in composition with clayey sand and/or silty sand comprising most of the unit, with a stiff to very stiff clay and silt uppermost layer. Stratum III ranges in thickness from 5 ft to 20 ft with typical elevations ranging from 287 to 258 ft amsl. The direction of groundwater flow in Stratum III is generally radial away from an apparent hydraulic mound near the southern portion of the CADL. The general flow pattern in Stratum III does not appear to vary seasonally. In-situ hydraulic conductivities in Stratum III range from 2.53×10^{-4} cm/s to 4.18×10^{-7} cm/s, and groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a).

While Stratum I and Stratum III have been monitored per the CCR Rule since October 2015, it is unclear whether Stratum I and Stratum III are aquifers that are capable of providing sustainable wells yields consistent with USEPA aquifer use criteria (*e.g.*, 0.1 gallons per minute). This uncertainty is based on the following lines of evidence:

- Stratum I is present to the west of the CADL and only present within the western portion of the ADEQ-permitted boundaries of the CADL, approximately corresponding to the boundaries of the closed portions of the CADL and the CCR Unit and Stratum I is not continuous to the east across the entire footprint of the CADL;
- In-situ hydraulic conductivities are low to very low for both Stratum I and Stratum III, indicating that sustainable well yields may not be obtainable from Stratum I and Stratum III at volumes that meet the minimum USEPA well use criteria (*e.g.*, 0.1 gallons per minute); and
- During the quarterly and semiannual detection monitoring events performed from October 2015 through August 2019, which have been performed using the low-flow purge and sample methodology, the sampling teams have consistently documented that turbidity values are often greater than 10 Nephelometric Turbidity Units (NTU). Furthermore, wells have been pumped dry during sampling for both Stratum I and Stratum III, indicating that neither sustainable well yields nor useable drinking water are associated with Stratum I and Stratum III.

Therefore, to evaluate this uncertainty, Entergy began performing hydrogeologic investigations during 2019, which are anticipated to continue during 2020 and 2021 to more fully evaluate both the stratigraphy and hydrogeology beneath the Unit to more precisely identify aquifer(s) making up the uppermost aquifer system at the CCR Unit and CADL and the appropriateness of the current CCR groundwater monitoring system.

1.4 General Groundwater Quality

Regionally, groundwater quality in the Jackson Group consists of a sodium- and calcium-sulfate water type, with generally poor water quality (FTN 2014, Kresse et. al 2014). Reported water quality concentrations for select secondary drinking water contaminants compared to USEPA secondary maximum contaminant levels (MCLs) are provided in the table below.

Jackson Group Groundwater Water Quality

Constituent	Concentration Range		USEPA Secondary MCL
	Low	High	
Iron (mg/L)	0.05	19	0.3
pH (s.u.)	2.9	8.0	6.5 - 8.5
Sulfate (mg/L)	0.6	3,080	250
TDS (mg/L)	11	5,330	500

As noted in the table above, the natural range of groundwater quality within the Jackson Group, which includes both Stratum I and Stratum III, exceeds the secondary drinking water MCLs established by the USEPA for drinking water, or in the case of pH, is less than its secondary MCL. Finally, the results of historical groundwater monitoring at the Plant conducted from 1991 through 1996, showed that normal indicator parameters were masked by naturally elevated concentrations of the monitored constituents (FTN 2014, TRC 2018a).

Section 2
Alternate Source Demonstration

Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR Unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. As discussed previously, the 2nd Half 2019 semiannual detection monitoring event was performed in August 2019 and verification sampling was performed in November 2019. Statistical analysis of the 2nd Half 2019 semiannual detection monitoring data and verification sampling data were performed pursuant to 40 CFR 257.93(f) and (g), and in accordance with the Statistical Methods Certification (TRC 2017b) and the Statistical Analysis Plan (FTN 2017a). Based on either increasing trends at 98% confidence levels using Sen's Slope test and/or intrawell prediction limits statistical analyses, the following 19 SSIs were identified:

- Calcium (MW-104S);
- Boron and Sulfate (MW-105S);
- Calcium and Fluoride (MW-106S);
- Boron, Calcium, Fluoride, Sulfate, and Total Dissolved Solids (TDS) (MW-111S);
- Sulfate (MW-101D);
- Calcium and TDS (MW-105D);
- Chloride (MW-108D);
- Boron, Calcium, and TDS (MW-112D);
- Chloride (MW-113D); and
- Calcium (MW-115D).

All other Appendix III constituent concentrations were within their trends at 98% confidence levels using Sen's slope test and/or intrawell prediction limits in all the CCR Rule groundwater monitoring system wells.

A discussion for each of the individual SSIs for the Stratum I and III wells and associated lines of evidence demonstrating that the 19 SSIs were not caused by a release from the CCR Unit is provided in the subsections below.

2.1 Calcium at MW-104S

The calcium SSI at MW-104S is a result of natural variation in groundwater quality. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-104S at a concentration of 25.7 milligrams per Liter (mg/L) in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 23.8 mg/L. MW-104S is upgradient of both the closed portions of the CADL and the CCR Unit; therefore, concentrations measured in MW-104S are reflective of background water quality and not a potential release from the CCR Unit.
- The concentration of calcium in MW-101S, which is also a background well, has varied from 14 to 98.5 mg/L during the overall time period for CCR detection monitoring. The calcium concentration of 98.5 mg/L is greater than the calcium concentration of 25.7 mg/L measured for MW-104S during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-104S is within the range of natural variation in background groundwater quality observed for background monitoring well MW-101S.

2.2 Boron at MW-105S

The boron SSI at MW-105S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015 (effective date of the CCR Rule), and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-105S. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-105S at a concentration of 0.701 mg/L in the August 2019 sample. This concentration exceeds the intrawell predication limit of 0.289 mg/L. Based on review of potentiometric surface mapping, locations of closed pre-CCR Rule portions of the CADL, and the CCR Unit relative to MW-105S, it appears that MW-105S is located either upgradient or cross-gradient of the CCR Unit and downgradient of closed pre-CCR Rule portions of the CADL, therefore, the concentration of boron measured in MW-105S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentration of boron in MW-104S, which is a background well for the CCR Unit, have varied from 0.659 to 0.966 mg/L during the overall time period for CCR detection monitoring. The maximum boron concentration of 0.966 mg/L measured for MW-104S is greater than the boron concentration of 0.701 mg/L measured for MW-105S during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the boron concentration measured at MW-105S is within the overall range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-105S. This drainage

swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-105S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-105S, it appears likely that surface water infiltration may be impacting the MW-105S monitoring results.

2.3 Sulfate at MW-105S

The sulfate SSI at MW-105S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-105S. The primary lines of evidence for this demonstration are as follows:

- Sulfate was detected in MW-105S at a concentration of 114 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 85.2 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-105S, it appears that MW-105S is located either upgradient of cross-gradient of the CCR Unit and downgradient of closed pre-CCR Rule portions of the CADL, therefore, the concentrations of sulfate measured in MW-105S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of sulfate in MW-104S, which is a background well for the CCR Unit, have varied from 81.5 to 114 mg/L during the overall time period for CCR detection monitoring. The maximum sulfate concentration of 114 mg/L for MW-104S is equal to the sulfate concentration of 114 mg/L measured for MW-105S during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the sulfate concentration measured at MW-105S is within the overall range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-105S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-105S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-105S, it appears likely that surface water infiltration may be impacting the MW-105S monitoring results.

2.4 Calcium at MW-106S

The calcium SSI at MW-106S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-106S. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-106S at a concentration of 31.2 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 21.5 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL underlying the CCR Unit, and the CCR Unit relative to MW-106S, it appears that MW-106S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit; therefore, concentrations measured in MW-106S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of calcium in MW-101S, which is also a background well, have varied from 14.0 to 98.5 mg/L during the overall time period of CCR detection monitoring. The calcium concentration of 98.5 mg/L for MW-101S is greater than the calcium concentration of 31.2 mg/L measured for MW-106S during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-106S is within the range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-106S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-106S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-106S, it appears likely that surface water infiltration may be impacting the MW-106S monitoring results.

2.5 Fluoride at MW-106S

The fluoride SSI at MW-106S is a result of potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-106S. The primary lines of evidence for this demonstration are as follows:

- Fluoride was detected in MW-106S at a concentration of 0.626 mg/L in the August 2019 sample and a concentration of 0.617 mg/L in the November 2019 verification sample. These concentrations exceed the intrawell prediction limit of 0.545 mg/L and the maximum fluoride concentrations of 0.1 to 0.135 mg/L measured in the three Stratum I background monitoring

wells (MW-101S, MW-102S, and MW-104S). However, it should be noted that the measured fluoride concentrations are less than the federal primary drinking water maximum contaminant level (MCL) standard of 4.0 mg/L.

- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-106S, MW-106S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-106S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-106S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-106S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-106S, it appears likely that surface water infiltration may be impacting the MW-106S monitoring results.

2.6 Boron at MW-111S

The boron SSI at MW-111S is a result of potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-111S at a concentration of 4.39 mg/L in the August 2019 sample and a concentration of 4.54 mg/L in the November 2019 verification sample. These concentrations exceed the intrawell prediction limit of 4.21 mg/L. Based on review of potentiometric surface mapping and locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site

surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.7 Calcium at MW-111S

The calcium SSI at MW-111S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-111S at a concentration of 51.1 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 33.9 mg/L. Based on Dixon's Outlier Test, the 51.1 mg/L concentration measured in the August 2019 detection monitoring sampling event was a statistical outlier. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of calcium in MW-101S, which is a background well, have varied from 14 to 98.5 mg/L. The calcium concentration of 98.5 mg/L at MW-101S is greater than the calcium concentration of 51.1 mg/L measured for MW-111S during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-111S is within the range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.8 Fluoride at MW-111S

The fluoride SSI at MW-111S is a result of the potential impact of CCR disposed at the CADL prior to October 19, 2015 and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Fluoride was detected in MW-111S at a concentration of 0.420 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 0.247 mg/L and the maximum fluoride concentrations of 0.1 to 0.135 mg/L measured in the three Stratum I background monitoring wells (MW-101S, MW-102S, and MW-104S). However, it should be noted that the measured fluoride concentrations are less than the federal primary drinking water MCL of 4.0 mg/L.
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.9 Sulfate at MW-111S

The sulfate SSI at MW-111S is a result of potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Sulfate was detected in MW-111S at a concentration of 465 mg/L in the August 2019 sample and at a concentration of 418 mg/L in the November 2019 verification sample. These concentrations exceed the intrawell prediction limit of 349mg/L. Based on review of potentiometric surface mapping and locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR unit; therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage

swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.10 TDS at MW-111S

The TDS SSI at MW-111S is a result of the potential impact of CCR disposed at the CADL prior to October 19, 2015 and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-111S at a concentration of 697 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 512 mg/L and the maximum TDS concentrations (196 mg/L to 421 mg/L) detected in the three Stratum I background wells (MW-101S, MW-102S, and MW-104S). Based on Dixon's Outlier Test, the 697 mg/L concentration measured in the August 2019 detection monitoring sampling event was a statistical outlier. The concentration of 697 mg/L also exceeds the secondary drinking water MCL of 500 mg/L.
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.11 Sulfate at MW-101D

The sulfate SSI at MW-101D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Sulfate was detected in MW-101D at a concentration of 69.0 mg/L in the August 2019 sample and 78.1 mg/L in the November 2019 verification sample. These concentrations exceed the intrawell prediction limit of 60.40 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-101D, MW-101D may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-101D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-118D is located approximately 1,650 feet from the CCR Unit, MW-118D is likely located far enough from the closed portions of the CADL and the CCR Unit that MW-118D should not have been impacted by a release. Therefore, MW-118D likely represents background groundwater quality for Stratum III.
- The concentrations of sulfate in MW-118D have ranged from 44.9 to 126 mg/L. The maximum calcium concentration of 118 mg/L for MW-118D is greater than the sulfate concentration of 69.0 mg/L measured for MW-101D during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the sulfate concentration measured at MW-101D is within the range of natural variation in background groundwater quality.

2.12 Calcium at MW-105D

The calcium SSI at MW-105D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-105D at a concentration of 54.8 mg/L in the August 2019 sample. Calcium concentrations in MW-105D show a statistically significant upward trend at the 98% confidence level using Sten's Slope test. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-105D, MW-105D may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-105D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-118D is located approximately 1,650 feet from the CCR Unit, MW-118D is likely located far enough from the closed portions of the CADL

and the CCR Unit that MW-118D should not have been impacted by a release. Therefore, MW-118D likely represents background groundwater quality for Stratum III.

- The concentrations of calcium in MW-118D have ranged from 68.4 to 79.3 mg/L. The maximum calcium concentration of 78.6 mg/L for MW-118D is greater than the calcium concentration of 54.8 mg/L measured for MW-105D during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-105D is within the range of natural variation in background groundwater quality.

2.13 Total Dissolved Solids at MW-105D

The TDS SSI at MW-105D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-105D at a concentration of 331 mg/L in the August 2019 sample. TDS concentrations in MW-105D show a statistically significant upward trend at the 98% confidence level using Sten's Slope test. The concentration of 331 mg/L is less than the secondary drinking water MCL of 500 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-105D, MW-105D may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-105D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-118D is located approximately 1,650 feet from the CCR Unit, MW-118D is likely located far enough from the closed portions of the CADL and the CCR Unit that MW-118D should not have been impacted by a release. Therefore, MW-118D likely represents background groundwater quality for Stratum III.
- The concentrations of TDS in MW-118D have ranged from 415 to 484 mg/L. The maximum TDS concentration of 484 mg/L for MW-118D is greater than the TDS concentration of 331 mg/L measured for MW-105D during the 2nd Half 2019 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-105D is within the range of natural variation in background groundwater quality.

2.14 Chloride at MW-108D

The chloride SSI at MW-108D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Chloride was detected in MW-108D at a concentration of 16.5 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 14.5 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-108D, MW-108D is located nearer to closed portions of the CADL (300 feet) than to the CCR Unit (450 feet), therefore, the concentrations of chloride measured in MW-108D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-108D is located approximately 450 feet from the CCR Unit, any release from the CCR Unit would be detected in Stratum III at MW-108D within approximately 45 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of chloride at MW-108D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.
- MW-110D, which is located cross-gradient of MW-108D and closer to the CCR Unit than MW-108D, has had a maximum chloride concentration of 6.96 mg/L. This concentration is less than the concentration for chloride of 16.1 mg/L measured in August 2019 from MW-108 D. Therefore, the chloride concentration measured at MW-108D appears to be either reflective of migration from the pre-CCR Rule closed portions of the CADL or within the range of variation in background groundwater quality.

2.15 Boron at MW-112D

The boron SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-112D at a concentration of 0.248 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 0.236 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of boron measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of boron measured at MW-118D have ranged from 0.274 mg/L to 0.355 mg/L, which are greater than the concentration of boron measured at MW-112D in August 2019. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the boron concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.

- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of boron at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.16 Calcium at MW-112D

The calcium SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-112D at a concentration of 30.8 mg/L in the August 2019 sample. Calcium concentrations in MW-112D show a statistically significant upward trend at the 98% confidence level using Sen's Slope test. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of boron measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Calcium concentrations measured at MW-118D have ranged from 68.4 to 79.3 mg/L, which are greater than the concentration of boron of 30.8 mg/L measured at MW-112D in August 2019. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the calcium concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of boron at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.17 TDS at MW-112D

The TDS SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-112D at a concentration of 227 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 188 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of boron measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- TDS concentrations measured at MW-118D have ranged from 415 to 484 mg/L, which are greater than the concentration of TDS of 227 mg/L measured at MW-112D in August 2019. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the calcium concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of boron at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.18 Chloride at MW-113D

The chloride SSI at MW-113D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 17, 2017. The primary lines of evidence for this demonstration are as follows:

- Chloride was detected in MW-113D at a concentration of 14.9 mg/L in the August 2019 sample and 14.1 mg/L in the November 2019 verification sample. These concentrations exceed the intrawell prediction limit of 13.9 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-113D, MW-113D is located approximately 20 feet from closed portions of the CADL, but approximately 800 feet from the CCR Unit. Therefore, the concentrations of chloride measured in MW-113D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-113D is located approximately 800 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-113D within approximately 80 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of boron at MW-113D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.19 Calcium at MW-115D

The calcium SSI at MW-115D is a result of natural variation in groundwater quality. The primary line of evidence for this demonstration is as follows:

- Calcium was detected in MW-115D at a concentration of 48.2 mg/L in the August 2019 sample. This concentration exceeds the intrawell prediction limit of 43.4 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-115D, MW-115D is located 850 feet from pre-CCR Rule closed portions of the CADL and 1,450 feet from the CCR Unit. Therefore, the concentrations of calcium measured in MW-115D may be more reflective of background natural water quality rather than of the CCR Unit.
- The concentrations of calcium measured at MW-118D have ranged from 68.4 to 75.3 mg/L, which are greater than the concentration of calcium of 48.2 mg/L measured at MW-115D in August 2019. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the calcium concentration measured at MW-115D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities in Stratum III are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-115D is located approximately 850 feet from pre-CCR Rule closed portions of the CADL and approximately 1,450 feet from the CCR Unit, any release from the pre-CCR Rule closed portions of the CADL or the CCR Unit would be detected in Stratum III at MW-115D within approximately 85 to 145 years, which is significantly longer than either the CADL or the CCR Unit has been in operation. Therefore, the concentration of calcium at MW-115D likely represents background natural groundwater quality for Stratum III.

Section 3
Conclusions

The information provided in this report serves as the ASD prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and demonstrates that the SSIs determined based on statistical analysis of the 2nd Half 2019 semiannual detection monitoring event performed in August 2019 and subsequent verification sampling in November 2019 are not due to a release from the CCR Unit to Stratums I and III of the Jackson Group.

Based on the information provided in this ASD report, Entergy will continue to conduct semiannual detection monitoring in accordance with 40 CFR 257.94 at the certified groundwater monitoring system for the CCR Unit.

Section 4
Certification

I hereby certify that the alternative source demonstration presented within this document for the Entergy White Bluff Plant Coal Ash Disposal Landfill 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: R. KENT NILSSON

Company: TRC Environmental Corporation

Expiration Date: 10/31/22

Date: 3/18/20

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 9136
R. KENT NILSSON

(SEAL)

Section 5
References

FTN. 2014. Supplemental Geotechnical and Hydrogeological Investigation Report, Entergy White Bluff Plant Class 3N Landfill. Prepared for Entergy Arkansas, Inc. Little Rock, AR: FTN Associates, Ltd. October 1, 2014.

FTN. 2017a. Statistical Analysis Plan, Entergy White Bluff Plant. Little Rock, AR: FTN Associates, Ltd.

FTN. 2017b. Groundwater Sampling and Analysis Plan, Entergy White Bluff Landfill. Little Rock, AR: FTN Associates, LTD.

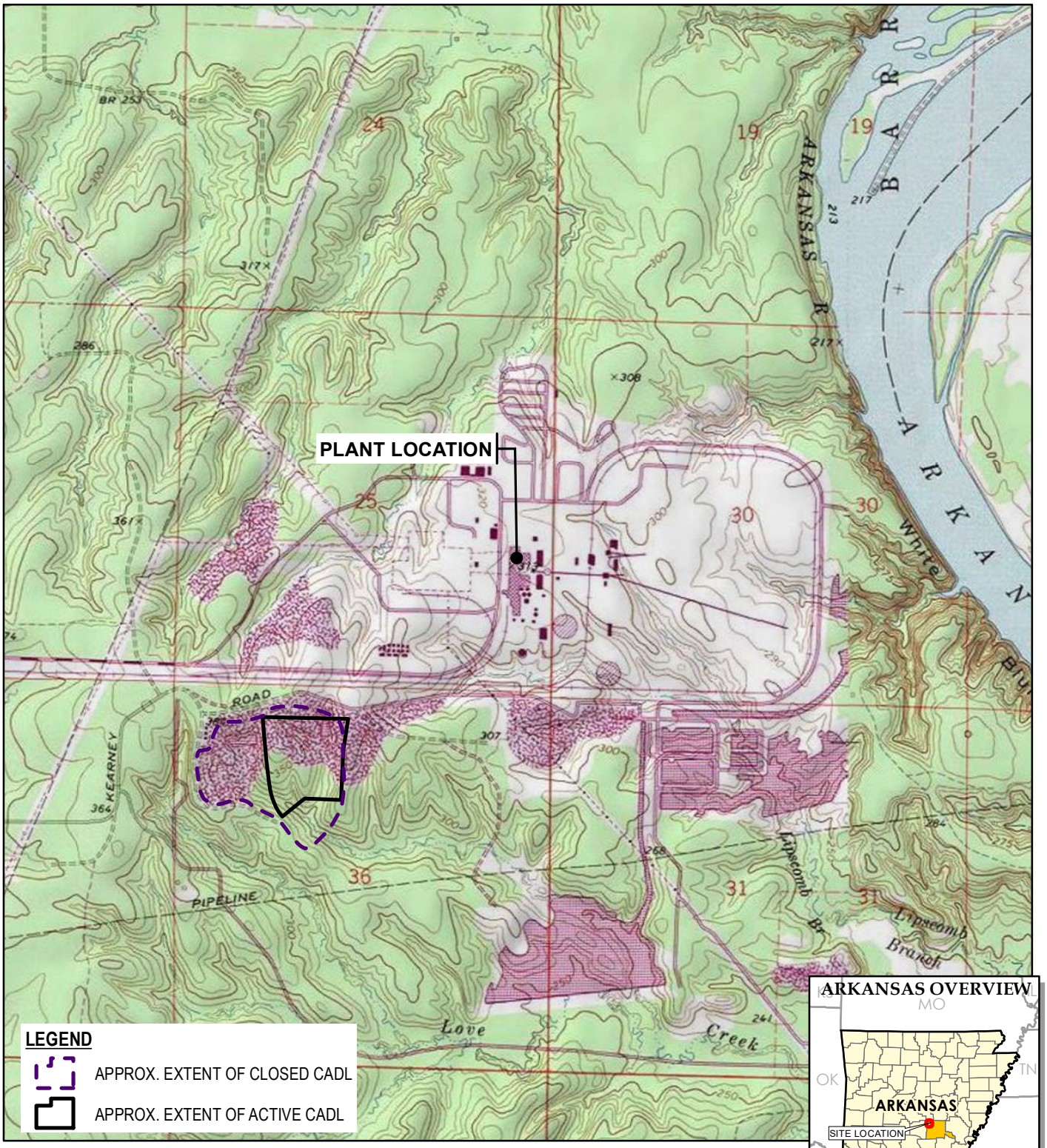
Kresse, T.M., P.D. Hays, K.R. Merriman, J.A. Gillip, D.T. Fugitt, J.L. Spellman, A.M. Nottmeier, D.A. Westerman, J.M. Blackstock, and J.L. Battreal. 2014. Aquifers of Arkansas—Protection, Management, and Hydrologic and Geochemical Characteristics of Groundwater Resources in Arkansas [USGS Scientific Investigations Report 2014–5149]. Prepared in Cooperation with the Arkansas Natural Resources Commission. Reston, VA: US Geological Survey. 334 pp.

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.

United States Environmental Protection Agency. 2017. Secondary Drinking Water Standards: Guidance for Nuisance Chemicals, March 8, 2017.



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

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

PROJECT:

ENTERGY WHITE BLUFF PLANT
1100 WHITE BLUFF ROAD
REDFIELD, ARKANSAS

TITLE:

ENTERGY WHITE BLUFF PLANT LOCATION MAP

DRAWN BY:	S. MAJOR
CHECKED BY:	G. TIEMAN
APPROVED BY:	J. HOUSE
DATE:	MARCH 2020
PROJ. NO.:	339065
FILE:	339065-001slm.mxd

FIGURE 1

S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\339065-001slm.mxd -- Saved By: SMAJOR on 3/13/2020, 09:36:55 AM

TRC - GIS

MW-101D
MW-101S
MW-102D
MW-102S
MW-104S
MW-104D
MW-105S
MW-105D
MW-114D
MW-118D
MW-112D
MW-109D
MW-106S
MW-106D
MW-111S
MW-107D
PZ-7
MW-108D
MW-110S
MW-110D
MW-103S
MW-103D
MW-113D
MW-115D
PZ-5

LEGEND

- STRATUM I BACKROUND WELL
- STRATUM I MONITORING WELL
- STRATUM III BACKROUND WELL
- STRATUM III MONITORING WELL
- STRATUM III PIEZOMETER APPROX.
- EXTENT OF CLOSED CADL
- CCR UNIT BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2018.
2. COAL ASH DISPOSAL LANDFILL (CADL)

0 400 800 Feet

1 " = 400 '
1:4,800

PROJECT:
ENTERGY WHITE BLUFF PLANT
1100 WHITE BLUFF ROAD
REDFIELD, ARKANSAS

TITLE:
CADL EXTENT AND CCR GROUNDWATER MONITORING LOCATIONS

DRAWN BY:	S. MAJOR	PROJ. NO.:	339065
CHECKED BY:	G. TIEMAN		
APPROVED BY:	J. HOUSE		**FIGURE 2**
DATE:	MARCH 2020		

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

FILE NO.: 339065-008.mxd

Plot Date: 3/9/2020, 15:11:02 PM by SMAJOR -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\339065-008.mxd
Coordinate System: NAD 1983 StatePlane Arkansas South FIPS 0302 Feet (Foot US)
Map Rotation: 0

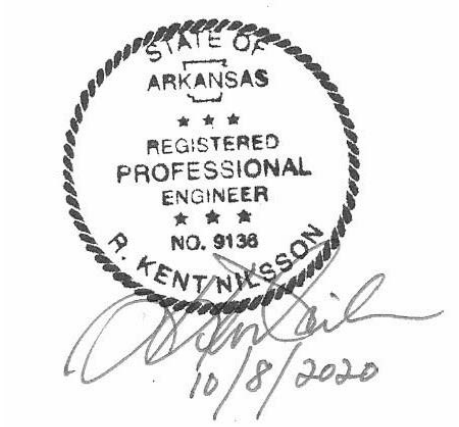
Alternate Source Demonstration

1st Half 2020 Sampling Event

Entergy White Bluff Plant
Coal Ash Disposal Landfill
Redfield, Jefferson County, Arkansas

October 2020

Prepared For
Entergy Arkansas, LLC
White Bluff Plant
1100 White Bluff Road
Redfield, Arkansas 72132



R. Kent Nilsson, P.E.
Senior Engineer

Jason S. House
Project Manager

Executive Summary

Entergy Arkansas, LLC (Entergy) performed the most recent semiannual detection monitoring sampling (1st Half 2020) in March and April of 2020 for Cells 1 through 4 of the coal ash disposal landfill (CADL) pursuant to the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Part 257 (CCR Rule). Cells 1 through 4 of the CADL constitute the coal combustion residuals (CCR) Unit per the CCR Rule. Per 40 CFR 257.94, the samples were analyzed for the Appendix III detection monitoring parameters. Upon receipt of the laboratory analytical results, statistical analysis was performed, verification samples were collected during June 2020, and the statistical analysis was then re-evaluated for the resampled parameters.

Based on the statistical analyses, the following statistically significant increase (SSI) above background concentrations was identified in one well monitoring Stratum III based on increasing trends at the 98% confidence levels using Sen's Slope test:

- Chloride (MW-113D).

In addition, the following 17 SSIs were identified in four wells monitoring Stratum I and in four wells monitoring Stratum III based on exceedances of intrawell prediction limits:

- Fluoride (MW-103S);
- Calcium and total dissolved solids (TDS) (MW-106S);
- Boron and caclium (MW-110S);
- Boron, calcium, fluoride, sulfate and TDS (MW-111S);
- Chloride (MW-108D);
- Boron, calcium, chloride and TDS (MW-112D);
- TDS (MW-113D); and
- Calcium (MW-115D).

The information provided in this report serves as Entergy's alternate source demonstration (ASD) prepared in accordance with 40 CFR 257.94(e)(2) and successfully demonstrates that the SSIs are not due to a release from the CCR Unit to groundwater, but are due to the following:

- Releases from portions of the CADL closed before the effective date of the CCR Rule (October 19, 2015);
- Surface water that has come into contact with on-site CCR and has migrated into the subsurface; and/or
- Natural variation in groundwater quality.

Therefore, based on the information provided in this ASD report, Entergy will continue to conduct semiannual detection monitoring for the Appendix III constituents in accordance with 40 CFR 257.94 at the certified groundwater monitoring well system for the CCR Unit and will continue to develop and implement plans to improve stormwater management practices at the CADL.

Table of Contents

List of Figures

Section 1
Introduction

1.1 Background

Entergy Arkansas, LLC (Entergy) operates the Entergy White Bluff Plant (Plant), a coal-fired power plant, to generate electricity. The Plant is located at 1100 White Bluff Road in Redfield, Jefferson County, Arkansas as shown on Figure 1. Coal combustion residuals (CCR) are produced as part of the electrical generation operations. The Plant has been generating and disposing of CCR in a portion of the on-site coal ash disposal landfill (CADL) since it began operations in 1981. The CADL is a Class 3N non-commercial industrial landfill and operates under Arkansas Division of Environmental Quality (ADEQ) Solid Waste Permit No. 0199-S3N-R3.

The ADEQ-permitted CADL consists of approximately 153-acres at the Plant and encompasses the following three areas:

- Approximately 50-acre portion of the CADL historically used for CCR disposal from 1981 until prior to the effective date of the CCR Rule (October 19, 2015). CCR was placed into ravines. This area was closed in accordance with the Plant's original solid waste permit (TRC, 2018a);
- Cells 1 through 4, which are the current cells used for CCR disposal and were constructed on top of, and adjacent to, the above-noted closed CCR disposal areas prior to the effective date of the CCR Rule. Cells 1 through 4 encompass approximately 30 acres and were constructed as follows:
  - Cells 1, 2, and 3 were constructed with an 18-inch thick compacted clay bottom liner;
  - Cell 4 was constructed with a two-foot thick compacted clay bottom liner and a leachate collection system; and
- Approximately 100-acre portion of the CADL that is currently undeveloped and may be used for CCR and/or non-CCR disposal.

Cells 1 through 4 accept CCR for disposal in accordance with the federal *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule* (CCR Rule), effective October 19, 2015, and subsequent Final Rules promulgated by the United States Environmental Protection Agency (USEPA). Cells 1 through 4 comprise the CCR management unit (CCR Unit) per the CCR Rule and are the focus of this ASD. The approximate limits of Cells

1 through 4, the closed disposal areas, and the undeveloped, future disposal areas within the ADEQ-permitted footprint of the CADL are shown in Figure 2.

Historical CCR management by Entergy has consisted of the following activities:

- Beneficial use in local construction projects;
- Beneficial use as roadbed material at the CADL; and
- Placement into the CADL.

1.1.1 Groundwater Monitoring and Statistical Analysis

In accordance with 40 CFR 257.90 through 257.94, Entergy installed a groundwater monitoring system for Cells 1 through 4 and has collected samples from the CCR groundwater monitoring system wells for laboratory analysis for CCR constituents and performed statistical analysis of the collected samples. Entergy installed a groundwater monitoring system for the CCR Unit in accordance with 40 CFR 257.90 and 257.91. The groundwater monitoring system consists of 23 wells installed into two stratigraphic units as follows:

- Eight wells are installed into an upper silty and clayey sand unit (Stratum I), which are designated as "S" monitoring wells; and
- Fifteen wells are installed into a lower silty and clayey sand and clay unit (Stratum III), which are designated as "D" monitoring wells.

Pursuant to 40 CFR 257.91(f), Entergy obtained certification by a qualified Arkansas-registered professional engineer (P.E.) stating that the groundwater monitoring system has been designed and constructed to meet the requirements of 40 CFR 257.91 (see Groundwater Monitoring System Certification, TRC, February 26, 2018) of the CCR Rule (TRC 2018b).

As discussed above, Stratum I and Stratum III are currently being monitored pursuant to the CCR Rule. A groundwater sampling and analysis program including selection of statistical procedures to evaluate groundwater data was prepared per the CCR Rule (see Groundwater Sampling and Analysis Plan (FTN, 2017b)). Eight quarterly background CCR detection monitoring events were performed from October 2015 through June 2017 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 for the Appendix IV to Part 257 – Constituents for Assessment Monitoring.

Following completion of quarterly background detection monitoring in June 2017, Entergy implemented semiannual detection monitoring per 40 CFR 257.94(b) for the CCR Unit. The first

semiannual detection monitoring event was performed in August 2017 (2nd Half 2017). Four subsequent semiannual detection monitoring events were performed during 2018 (1st and 2nd Half 2018) and 2019 (1st and 2nd Half 2019). Entergy performed the most recent semiannual detection monitoring event (1st Half 2020) in March/April 2020 (additional verification sampling was performed in June 2020). Per the CCR Rule, the semiannual detection monitoring event samples were analyzed for the Appendix III constituents.

After completion of each semiannual detection monitoring event, the Appendix III laboratory analytical data were statistically evaluated to identify potential SSIs for Appendix III constituents above background levels. In accordance with 40 CFR 257.93(f)(6), Entergy obtained certification by a qualified Arkansas-registered P.E. stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR Unit (see Statistical Methods Certification, TRC, October 16, 2017).

Pursuant to 40 CFR 257.93(h), statistical analysis and statistical re-analysis of the laboratory analytical data were performed to identify potential SSIs for the 1st Half 2020 semiannual detection monitoring event. A total of 18 SSIs were identified for six Appendix III constituents: boron, calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS). SSIs were identified in four Stratum I and four Stratum III monitoring wells.

1.2 Purpose

Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR Unit caused the SSIs identified or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The purpose of this report is to provide written documentation of the successful ASD for the SSIs identified for the 1stnd Half 2020 semiannual detection monitoring event, pursuant to 40 CFR 257.94(e)(2) of the CCR Rule.

1.3 Site Hydrogeology

Historical subsurface investigations have identified the following three stratigraphic horizons of the Jackson Group (Kresse, et. al., 2014) and their associated hydrogeology for the CCR Unit and the CADL:

- **Stratum I.** Stratum I consists of interbedded silty sand, clayey sand, silt, and clay. Stratum I ranges from 0 feet (ft) to 54 ft in thickness and ranges in elevation from 378 ft above mean sea level (amsl) to 320 ft amsl. Stratum I underlies the CCR Unit, but stratigraphically pinches out to the immediate east of Cells 1 and 2 of the CCR Unit. Stratum I is not continuous to the east across the entirety of the CADL.

Where present, Stratum I is unconfined, and the direction of groundwater flow is to the southeast and does not appear to be subject to seasonal changes in flow direction. Stratum I has an estimated in-situ hydraulic conductivity ranging from 4×10^{-4} centimeters per second (cm/s) to 4×10^{-5} cm/s. Groundwater velocities range from approximately 2 ft/year to 20 ft/year (TRC 2018a).

- **Stratum II.** Stratum II underlies Stratum I and is generally composed of very stiff fat clay and ranges from 25 ft to 55 ft in thickness with elevations from 337 ft amsl to 268 ft amsl (TRC 2018a). Based on review of historical hydrogeological investigations, Stratum II is considered to be a confining layer. Therefore, Stratum II is not monitored as part of the certified CCR groundwater monitoring system for the CCR Unit.
- **Stratum III.** Stratum III underlies Stratum II and is heterogeneous in composition with clayey sand and/or silty sand comprising most of the unit, with a stiff to very stiff clay and silt uppermost layer. Stratum III ranges in thickness from 5 ft to 20 ft with typical elevations ranging from 287 to 258 ft amsl. The direction of groundwater flow in Stratum III is generally radial away from an apparent hydraulic mound near the southern portion of the CADL. The general flow pattern in Stratum III does not appear to vary seasonally. In-situ hydraulic conductivities in Stratum III range from 2.53×10^{-4} cm/s to 4.18×10^{-7} cm/s, and groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a).

While Stratum I and Stratum III have been monitored per the CCR Rule since October 2015, it is unclear whether Stratum I and Stratum III are aquifers that are capable of providing sustainable wells yields consistent with USEPA aquifer use criteria (*e.g.*, 0.1 gallons per minute). This uncertainty is based on the following lines of evidence:

- Stratum I is present to the west of the CADL and only present within the western portion of the ADEQ-permitted boundaries of the CADL, approximately corresponding to the boundaries of the closed portions of the CADL and the CCR Unit and Stratum I is not continuous to the east across the entire footprint of the CADL;
- In-situ hydraulic conductivities are low to very low for both Stratum I and Stratum III, indicating that sustainable well yields may not be obtainable from Stratum I and Stratum III at volumes that meet the minimum USEPA well use criteria (*e.g.*, 0.1 gallons per minute); and
- During the quarterly and semiannual detection monitoring events performed from October 2015 through April 2020, which have been performed using the low-flow purge and sample methodology, the sampling teams have consistently documented that turbidity values are often greater than 10 Nephelometric Turbidity Units (NTU). Furthermore, wells have been pumped dry during sampling for both Stratum I and Stratum III, indicating that neither sustainable well yields nor useable drinking water are associated with Stratum I and Stratum III.

Therefore, to evaluate this uncertainty, Entergy began performing hydrogeologic investigations during 2019 and 2020, which are anticipated to continue through 2021 to more fully evaluate both the stratigraphy and hydrogeology beneath the Unit to more precisely identify aquifer(s) making up the uppermost aquifer system at the CCR Unit and CADL and the appropriateness of the current CCR groundwater monitoring system.

1.4 General Groundwater Quality

Regionally, groundwater quality in the Jackson Group consists of a sodium- and calcium-sulfate water type, with generally poor water quality (FTN 2014, Kresse et. al 2014). Reported water quality concentrations for select secondary drinking water contaminants compared to USEPA secondary maximum contaminant levels (MCLs) are provided in the table below.

Jackson Group Groundwater Water Quality

Constituent	Concentration Range		USEPA Secondary MCL
	Low	High	
Iron (mg/L)	0.05	19	0.3
pH (s.u.)	2.9	8.0	6.5 - 8.5
Sulfate (mg/L)	0.6	3,080	250
TDS (mg/L)	11	5,330	500

As noted in the table above, the natural range of groundwater quality within the Jackson Group, which includes both Stratum I and Stratum III, exceeds the secondary drinking water MCLs established by the USEPA for drinking water, or in the case of pH, is less than its secondary MCL. Finally, the results of historical groundwater monitoring at the Plant conducted from 1991 through 1996, showed that normal indicator parameters were masked by naturally elevated concentrations of the monitored constituents (FTN 2014, TRC 2018a).

Section 2
Alternate Source Demonstration

Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR Unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. As discussed previously, the 1st Half 2020 semiannual detection monitoring event was performed in March and April of 2020 and verification sampling was performed in June 2020. Statistical analysis of the 1st Half 2020 semiannual detection monitoring data and verification sampling data were performed pursuant to 40 CFR 257.93(f) and (g), and in accordance with the Statistical Methods Certification (TRC 2017b) and the Statistical Analysis Plan (FTN 2017a). Based on either increasing trends at 98% confidence levels using Sen's Slope test and/or intrawell prediction limits statistical analyses, the following 18 SSIs were identified:

- Fluoride (MW-103S);
- Calcium and total dissolved solids (TDS) (MW-106S);
- Boron and calcium (MW-110S);
- Boron, calcium, fluoride, sulfate and TDS (MW-111S);
- Chloride (MW-108D);
- Boron, calcium, chloride and TDS (MW-112D);
- Chloride and TDS (MW-113D); and
- Calcium (MW-115D).

All other Appendix III constituent concentrations were within their trends at 98% confidence levels using Sen's slope test and/or intrawell prediction limits in all the CCR Rule groundwater monitoring system wells.

A discussion for each of the individual SSIs for the Stratum I and III wells and associated lines of evidence demonstrating that the 18 SSIs were not caused by a release from the CCR Unit is provided in the subsections below.

2.1 Fluoride at MW-103S

The fluoride SSI at MW-103S is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015... The primary lines of evidence for this demonstration are as follows:

- Fluoride was detected in MW-103S at a concentration of 0.119 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 0.08599 mg/L and the maximum fluoride concentrations of 0.087 to 0.117 mg/L measured in the three Stratum I background monitoring wells (MW-101S, MW-102S, and MW-104S) during this event. Background concentrations of fluoride within Stratum I have been observed as high as 0.135 mg/L indicating the fluoride concentration at MW-103S may be due to natural variation in groundwater quality. It should be noted that the measured fluoride concentrations are less than the federal primary drinking water maximum contaminant level (MCL) standard of 4.0 mg/L.
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-103S, MW-103S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-103S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

2.2 Calcium at MW-106S

The calcium SSI at MW-106S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-106S. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-106S at a concentration of 31.6 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 21.52 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL underlying the CCR Unit, and the CCR Unit relative to MW-106S, it appears that MW-106S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit; therefore, concentrations measured in MW-106S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of calcium in MW-101S, which is a background well, have varied from 14 to 98.5 mg/L during the overall time period of CCR detection monitoring. The calcium concentration of 98.5 mg/L for MW-101S is greater than the calcium concentration of 31.6 mg/L measured for MW-106S during the 1st Half 2020 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-106S is within the range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-106S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-106S area via surface water

swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-106S, it appears likely that surface water infiltration may have impacted the MW-106S monitoring results.

2.3 TDS at MW-106S

The TDS SSI at MW-106S is a result of the potential impact of CCR disposed at the CADL prior to October 19, 2015 and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-106S. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-106S at a concentration of 769 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 765.5 mg/L and the maximum TDS concentrations (196 mg/L to 421 mg/L) detected in the three Stratum I background wells (MW-101S, MW-102S, and MW-104S).
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-106S, MW-106S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-106S may be more reflective of pre-CCR Rule disposal rather than of the Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-106S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-106S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-106S, it appears likely that surface water infiltration may be impacting the MW-106S monitoring results.

2.4 Boron at MW-110S

The Boron SSI at MW-110S is a result ofpotential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-110S at a concentration of 1.3 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 1.299 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL underlying the CCR Unit, and the CCR Unit relative to MW-110S, it appears that MW-110S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL

rather than the CCR Unit; therefore, concentrations measured in MW-110S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

2.5 Calcium at MW-110S

The calcium SSI at MW-110S is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-110S at a concentration of 24.2 mg/L in the March 2020 sample. Based on Dixon's Outlier Test, the 24.2 mg/L concentration measured in the March 2020 detection monitoring sampling event was a statistical outlier. This concentration exceeded the intrawell prediction limit of 5.915 mg/L.
- Based on review of potentiometric surface mapping and locations of closed portions of the CADL underlying and adjoining the Unit, and the Unit relative to MW-110S, MW-110S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the unit; therefore, concentrations measured in MW-110S may be more reflective of pre-CCR Rule disposal rather than of the Unit.
- Background concentrations of calcium have varied from 14 to 98.5 mg/L at upgradient monitoring well MW-101S; therefore, calcium concentrations as high as 98.5 mg/L have been documented for Stratum I associated with natural variation in groundwater quality. The calcium concentration of 98.5 mg/L is greater than the calcium concentration of 24.2 mg/L measured for MW-110S during the 1st Half 2020 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-110S is within the range of natural variation in background groundwater quality.

2.6 Boron at MW-111S

The boron SSI at MW-111S is a result of potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-111S at a concentration of 4.25 mg/L in the March 2020 sample. Theis concentration exceeds the intrawell prediction limit of 4.209 mg/L. Based on review of potentiometric surface mapping and locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may be impacting the MW-111S monitoring results.

2.7 Calcium at MW-111S

The calcium SSI at MW-111S is a result of natural variation in groundwater quality, potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-111S at a concentration of 59 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 33.91 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the underlying pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of calcium in MW-101S, which is a background well, have varied from 14 to 98.5 mg/L. The calcium concentration of 98.5 mg/L at MW-101S is greater than the calcium concentration of 59 mg/L measured for MW-111S during the 1st Half 2020 semiannual detection monitoring event. Therefore, the calcium concentration measured at MW-111S is within the range of natural variation in background groundwater quality.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may have impacted the MW-111S monitoring results.

2.8 Fluoride at MW-111S

The fluoride SSI at MW-111S is a result of the potential impact of CCR disposed at the CADL prior to October 19, 2015 and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Fluoride was detected in MW-111S at a concentration of 0.33 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 0.2466 mg/L and the maximum fluoride concentrations of 0.1 to 0.135 mg/L measured in the three Stratum I background monitoring wells (MW-101S, MW-102S, and MW-104S). However, it should be noted that the measured fluoride concentrations are less than the federal primary drinking water MCL of 4.0 mg/L.
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may have impacted the MW-111S monitoring results.

2.9 Sulfate at MW-111S

The sulfate SSI at MW-111S is a result of potential impact of CCR disposed at the CADL prior to October 19, 2015, and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- Sulfate was detected in MW-111S at a concentration of 442 mg/L in the March 2020 sample.This concentration exceeds the intrawell prediction limit of 348.5 mg/L. Based on review of potentiometric surface mapping and locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR unit; therefore,

concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may have impacted the MW-111S monitoring results.

2.10 TDS at MW-111S

The TDS SSI at MW-111S is a result of the potential impact of CCR disposed at the CADL prior to October 19, 2015 and potential infiltration of surface water impacted by on-site CCR into the subsurface in the area of MW-111S. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-111S at a concentration of 735 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 511.5 mg/L and the maximum TDS concentrations (196 mg/L to 421 mg/L) detected in the three Stratum I background wells (MW-101S, MW-102S, and MW-104S).
- Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-111S, MW-111S may monitor groundwater associated with the pre-CCR Rule closed portions of the CADL rather than the CCR Unit. Therefore, concentrations measured in MW-111S may be more reflective of pre-CCR Rule disposal rather than of the Unit.
- Surface water that has come into contact with on-site CCR at the CCR Unit has migrated from the perimeter drainage swale for the CCR Unit due to periodic build-up of sediment within the perimeter surface water swale. When this build-up occurs, surface water flows out of the swale and over the adjoining access road and then to the area of MW-111S. This drainage swale carries surface water runoff from closed portions of the CADL as well as from the CCR Unit. This surface water ultimately migrates from the MW-111S area via surface water swales within the ADEQ-permitted CADL footprint, with ultimate discharge into the site surge pond as per Entergy's NPDES permit. Based on the close proximity of this surface water to MW-111S, it appears likely that surface water infiltration may have impacted the MW-111S monitoring results.

2.11 Chloride at MW-108D

The chloride SSI at MW-108D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Chloride was detected in MW-108D at a concentration of 15.3 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 14.47 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-108D, MW-108D is located nearer to closed portions of the CADL (300 feet) than to the CCR Unit (450 feet), therefore, the concentrations of chloride measured in MW-108D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-108D is located approximately 450 feet from the CCR Unit, any release from the CCR Unit would be detected in Stratum III at MW-108D within approximately 45 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of chloride at MW-108D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.
- MW-110D, which is located cross-gradient of MW-108D and closer to the CCR Unit than MW-108D, has had a maximum chloride concentration of 6.96 mg/L. This concentration is less than the concentration for chloride of 15.3 mg/L measured in March 2020 from MW-108 D. Therefore, the chloride concentration measured at MW-108D appears to be either reflective of migration from the pre-CCR Rule closed portions of the CADL or within the range of variation in background groundwater quality.

2.12 Boron at MW-112D

The boron SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Boron was detected in MW-112D at a concentration of 0.246 mg/L in the April 2020 sample. This concentration exceeds the intrawell prediction limit of 0.236 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of boron measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- The concentrations of boron measured at MW-118D have ranged from 0.274 mg/L to 0.355 mg/L, which are greater than the concentration of boron measured at MW-112D in April

2020. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the boron concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.

- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of boron at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.13 Calcium at MW-112D

The calcium SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Calcium was detected in MW-112D at a concentration of 32 mg/L in the March 2020 sample. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of calcium measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Calcium concentrations measured at MW-118D have ranged from 68.4 to 79.3 mg/L, which are greater than the concentration of calcium of 32 mg/L measured at MW-112D in April 2020. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the calcium concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of calcium at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.14 Chloride at MW-112D

The chloride SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Chloride was detected in MW-112D at a concentration of 4.85 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 4.74 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of chloride measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- Chloride concentrations measured at MW-118D have ranged from 8.39 to 9.78 mg/L, which are greater than the concentration of chloride of 4.85 mg/L measured at MW-112D in April 2020. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the chloride concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of chloride at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.15 TDS at MW-112D

The TDS SSI at MW-112D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-112D at a concentration of 243 mg/L in the April 2020 sample. This concentration exceeds the intrawell prediction limit of 187.6 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-112D, MW-112D is located immediately adjacent (approximately 25 feet) to closed portions of the CADL, but approximately 950 feet from the CCR Unit. Therefore, the concentrations of TDS measured in MW-112D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.

- TDS concentrations measured at MW-118D have ranged from 415 to 484 mg/L, which are greater than the concentration of TDS of 243 mg/L measured at MW-112D in April 2020. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the TDS concentration measured at MW-112D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-112D is located approximately 950 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-112D within approximately 95 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of TDS at MW-112D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.16 Chloride at MW-113D

The chloride SSI at MW-113D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- Chloride was detected in MW-113D at a concentration of 14.7 mg/L in the April 2020 sample. This concentration exceeds the intrawell prediction limit of 13.94 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-113D, MW-113D is located approximately 20 feet from closed portions of the CADL, but approximately 800 feet from the CCR Unit. Therefore, the concentrations of chloride measured in MW-113D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-113D is located approximately 800 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-113D within approximately 80 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of chloride at MW-113D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.17 TDS at MW-113D

The TDS SSI at MW-113D is a result of natural variation in groundwater quality and potential impact of CCR disposed at the CADL prior to October 19, 2015. The primary lines of evidence for this demonstration are as follows:

- TDS was detected in MW-113D at a concentration of 2,450 mg/L in the April 2020 sample. This concentration exceeds the intrawell prediction limit of 1,284 mg/L. Based on Dixon's Outlier Test, the 2,450 mg/L concentration measured in the April 2020 detection monitoring sampling event was a statistical outlier. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-113D, MW-113D is located approximately 20 feet from closed portions of the CADL, but approximately 800 feet from the CCR Unit. Therefore, the concentrations of TDS measured in MW-113D may be more reflective of pre-CCR Rule disposal rather than of the CCR Unit.
- As discussed previously, groundwater flow velocities are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-113D is located approximately 800 feet from pre-CCR rule closed portions of the CADL, any release from the CCR Unit would be detected in Stratum III at MW-113D within approximately 80 years, which is significantly longer than the CCR Unit has been in operation. Therefore, the concentration of TDS at MW-113D likely represents either potential pre-CCR Rule migration from the closed portions of the CADL or background groundwater quality for Stratum III.

2.18 Calcium at MW-115D

The calcium SSI at MW-115D is a result of natural variation in groundwater quality. The primary line of evidence for this demonstration is as follows:

- Calcium was detected in MW-115D at a concentration of 48.3 mg/L in the March 2020 sample. This concentration exceeds the intrawell prediction limit of 43.38 mg/L. Based on review of potentiometric surface mapping, locations of closed portions of the CADL, and the CCR Unit relative to MW-115D, MW-115D is located 850 feet from pre-CCR Rule closed portions of the CADL and 1,450 feet from the CCR Unit. Therefore, the concentrations of calcium measured in MW-115D may be more reflective of background natural water quality rather than of the CCR Unit.
- The concentrations of calcium measured at MW-118D have ranged from 68.4 to 75.3 mg/L, which are greater than the concentration of calcium of 48.3 mg/L measured at MW-115D in March 2020. As discussed previously, MW-118D likely represents background groundwater quality for Stratum III, since it is located approximately 1,650 feet to the east of the CCR Unit. Therefore, the calcium concentration measured at MW-115D appears to be within the range of variation in background groundwater quality.
- As discussed previously, groundwater flow velocities in Stratum III are estimated to be approximately <1 ft/year to 10 ft/year (TRC 2018a). Since, MW-115D is located approximately 850 feet from pre-CCR Rule closed portions of the CADL and approximately 1,450 feet from the CCR Unit, any release from the pre-CCR Rule closed portions of the CADL or the CCR Unit would be detected in Stratum III at MW-115D within approximately 85 to 145 years,

which is significantly longer than either the CADL or the CCR Unit has been in operation. Therefore, the concentration of calcium at MW-115D likely represents background natural groundwater quality for Stratum III.

Section 3
Conclusions

The information provided in this report serves as the ASD prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and demonstrates that the SSIs determined based on statistical analysis of the 1st Half 2020 semiannual detection monitoring event performed in March and April of 2020 and subsequent verification sampling in June 2020 are not due to a release from the CCR Unit to Stratums I and III of the Jackson Group.

Based on the information provided in this ASD report, Entergy will continue to conduct semiannual detection monitoring in accordance with 40 CFR 257.94 at the certified groundwater monitoring system for the CCR Unit.

Section 4
Certification

I hereby certify that the alternative source demonstration presented within this document for the Entergy White Bluff Plant Coal Ash Disposal Landfill 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: R. KENT NILSSON

Expiration Date: 10/31/22

Company: TRC Environmental Corporation

Date: 10/8/20

(SEAL)

Section 5
References

FTN. 2014. Supplemental Geotechnical and Hydrogeological Investigation Report, Entergy White Bluff Plant Class 3N Landfill. Prepared for Entergy Arkansas, Inc. Little Rock, AR: FTN Associates, Ltd. October 1, 2014.

FTN. 2017a. Statistical Analysis Plan, Entergy White Bluff Plant. Little Rock, AR: FTN Associates, Ltd.

FTN. 2017b. Groundwater Sampling and Analysis Plan, Entergy White Bluff Landfill. Little Rock, AR: FTN Associates, LTD.

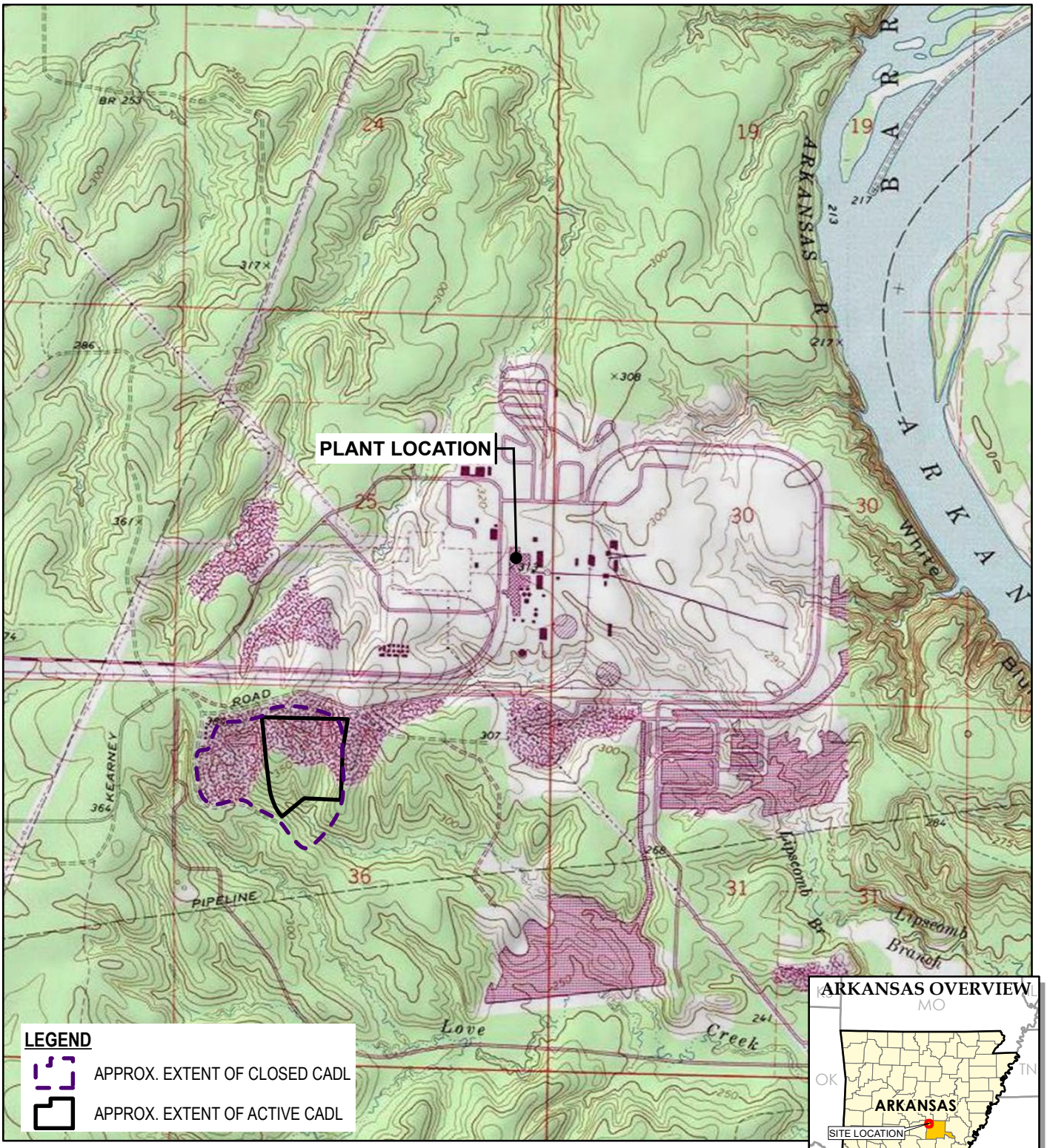
Kresse, T.M., P.D. Hays, K.R. Merriman, J.A. Gillip, D.T. Fugitt, J.L. Spellman, A.M. Nottmeier, D.A. Westerman, J.M. Blackstock, and J.L. Battreal. 2014. Aquifers of Arkansas—Protection, Management, and Hydrologic and Geochemical Characteristics of Groundwater Resources in Arkansas [USGS Scientific Investigations Report 2014–5149]. Prepared in Cooperation with the Arkansas Natural Resources Commission. Reston, VA: US Geological Survey. 334 pp.

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.

United States Environmental Protection Agency. 2017. Secondary Drinking Water Standards: Guidance for Nuisance Chemicals, March 8, 2017.



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

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

PROJECT:

ENTERGY WHITE BLUFF PLANT
1100 WHITE BLUFF ROAD
REDFIELD, ARKANSAS

TITLE:

SITE LOCATION MAP

DRAWN BY:	S. MAJOR
CHECKED BY:	G. TIEMAN
APPROVED BY:	J. HOUSE
DATE:	OCTOBER 2020
PROJ. NO.:	341458
FILE:	341458-001slm.mxd

FIGURE 1

S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\341458-001slm.mxd -- Saved By: SMAJOR on 10/7/2020, 12:51:37 PM

LEGEND

- STRATUM I BACKROUND WELL
- STRATUM I MONITORING WELL
- STRATUM III BACKROUND WELL
- STRATUM III MONITORING WELL
- STRATUM III PIEZOMETER APPROX.
- EXTENT OF CLOSED CADL
- CCR UNIT BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2018.
2. COAL ASH DISPOSAL LANDFILL (CADL)

0 400 800 Feet

1 " = 400 '

1:4,800

PROJECT:

ENTERGY WHITE BLUFF PLANT
1100 WHITE BLUFF ROAD
REDFIELD, ARKANSAS

TITLE:

CADL EXTENT AND CCR GROUNDWATER MONITORING LOCATIONS

DRAWN BY:	S. MAJOR	PROJ. NO.:	341458
CHECKED BY:	S. SELLWOOD		
APPROVED BY:	J. HOUSE		**FIGURE 2**
DATE:	OCTOBER 2020		

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

FILE NO.: 341458-002.mxd

TRC - GIS
Plot Date: 10/7/2020, 15:35:24 PM by SMAJOR -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\Entergy\MadisonLegacyProjects\Arkansas\2018_302967\341458-002.mxd
Coordinate System: NAD 1983 StatePlane Arkansas South FIPS 0302 Feet (Foot US)
Map Rotation: 0