

ROY S. NELSON PLANT

2019 Annual Groundwater Monitoring and Corrective Action Report

**PREPARED IN COMPLIANCE WITH THE
EPA FINAL RULE FOR THE DISPOSAL OF
COAL COMBUSTION RESIDUALS
TITLE 40 CODE OF FEDERAL REGULATIONS PART 257**



January 2020

**CCR UNIT
WESTLAKE, LA**

**2019 ANNUAL GROUNDWATER MONITORING
AND CORRECTIVE ACTION REPORT**

**Prepared for
Entergy Services, Inc
639 Loyola Ave
Mail unit L-ENT 3D
New Orleans, LA 70113**

**Prepared By:

Pivotal Engineering LLC,
Eagle Environmental, and
TRC Solutions**

January 2020

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1.0 Introduction.....	1
2.0 Groundwater Monitoring Well Network	1
3.0 Installed or Decommissioned Monitoring Wells During 2019.....	1
4.0 Groundwater Monitoring Data.....	1
5.0 Status Summary of the 2019 Groundwater Monitoring Program.....	1
6.0 Projected Activities for 2020	2

Appendices

- A Site Map
- B Sampling Schedule and Analytical Data
- C Alternate Source Demonstration

1.0 INTRODUCTION

Entergy Louisiana LLC (Entergy), operates a Coal Ash Landfill (CCR Unit) for the disposal of coal combustion residuals (CCR) at the Roy S. Nelson Plant located in Westlake, Louisiana. The CCR Unit receives CCR generated from the combustion of coal at the Nelson Plant. Management of the CCRs at the CCR Unit is performed pursuant to national criteria established in Title 40 of the Code of Federal Regulations (40 CFR) Part 257 (CCR Rule), published by the United States Environmental Protection Agency (EPA) on April 17, 2015. Entergy has installed a groundwater monitoring system at the CCR Unit that is subject to the groundwater monitoring and corrective action requirements provided under §§257.90 through 257.98 of the CCR Rule. In accordance with §257.90(e) of the CCR Rule, Entergy must prepare an annual report that provides information regarding the groundwater monitoring and corrective action program at the CCR Unit. This document is intended to provide the required information.

This report is the third annual groundwater monitoring report required under the CCR Rule and is the summary and analysis of results from the 2019 groundwater monitoring sampling events. The first annual groundwater monitoring report was completed in January 2018.

2.0 GROUNDWATER MONITORING WELL NETWORK

Entergy's groundwater monitoring system consists of 14 monitoring wells as shown in Appendix A. Pursuant to §257.91(f) of the CCR Rule, a qualified professional engineer has certified that the groundwater monitoring system has been designed and constructed to meet the requirements of this section of §257.91.

3.0 INSTALLED OR DECOMMISSIONED MONITORING WELLS DURING 2019

No monitoring wells were installed or decommissioned during 2019 at the CCR Unit.

4.0 GROUNDWATER MONITORING DATA

In accordance with §257.90(e)(3), all the monitoring data obtained under §§257.90 through 257.98 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.

5.0 STATUS SUMMARY OF THE 2019 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 2019 is provided below:

- In accordance with §257.94(b), detection monitoring sampling was performed during March, June, September and December 2019 for analysis of Appendix III parameters.

- Appendix IV parameters were collected in March, June, September and December 2019 to enhance the background data set for those constituents. Sample collection for Radium 226/228 was not performed as these constituents were not detected in any of the background data. As noted above, the March, June, September and December 2019 Appendix IV data were collected for background purposes and are not required by the rule for detection or assessment monitoring.
- Statistical evaluation of the detection monitoring data was performed in accordance with the statistical method certified by a qualified Louisiana-registered professional Engineer. The certified statistical method has been posted to Entergy's CCR Rule Compliance Data and Information website.
- In 2019, Entergy completed a successful alternate source demonstration (ASD) per §257.94 (e)(2) in response to statistically significant increases (SSIs) identified for calcium during the second half of 2018 detection monitoring event. The ASD demonstrated the SSIs are the result of natural variation in the groundwater quality. The ASD was certified by a Louisiana-registered professional engineer and was placed into the facility's operating record. As required by §257.94(e)(2), a copy of the ASD is included as 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 2019 detection monitoring sampling was performed during June 2019. As previously concluded in the ASD, results confirmed SSIs for calcium are the result of natural variation in the groundwater quality.
- The second half 2019 detection monitoring sampling was performed during December 2019. As previously concluded in the ASD, results confirmed SSIs for calcium are the result of natural variation in the groundwater quality.
- No problems were encountered during 2019 with regard to the groundwater monitoring system. Therefore, no actions were required to modify the system.
- The facility remained in detection monitoring for the duration of 2019 since no new SSIs were detected that were not addressed in the prior ASDs.

6.0 PROJECTED ACTIVITIES FOR 2020

Planned activities for the CCR Unit's groundwater monitoring program during 2019 are listed below:

- Semi-annual detection monitoring events are planned for June and December 2020.

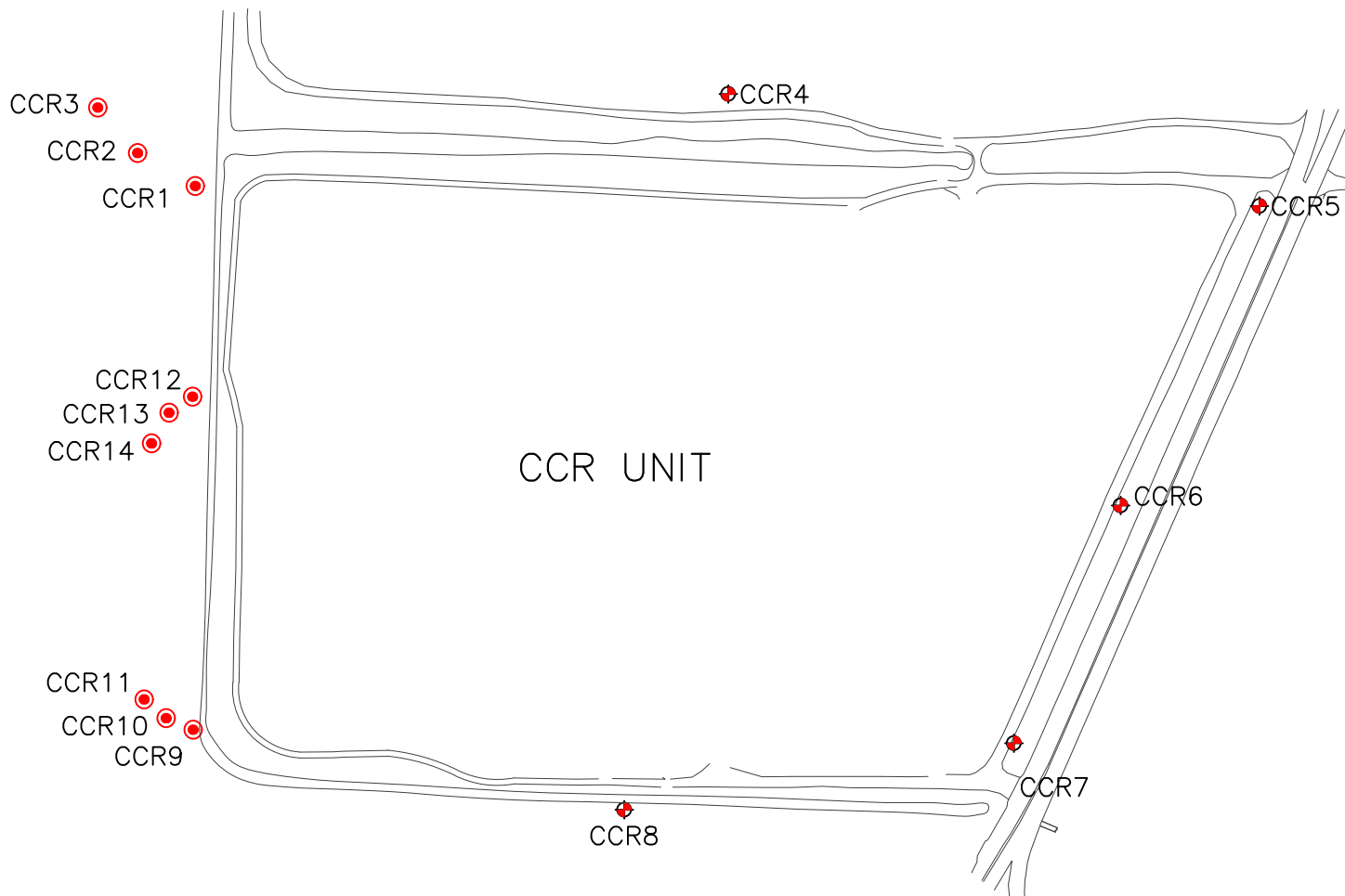
APPENDIX A
SITE MAP

APPENDIX B

SAMPLING SCHEDULE AND ANALYTICAL DATA

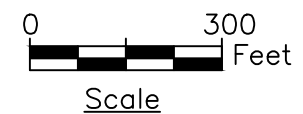
APPENDIX C
ALTERNATE SOURCE DEMONSTRATIONS

APPENDIX A
SITE MAP



Legend


- Upgradient Well Location
- ⊕ Downgradient Well Location



CCR UNIT SITE MAP

ENTERGY LOUISIANA, LLC
 ROY S. NELSON PLANT
 HOUSTON RIVER ROAD, WESTLAKE, LOUISIANA

DATE	DESCRIPTION REVISIONS	BY

SCALE: AS NOTED	DRAWN BY: B.S.	 APPENDIX
DATE: JAN 06/16	CHECKED BY: T.E.	

APPENDIX B

SAMPLING SCHEDULE AND ANALYTICAL DATA



Detection Monitoring Sampling Dates

Entergy Louisiana LLC Nelson Coal Ash Landfill Westlake, LA

Well	CCR-1 (Bg)	CCR-2 (Bg)	CCR-3 (Bg)	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	CCR-9 (Bg)	CCR-10 (Bg)	CCR-11 (Bg)	CCR-12 (Bg)	CCR-13 (Bg)	CCR-14 (Bg)
Date	3/5/19	3/5/19	3/5/19	3/7/19	3/7/19	3/6/19	3/6/19	3/6/19	3/6/19	3/6/19	3/6/19	3/5/19	3/5/19	3/5/19
40 CFR 257 Appendix III Parameters*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40 CFR 257 Appendix IV Parameters**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Date	6/29/19	6/29/19	6/29/19	6/28/19	6/28/19	6/28/19	6/28/19	6/28/19	6/30/19	6/30/19	6/30/19	6/30/19	6/30/19	6/30/19
40 CFR 257 Appendix III Parameters*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40 CFR 257 Appendix IV Parameters**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Date	9/25/19	9/25/19	9/25/19	9/26/19	9/26/19	9/26/19	9/26/19	9/26/19	9/25/19	9/25/19	9/25/19	9/26/19	9/26/19	9/26/19
40 CFR 257 Appendix III Parameters*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40 CFR 257 Appendix IV Parameters**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Date	12/17/19	12/17/19	12/17/19	12/17/19	12/19/19	12/19/19	12/19/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19
40 CFR 257 Appendix III Parameters*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40 CFR 257 Appendix IV Parameters**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*40 CFR 257 Appendix III Parameters collected on reference date and include Boron, Calcium, Chloride, Fluoride, Sulfate, and Total Dissolved Solids. Laboratory reports to follow.

**40 CFR 257 Appendix IV Parameters collected on reference date and include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium and Thallium

Note: Detection monitoring results for pH are located on the next table.

Radium 226 and 228 combined were not analyzed in 2018 due to 100% non-detect in previous background analytical results



Detection Monitoring pH Results

Entergy Louisiana LLC Nelson Coal Ash Landfill Westlake, LA

Well	CCR-1 (Bg)	CCR-2 (Bg)	CCR-3 (Bg)	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	CCR-9 (Bg)	CCR-10 (Bg)	CCR-11 (Bg)	CCR-12 (Bg)	CCR-13 (Bg)	CCR-14 (Bg)
Date	3/5/19	3/5/19	3/5/19	3/7/19	3/7/19	3/6/19	3/6/19	3/6/19	3/6/19	3/6/19	3/6/19	3/5/19	3/5/19	3/5/19
pH (S.U.)	6.96	6.83	6.71	7.08	7.15	7.13	7.13	6.8	7.46	7.41	7.52	7.30	7.15	7.08
Date	6/29/19	6/29/19	6/29/19	6/28/19	6/28/19	6/28/19	6/28/19	6/28/19	6/30/19	6/30/19	6/30/19	6/30/19	6/30/19	6/30/19
pH (S.U.)	6.88	6.77	6.9	6.88	7.04	6.65	7.14	6.66	7.25	7.41	7.22	6.97	7.08	7.01
Date	9/25/19	9/25/19	9/25/19	9/26/19	9/26/19	9/26/19	9/26/19	9/26/19	9/25/19	9/25/19	9/25/19	9/26/19	9/26/19	9/26/19
pH (S.U.)	7.21	7.04	7.14	7.01	7.24	7.19	7.24	6.64	7.41	7.41	7.51	6.68	7.11	7.03
Date	12/17/19	12/17/19	12/17/19	12/17/19	12/19/19	12/19/19	12/19/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19	12/18/19
pH (S.U.)	7.24	7.03	7.14	7.06	7.28	7.21	7.23	6.76	7.52	7.49	7.61	6.78	7.25	6.93

S.U. - Standard Units



Element Materials Technology Lafayette
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Website: www.element.com

March 18, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX:

RE: Entergy: CCR Detection Monitoring / / 15-125-1 Order No.: 19030183

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 3/7/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



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Case Narrative

WO#: 19030183
Date: 3/18/2019

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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Analytical Report

(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 1:00:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	41.5	2.50		mg/L	10	3/11/2019 1:42:54 PM
Fluoride	0.266	0.0500		mg/L	1	3/11/2019 6:17:28 PM
Sulfate	2.10	0.250		mg/L	1	3/11/2019 6:17:28 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 4:50:25 PM
Calcium	26.1	0.500		mg/L	1	3/13/2019 4:50:25 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	266	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 11:50:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	55.1	2.50		mg/L	10	3/11/2019 1:56:34 PM
Fluoride	0.316	0.0500		mg/L	1	3/11/2019 6:31:11 PM
Sulfate	0.796	0.250		mg/L	1	3/11/2019 6:31:11 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 4:54:54 PM
Calcium	21.2	0.500		mg/L	1	3/13/2019 4:54:54 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	244	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 10:40:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	103	5.00		mg/L	20	3/11/2019 2:10:18 PM
Fluoride	0.350	0.0500		mg/L	1	3/11/2019 6:44:55 PM
Sulfate	3.96	0.250		mg/L	1	3/11/2019 6:44:55 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 5:04:01 PM
Calcium	28.4	0.500		mg/L	1	3/13/2019 5:04:01 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	373	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/7/2019 9:45:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	41.5	2.50		mg/L	10	3/11/2019 2:24:02 PM
Fluoride	0.190	0.0500		mg/L	1	3/11/2019 6:58:38 PM
Sulfate	7.41	0.250		mg/L	1	3/11/2019 6:58:38 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.105	0.100		mg/L	1	3/13/2019 5:08:32 PM
Calcium	18.7	0.500		mg/L	1	3/13/2019 5:08:32 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	230	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/7/2019 8:30:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	52.7	5.00		mg/L	20	3/11/2019 3:05:14 PM
Fluoride	0.215	0.0500		mg/L	1	3/11/2019 7:39:50 PM
Sulfate	< 0.250	0.250		mg/L	1	3/11/2019 7:39:50 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.120	0.100		mg/L	1	3/13/2019 5:23:00 PM
Calcium	33.1	0.500		mg/L	1	3/13/2019 5:23:00 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	358	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 4:10:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	81.1	2.50		mg/L	10	3/11/2019 3:18:59 PM
Fluoride	0.224	0.0500		mg/L	1	3/11/2019 7:53:35 PM
Sulfate	< 0.250	0.250		mg/L	1	3/11/2019 7:53:35 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.106	0.100		mg/L	1	3/13/2019 5:27:27 PM
Calcium	31.5	0.500		mg/L	1	3/13/2019 5:27:27 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	306	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 2:45:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	69.0	2.50		mg/L	10	3/11/2019 3:32:43 PM
Fluoride	0.235	0.0500		mg/L	1	3/11/2019 8:07:19 PM
Sulfate	< 0.250	0.250		mg/L	1	3/11/2019 8:07:19 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 5:31:56 PM
Calcium	45.5	0.500		mg/L	1	3/13/2019 5:31:56 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	302	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 1:20:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	81.3	2.50		mg/L	10	3/11/2019 3:46:26 PM
Fluoride	0.121	0.0500		mg/L	1	3/11/2019 8:21:04 PM
Sulfate	0.709	0.250		mg/L	1	3/11/2019 8:21:04 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 5:36:25 PM
Calcium	11.6	0.500		mg/L	1	3/13/2019 5:36:25 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	276	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 11:00:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	64.5	5.00		mg/L	20	3/11/2019 4:00:09 PM
Fluoride	0.521	0.0500		mg/L	1	3/11/2019 8:34:48 PM
Sulfate	5.99	0.250		mg/L	1	3/11/2019 8:34:48 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 5:58:28 PM
Calcium	30.8	0.500		mg/L	1	3/13/2019 5:58:28 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	308	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 9:30:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	38.3	2.50		mg/L	10	3/11/2019 4:13:54 PM
Fluoride	0.552	0.0500		mg/L	1	3/11/2019 8:48:32 PM
Sulfate	17.2	0.250		mg/L	1	3/11/2019 8:48:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:02:57 PM
Calcium	27.3	0.500		mg/L	1	3/13/2019 6:02:57 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	324	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 8:15:00 AM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-011 **Matrix:** AQUEOUS
Client Sample ID CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	24.2	0.250		mg/L	1	3/11/2019 9:02:15 PM
Fluoride	0.633	0.0500		mg/L	1	3/11/2019 9:02:15 PM
Sulfate	3.49	0.250		mg/L	1	3/11/2019 9:02:15 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:07:24 PM
Calcium	26.9	0.500		mg/L	1	3/13/2019 6:07:24 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	192	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 5:00:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	16.2	0.250		mg/L	1	3/11/2019 9:15:59 PM
Fluoride	0.115	0.0500		mg/L	1	3/11/2019 9:15:59 PM
Sulfate	8.46	0.250		mg/L	1	3/11/2019 9:15:59 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:11:51 PM
Calcium	17.9	0.500		mg/L	1	3/13/2019 6:11:51 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	141	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 3:40:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	12.0	0.250		mg/L	1	3/11/2019 9:29:43 PM
Fluoride	0.195	0.0500		mg/L	1	3/11/2019 9:29:43 PM
Sulfate	2.72	0.250		mg/L	1	3/11/2019 9:29:43 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:17:32 PM
Calcium	20.8	0.500		mg/L	1	3/13/2019 6:17:32 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	171	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 2:25:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	10.9	0.250		mg/L	1	3/11/2019 9:43:26 PM
Fluoride	0.139	0.0500		mg/L	1	3/11/2019 9:43:26 PM
Sulfate	< 0.250	0.250		mg/L	1	3/11/2019 9:43:26 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:21:59 PM
Calcium	16.7	0.500		mg/L	1	3/13/2019 6:21:59 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	119	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	63.6	5.00		mg/L	20	3/11/2019 5:50:00 PM
Fluoride	0.513	0.0500		mg/L	1	3/11/2019 10:24:37 PM
Sulfate	5.98	0.250		mg/L	1	3/11/2019 10:24:37 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:26:24 PM
Calcium	31.0	0.500		mg/L	1	3/13/2019 6:26:24 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	327	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030183

Date Reported: 3/18/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 2:45:00 PM
Project: Entergy: CCR Detection Monitoring/ 15-125-1
Lab ID: 19030183-016 **Matrix:** AQUEOUS
Client Sample ID FB1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	< 0.250	0.250		mg/L	1	3/11/2019 6:03:44 PM
Fluoride	< 0.0500	0.0500		mg/L	1	3/11/2019 6:03:44 PM
Sulfate	< 0.250	0.250		mg/L	1	3/11/2019 6:03:44 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	3/13/2019 6:30:52 PM
Calcium	< 0.500	0.500		mg/L	1	3/13/2019 6:30:52 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0		mg/L	1	3/8/2019 1:02:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: 29398

Sample ID: MB-29398	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: PBW	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924705						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	< 0.100	0.100									
Calcium	< 0.500	0.500									

Sample ID: LCS-29398	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: LCSW	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924706						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.498	0.100	0.5000	0	99.7	80	120				
Calcium	50.7	0.500	50.00	0	101	80	120				

Sample ID: LCSD-29398	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: LCSS02	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924707						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.508	0.100	0.5000	0	102	80	120	0.4984	1.81	20	
Calcium	50.4	0.500	50.00	0	101	80	120	50.67	0.614	20	

Sample ID: 19030183-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: CCR-4	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924715						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.620	0.100	0.5000	0.1049	103	75	125				

Qualifiers: H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit
U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: 29398

Sample ID: 19030183-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: CCR-4	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924715						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	70.0	0.500	50.00	18.67	103	75	125				

Sample ID: 19030183-004BMSSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76825						
Client ID: CCR-4	Batch ID: 29398	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924716						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.622	0.100	0.5000	0.1049	103	75	125	0.6204	0.290	20	
Calcium	71.2	0.500	50.00	18.67	105	75	125	69.96	1.73	20	

Qualifiers:

H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: R76696

Sample ID: MB-R76696	SampType: MBLK	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 76696		
Client ID: PBW	Batch ID: R76696	TestNo: SM2540C	Analysis Date: 3/8/2019					SeqNo: 1922928			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: LCS-R76696	SampType: LCS	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 76696						
Client ID: LCSW	Batch ID: R76696	TestNo: SM2540C		Analysis Date: 3/8/2019	SeqNo: 1922929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 983 20.0 1,000 0 98.3 85 115

Sample ID: LCSD-R76696	SampType: LCSD	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 76696						
Client ID: LCSS02	Batch ID: R76696	TestNo: SM2540C		Analysis Date: 3/8/2019	SeqNo: 1922930						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 986 20.0 1,000 0 98.6 85 115 983.0 0.305 10

Sample ID: 19030183-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 76696						
Client ID: CCR-4	Batch ID: R76696	TestNo: SM2540C		Analysis Date: 3/8/2019	SeqNo: 1922937						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 226 20.0 230.0 1.75 10

Qualifiers: H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit
U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: R76696

Sample ID: 19030183-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 76696						
Client ID: CCR-4	Batch ID: R76696	TestNo: SM2540C	Analysis Date: 3/8/2019	SeqNo: 1922937							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: R76754

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: PBW	Batch ID: R76754	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923193						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Fluoride	< 0.0500	0.0500									
Sulfate	< 0.250	0.250									

Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: LCSW	Batch ID: R76754	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923194						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.66	0.250	10.00	0	96.6	90	110				
Fluoride	1.98	0.0500	2.000	0	99.2	90	110				
Sulfate	9.75	0.250	10.00	0	97.5	90	110				

Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: LCSS02	Batch ID: R76754	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923195						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.64	0.250	10.00	0	96.4	90	110	9.662	0.200	15	
Fluoride	1.98	0.0500	2.000	0	99.1	90	110	1.984	0.0885	15	
Sulfate	9.68	0.250	10.00	0	96.8	90	110	9.753	0.757	15	

Qualifiers: H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: R76754

Sample ID: 19030183-004AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: CCR-4	Batch ID: R76754	TestNo: E 300.0	Analysis Date: 3/11/2019	SeqNo: 1923200							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	90.2	2.50	50.00	41.50	97.4	80	120				
Fluoride	9.54	0.500	10.00	0.1135	94.2	80	120				
Sulfate	50.5	2.50	50.00	4.205	92.5	80	120				

Sample ID: 19030183-004AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: CCR-4	Batch ID: R76754	TestNo: E 300.0	Analysis Date: 3/11/2019	SeqNo: 1923201							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	90.9	2.50	50.00	41.50	98.7	80	120	90.22	0.696	15	
Fluoride	9.65	0.500	10.00	0.1135	95.3	80	120	9.536	1.14	15	
Sulfate	51.0	2.50	50.00	4.205	93.7	80	120	50.46	1.15	15	

Sample ID: 19030183-016AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: FB1	Batch ID: R76754	TestNo: E 300.0	Analysis Date: 3/12/2019	SeqNo: 1923239							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.83	0.250	5.000	0	96.5	80	120				
Fluoride	0.978	0.0500	1.000	0	97.8	80	120				
Sulfate	5.04	0.250	5.000	0	101	80	120				

Qualifiers:

H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030183
18-Mar-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring/ 15-125-1

BatchID: R76754

Sample ID: 19030183-016AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76754						
Client ID: FB1	Batch ID: R76754	TestNo: E 300.0	Analysis Date: 3/12/2019	SeqNo: 1923240							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.81	0.250	5.000	0	96.3	80	120	4.827	0.250	15	
Fluoride	0.973	0.0500	1.000	0	97.3	80	120	0.9782	0.509	15	
Sulfate	5.02	0.250	5.000	0	100	80	120	5.040	0.416	15	

Qualifiers:

H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19030183**

RcptNo: **1**

Logged by: **Danielle Hollier** **3/7/2019 3:00:00 PM**
Completed By: **Danielle Hollier** **3/7/2019 4:12:35 PM**
Reviewed By: **Cristina Thibeaux** **3/12/2019 1:20:16 PM**

Danielle Hollier
Danielle Hollier
Cristina Thibeaux

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☒ NA ☐

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

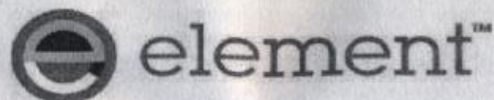
18. Additional remarks:

Improper error correction(s) made by client

Added the year of collection to the COC as per samples received.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Not Present			



- ☐ 2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228
- ☐ 629 Washington St., Suite 300, Columbus, IN 47201
812-375-0531 Fax 812-375-0531
- ☐ 5738 Industrial Rd., Fort Wayne, IN 46825
219-471-7000 Fax 219-471-7777

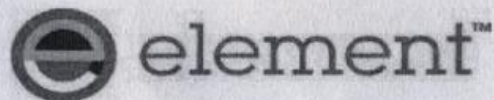
- ☒ 2417 W. Pinhook Rd, Lafayette, LA 70508
337-235-0483/800-737-2378
Fax 337-233-6540
- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

Page 1 of 2

Chain of Custody Record

Laboratory Number 19030183

Client Name: Pivotal Engineering LLC		Project: CCR Detection Monitoring		Preserv.		Test Requested		Comments / Remarks			
Contact Name: Terry Elnaggar		Quote #: 3880		HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃		TDS 300: Cl, F, SO ₄ 6010 metals*					
Phone/Fax: (504) 799-3653		Sampler's Signature: <i>[Signature]</i>		Number / Type of Container		Matrix Code					
Collection	Grab	Comp	Sample Identification / Description			TDS		300: Cl, F, SO ₄		6010 metals*	
Date	Time										
3/5/19	1300	X	C	C	R - 1	None/ HNO ₃	2 Plastic	Aq	X	X	X
↓	1150	X	C	C	R - 2	None/ HNO ₃	2 Plastic	Aq	X	X	X
↓	1040	X	C	C	R - 3	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/7	0945	X	C	C	R - 4	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/7	0830	X	C	C	R - 5	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/6	1610	X	C	C	R - 6	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/6	1445	X	C	C	R - 7	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/6	1320	X	C	C	R - 8	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/6	1100	X	C	C	R - 9	None/ HNO ₃	2 Plastic	Aq	X	X	X
3/6	0930	X	C	C	R - 10	None/ HNO ₃	2 Plastic	Aq	X	X	X
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.										P.O. Number	
Relinquished by: (Signature)		Received by: (Signature)		Date	Time	Relinquished by: (Signature)		Received by: (Signature)		Date	Time
<i>[Signature]</i>		<i>[Signature]</i>		3/7/19	1230	<i>[Signature]</i>		<i>[Signature]</i>		3-7-19	1430
Relinquished by: (Signature)		Received by: (Signature)		Date	Time	Relinquished by: (Signature)		Received by Laboratory: (Signature)		Date	Time
<i>[Signature]</i>		<i>[Signature]</i>				<i>[Signature]</i>		<i>[Signature]</i>		3-7-19	1500
Matrix Codes			Container Types		Shipping Conditions		Requested TAT		Thank-you for using Element Materials Technology		
DW = Drinking Water AQ = Aqueous LIQ = Liquid			G = Glass		<input checked="" type="checkbox"/> Iced <i>120</i> <i>ac</i>		<input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr.				
GW = Ground Water O = Oil SLD = Solid			P = Plastic		Temp. <i>31</i>		<input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard				
WW = Waste Water SO = Soil SL = Sludge			V = Vial		<input type="checkbox"/> Ambient		<input type="checkbox"/> Other				



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Page 2 of 2

Chain of Custody Record

Laboratory Number 19030183

Client Name: Pivotal Engineering LLC				Project: CCR Detection Monitoring <u>15-125-1</u>				Preserv. HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃		Number / Type of Container	Matrix Code	Test Requested							Comments / Remarks		
Contact Name: Terry Elnaggar				Quote #: 3880								TDS	300: Cl, F, SO ₄	6010 metals*							
Phone/Fax: (504) 799-3653				Sampler's Signature: <u>[Signature]</u>																	
Collection		Grab	Comp	Sample Identification / Description																	
Date	Time																				
<u>3/6/19</u>	<u>0815</u>	X		C	C	R	- 1 1	None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>3/5/19</u>	<u>1700</u>	X		C	C	R	- 1 2	None/ HNO ₃	2 Plastic	Aq	X	X	X					*6010 Metals: B, Ca			
<u>↓</u>	<u>1540</u>	X		C	C	R	- 1 3	None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>↓</u>	<u>1425</u>	X		C	C	R	- 1 4	None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>3/7</u>	<u>1000</u>	X		M	S		(CCR- <u>4</u>)	None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>3/7</u>	<u>1000</u>	X		M	S	D	(CCR- <u>4</u>)	None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>3/6</u>	<u>—</u>	X		D	U	P		None/ HNO ₃	2 Plastic	Aq	X	X	X								
<u>3/5</u>	<u>1445</u>	X		F	B	1		None/ HNO ₃	2 Plastic	Aq	X	X	X								
												UPS / FedEx Airborne / Element Hand / Mail									
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.												P.O. Number									
Relinquished by: (Signature) <u>[Signature]</u>				Received by: (Signature) <u>[Signature]</u>				Date <u>3/7/19</u> Time <u>1230</u>		Relinquished by: (Signature) <u>[Signature]</u>				Received by: (Signature) <u>[Signature]</u>				Date <u>3-7-19</u> Time <u>1430</u>			
Relinquished by: (Signature)				Received by: (Signature)				Date		Time		Relinquished by: (Signature)				Received by Laboratory: (Signature)				Date <u>3-7-19</u> Time <u>1500</u>	
Matrix Codes DW = Drinking Water AQ = Aqueous LIQ = Liquid GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge				Container Types G = Glass P = Plastic V = Vial				Shipping Conditions <input checked="" type="checkbox"/> Iced <u>RD</u> Temp. <u>3.1</u> <input type="checkbox"/> Ambient				Requested TAT <input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr. <input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other				Thank-you for using Element Materials Technology					



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April 02, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Assessment Monitoring/ 15-125-1

Order No.: 19030184

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 3/7/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
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Lafayette, LA 70508-3344
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Website: www.element.com

Case Narrative

WO#: 19030184
Date: 4/2/2019

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring/ 15-125-1

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

The Lithium, Antimony and Thallium analyses by Method 6020 were subcontracted to Gulf Coast Analytical Laboratories, Inc. Their report is attached in its entirety.



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Analytical Report

(consolidated)

WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 1:00:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:12:13 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.266	0.0500		mg/L	1	3/11/2019 6:17:28 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 6:32:49 PM
Barium	0.184	0.0100		mg/L	1	3/13/2019 4:50:25 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 4:50:25 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 4:50:25 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 4:50:25 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 4:50:25 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 4:50:25 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 4:50:25 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 4:50:25 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 11:50:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:14:33 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.316	0.0500		mg/L	1	3/11/2019 6:31:11 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 6:36:12 PM
Barium	0.152	0.0100		mg/L	1	3/13/2019 4:54:54 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 4:54:54 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 4:54:54 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 4:54:54 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 4:54:54 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 4:54:54 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 4:54:54 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 4:54:54 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 10:40:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:16:54 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.350	0.0500		mg/L	1	3/11/2019 6:44:55 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0220	0.0100		mg/L	1	3/14/2019 6:39:35 PM
Barium	0.243	0.0100		mg/L	1	3/13/2019 5:04:01 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:04:01 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:04:01 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:04:01 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:04:01 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:04:01 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:04:01 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 5:04:01 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/7/2019 9:45:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:19:13 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.190	0.0500		mg/L	1	3/11/2019 6:58:38 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0196	0.0100		mg/L	1	3/14/2019 6:42:59 PM
Barium	0.102	0.0100		mg/L	1	3/13/2019 5:08:32 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:08:32 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:08:32 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:08:32 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:08:32 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:08:32 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:08:32 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 5:08:32 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette
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Website: www.element.com

Analytical Report

(consolidated)

WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/7/2019 8:30:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:27:14 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.215	0.0500		mg/L	1	3/11/2019 7:39:50 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:13:40 PM
Barium	0.218	0.0100		mg/L	1	3/13/2019 5:23:00 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:23:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:23:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:23:00 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:23:00 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:23:00 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:23:00 PM
Selenium	0.0238	0.0200		mg/L	1	3/13/2019 5:23:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 4:10:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:34:45 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.224	0.0500		mg/L	1	3/11/2019 7:53:35 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0174	0.0100		mg/L	1	3/14/2019 7:17:04 PM
Barium	0.205	0.0100		mg/L	1	3/13/2019 5:27:27 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:27:27 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:27:27 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:27:27 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:27:27 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:27:27 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:27:27 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 5:27:27 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 2:45:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:37:05 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.235	0.0500		mg/L	1	3/11/2019 8:07:19 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:20:28 PM
Barium	0.216	0.0100		mg/L	1	3/13/2019 5:31:56 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:31:56 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:31:56 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:31:56 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:31:56 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:31:56 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:31:56 PM
Selenium	0.0304	0.0200		mg/L	1	3/13/2019 5:31:56 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 1:20:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:39:24 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.121	0.0500		mg/L	1	3/11/2019 8:21:04 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0134	0.0100		mg/L	1	3/14/2019 7:23:50 PM
Barium	0.110	0.0100		mg/L	1	3/13/2019 5:36:25 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:36:25 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:36:25 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:36:25 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:36:25 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:36:25 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:36:25 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 5:36:25 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 11:00:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:41:45 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.521	0.0500		mg/L	1	3/11/2019 8:34:48 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0127	0.0100		mg/L	1	3/14/2019 7:27:15 PM
Barium	0.245	0.0100		mg/L	1	3/13/2019 5:58:28 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 5:58:28 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 5:58:28 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 5:58:28 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 5:58:28 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 5:58:28 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 5:58:28 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 5:58:28 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 9:30:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:44:04 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.552	0.0500		mg/L	1	3/11/2019 8:48:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:30:40 PM
Barium	0.260	0.0100		mg/L	1	3/13/2019 6:02:57 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:02:57 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:02:57 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:02:57 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:02:57 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:02:57 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:02:57 PM
Selenium	0.0210	0.0200		mg/L	1	3/13/2019 6:02:57 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019 8:15:00 AM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-011 **Matrix:** AQUEOUS
Client Sample ID CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:46:25 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.633	0.0500		mg/L	1	3/11/2019 9:02:15 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:34:01 PM
Barium	0.138	0.0100		mg/L	1	3/13/2019 6:07:24 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:07:24 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:07:24 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:07:24 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:07:24 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:07:24 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:07:24 PM
Selenium	0.0225	0.0200		mg/L	1	3/13/2019 6:07:24 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 5:00:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:48:44 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.115	0.0500		mg/L	1	3/11/2019 9:15:59 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0266	0.0100		mg/L	1	3/14/2019 7:37:10 PM
Barium	0.155	0.0100		mg/L	1	3/13/2019 6:11:51 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:11:51 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:11:51 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:11:51 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:11:51 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:11:51 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:11:51 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 6:11:51 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 3:40:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:51:05 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.195	0.0500		mg/L	1	3/11/2019 9:29:43 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:40:28 PM
Barium	0.0940	0.0100		mg/L	1	3/13/2019 6:17:32 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:17:32 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:17:32 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:17:32 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:17:32 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:17:32 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:17:32 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 6:17:32 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 2:25:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:53:25 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.139	0.0500		mg/L	1	3/11/2019 9:43:26 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:51:33 PM
Barium	0.0730	0.0100		mg/L	1	3/13/2019 6:21:59 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:21:59 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:21:59 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:21:59 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:21:59 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:21:59 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:21:59 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 6:21:59 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/6/2019
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 1:55:48 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.513	0.0500		mg/L	1	3/11/2019 10:24:37 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:54:51 PM
Barium	0.250	0.0100		mg/L	1	3/13/2019 6:26:24 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:26:24 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:26:24 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:26:24 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:26:24 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:26:24 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:26:24 PM
Selenium	0.0264	0.0200		mg/L	1	3/13/2019 6:26:24 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19030184

Date Reported 4/2/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 3/5/2019 2:45:00 PM
Project: Entergy: CCR Assessment Monitoring/ 15-125-1
Lab ID: 19030184-016 **Matrix:** AQUEOUS
Client Sample ID FB1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL			SW7470A		Analyst: AC	
Mercury	< 0.000200	0.000200		mg/L	1	3/11/2019 2:03:19 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	< 0.0500	0.0500		mg/L	1	3/11/2019 6:03:44 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	3/14/2019 7:58:13 PM
Barium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:30:52 PM
Beryllium	< 0.00100	0.00100		mg/L	1	3/13/2019 6:30:52 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/13/2019 6:30:52 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/13/2019 6:30:52 PM
Cobalt	< 0.0100	0.0100		mg/L	1	3/13/2019 6:30:52 PM
Lead	< 0.0100	0.0100		mg/L	1	3/13/2019 6:30:52 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	3/13/2019 6:30:52 PM
Selenium	< 0.0200	0.0200		mg/L	1	3/13/2019 6:30:52 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Website: www.element.com

QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29388

Sample ID: 19030184-004BMS	SampType: MS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 3/11/2019	RunNo: 76732						
Client ID: CCR-4	Batch ID: 29388	TestNo: SW7470A		Analysis Date: 3/11/2019	SeqNo: 1922732						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0105	0.000200	0.01000	0	105	75	125				
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Sample ID: 19030184-004BMSD	SampType: MSD	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 3/11/2019	RunNo: 76732						
Client ID: CCR-4	Batch ID: 29388	TestNo: SW7470A		Analysis Date: 3/11/2019	SeqNo: 1922733						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0103	0.000200	0.01000	0	103	75	125	0.01052	2.56	20	
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Sample ID: MB-29388	SampType: MBLK	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 3/11/2019	RunNo: 76732						
Client ID: PBW	Batch ID: 29388	TestNo: SW7470A		Analysis Date: 3/11/2019	SeqNo: 1922757						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	< 0.000200	0.000200									
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Sample ID: LCS-29388	SampType: LCS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 3/11/2019	RunNo: 76732						
Client ID: LCSW	Batch ID: 29388	TestNo: SW7470A		Analysis Date: 3/11/2019	SeqNo: 1922758						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0108	0.000200	0.01000	0	108	80	120				
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Qualifiers:

H	Holding times for preparation or analysis exceeded
RL	Reporting Limit
U	Analyte not detected

M	Matrix Interference
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode

ND	Not Detected at the Reporting Limit
SDL	Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29388

Sample ID: LCSD-29388	SampType: LCSD	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 3/11/2019	RunNo: 76732						
Client ID: LCSS02	Batch ID: 29388	TestNo: SW7470A		Analysis Date: 3/11/2019	SeqNo: 1922759						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0104	0.000200	0.01000	0	104	80	120	0.01075	3.39	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded
RL	Reporting Limit
U	Analyte not detected

M	Matrix Interference
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode

ND	Not Detected at the Reporting Limit
SDL	Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29398-1

Sample ID: MB-29398	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76839						
Client ID: PBW	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/14/2019	SeqNo: 1925380						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	< 0.0100	0.0100									
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Sample ID: LCS-29398	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76839						
Client ID: LCSW	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/14/2019	SeqNo: 1925381						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	0.523	0.0100	0.5000	0	105	80	120				
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Sample ID: LCSD-29398	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76839						
Client ID: LCSS02	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/14/2019	SeqNo: 1925382						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	0.549	0.0100	0.5000	0	110	80	120	0.5227	4.84	20	
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Sample ID: 19030184-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76839						
Client ID: CCR-4	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/14/2019	SeqNo: 1925387						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	0.545	0.0100	0.5000	0.01960	105	75	125				
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Qualifiers:

H	Holding times for preparation or analysis exceeded
RL	Reporting Limit
U	Analyte not detected

M	Matrix Interference
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode

ND	Not Detected at the Reporting Limit
SDL	Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29398-1

Sample ID: 19030184-004BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76839						
Client ID: CCR-4	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/14/2019	SeqNo: 1925392						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.545	0.0100	0.5000	0.01960	105	75	125	0.5448	0.0551	20	

Qualifiers:
H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29398-1

Sample ID: MB-29398	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76836						
Client ID: PBW	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924957						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Beryllium	< 0.00100	0.00100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Cobalt	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID: LCS-29398	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76836						
Client ID: LCSW	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924958						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.506	0.0100	0.5000	0	101	80	120				
Beryllium	0.502	0.00100	0.5000	0	100	80	120				
Cadmium	0.502	0.00500	0.5000	0	100	80	120				
Chromium	0.504	0.0100	0.5000	0	101	80	120				
Cobalt	0.508	0.0100	0.5000	0	102	80	120				
Lead	0.504	0.0100	0.5000	0	101	80	120				
Molybdenum	0.498	0.0100	0.5000	0	99.6	80	120				
Selenium	0.505	0.0200	0.5000	0	101	80	120				

Qualifiers:
H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29398-1

Sample ID: LCSD-29398	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76836						
Client ID: LCSS02	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924959						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.503	0.0100	0.5000	0	101	80	120	0.5059	0.595	20	
Beryllium	0.502	0.00100	0.5000	0	100	80	120	0.5024	0.0796	20	
Cadmium	0.499	0.00500	0.5000	0	99.8	80	120	0.5021	0.659	20	
Chromium	0.501	0.0100	0.5000	0	100	80	120	0.5041	0.657	20	
Cobalt	0.504	0.0100	0.5000	0	101	80	120	0.5079	0.771	20	
Lead	0.510	0.0100	0.5000	0	102	80	120	0.5043	1.10	20	
Molybdenum	0.499	0.0100	0.5000	0	99.8	80	120	0.4982	0.120	20	
Selenium	0.494	0.0200	0.5000	0	98.8	80	120	0.5051	2.20	20	

Sample ID: 19030184-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76836						
Client ID: CCR-4	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924967						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.612	0.0100	0.5000	0.1020	102	75	125				
Beryllium	0.508	0.00100	0.5000	0.0003000	102	75	125				
Cadmium	0.495	0.00500	0.5000	0.001300	98.7	75	125				
Chromium	0.507	0.0100	0.5000	0	101	75	125				
Cobalt	0.505	0.0100	0.5000	0	101	75	125				
Lead	0.507	0.0100	0.5000	0	101	75	125				
Molybdenum	0.512	0.0100	0.5000	0.004900	101	75	125				
Selenium	0.511	0.0200	0.5000	0.01290	99.5	75	125				

Qualifiers: H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: 29398-1

Sample ID: 19030184-004BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 3/12/2019	RunNo: 76836						
Client ID: CCR-4	Batch ID: 29398-1	TestNo: SW6010B		Analysis Date: 3/13/2019	SeqNo: 1924968						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.616	0.0100	0.5000	0.1020	103	75	125	0.6121	0.668	20	
Beryllium	0.512	0.00100	0.5000	0.0003000	102	75	125	0.5083	0.725	20	
Cadmium	0.498	0.00500	0.5000	0.001300	99.4	75	125	0.4950	0.705	20	
Chromium	0.510	0.0100	0.5000	0	102	75	125	0.5071	0.649	20	
Cobalt	0.509	0.0100	0.5000	0	102	75	125	0.5047	0.809	20	
Lead	0.511	0.0100	0.5000	0	102	75	125	0.5070	0.708	20	
Molybdenum	0.515	0.0100	0.5000	0.004900	102	75	125	0.5115	0.604	20	
Selenium	0.501	0.0200	0.5000	0.01290	97.6	75	125	0.5105	1.90	20	

Qualifiers:
H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: R76755

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: PBW	Batch ID: R76755	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923247						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	< 0.0500	0.0500									
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Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: LCSW	Batch ID: R76755	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923248						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	1.98	0.0500	2.000	0	99.2	90	110				
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Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: LCSS02	Batch ID: R76755	TestNo: E 300.0	Analysis Date: 3/11/2019	SeqNo: 1923249							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	1.98	0.0500	2.000	0	99.1	90	110	1.984	0.0885	15	
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Sample ID: 19030184-004AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: CCR-4	Batch ID: R76755	TestNo: E 300.0		Analysis Date: 3/11/2019	SeqNo: 1923254						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	9.54	0.500	10.00	0.1135	94.2	80	120				
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Qualifiers:

H	Holding times for preparation or analysis exceeded
RL	Reporting Limit
U	Analyte not detected

M	Matrix Interference
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode

ND	Not Detected at the Reporting Limit
SDL	Sample detection limit



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Website: www.element.com

QC SUMMARY REPORT

WO#: 19030184

02-Apr-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring/ 15-125-

BatchID: R76755

Sample ID: 19030184-004AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: CCR-4	Batch ID: R76755	TestNo: E 300.0	Analysis Date: 3/11/2019	SeqNo: 1923255							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	9.65	0.500	10.00	0.1135	95.3	80	120	9.536	1.14	15	

Sample ID: 19030184-016AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: FB1	Batch ID: R76755	TestNo: E 300.0	Analysis Date: 3/12/2019	SeqNo: 1923293							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.978	0.0500	1.000	0	97.8	80	120				

Sample ID: 19030184-016AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 76755						
Client ID: FB1	Batch ID: R76755	TestNo: E 300.0	Analysis Date: 3/12/2019	SeqNo: 1923294							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.973	0.0500	1.000	0	97.3	80	120	0.9782	0.509	15	

Qualifiers:

H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected

M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19030184**

RcptNo: **1**

Logged by: **Danielle Hollier** **3/7/2019 3:00:00 PM**

Danielle Hollier

Completed By: **Danielle Hollier** **3/7/2019 4:27:35 PM**

Danielle Hollier

Reviewed By: **Cristina Thibaux** **3/12/2019 1:26:58 PM**

Cristina Thibaux

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☒ NA ☐

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:
Improper error correction(s) made by client
Added the year of collection to the COC as per samples received.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Not Present			

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 04/01/2019

GCAL Report 219031258



Project 19030184

<i>Deliver To</i>	<i>Additional Recipients</i>
Annie Reedy	Caitlin Duplantis, Element Materials Technology
Element Materials Technology	Cristina Thibeaux, Element Materials Technology
2417 W Pinhook Rd	Rhonda David, Element Materials Technology
Lafayette, LA 70508	Buffy Hudson, Element Materials Technology
800-737-2378	



Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

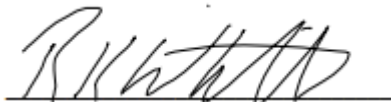
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % difference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
GCAL Report 219031258

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: Element Materials Technology **Report:** 219031258

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

No anomalies were found in the analyzed sample(s).

Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21903125801	CCR-1	Water	03/05/2019 13:00	03/12/2019 13:40
21903125802	CCR-2	Water	03/05/2019 11:50	03/12/2019 13:40
21903125803	CCR-3	Water	03/05/2019 10:40	03/12/2019 13:40
21903125804	CCR-4	Water	03/07/2019 09:45	03/12/2019 13:40
21903125805	CCR-4 MS	Water	03/07/2019 09:45	03/12/2019 13:40
21903125806	CCR-4 MSD	Water	03/07/2019 09:45	03/12/2019 13:40
21903125807	CCR-5	Water	03/07/2019 08:30	03/12/2019 13:40
21903125808	CCR-6	Water	03/06/2019 16:10	03/12/2019 13:40
21903125809	CCR-7	Water	03/06/2019 14:45	03/12/2019 13:40
21903125810	CCR-8	Water	03/06/2019 13:20	03/12/2019 13:40
21903125811	CCR-9	Water	03/06/2019 11:00	03/12/2019 13:40
21903125812	CCR-10	Water	03/06/2019 09:30	03/12/2019 13:40
21903125813	CCR-11	Water	03/06/2019 08:15	03/12/2019 13:40
21903125814	CCR-12	Water	03/05/2019 17:00	03/12/2019 13:40
21903125815	CCR-13	Water	03/05/2019 15:40	03/12/2019 13:40
21903125816	CCR-14	Water	03/05/2019 14:25	03/12/2019 13:40
21903125817	DUP	Water	03/06/2019 00:01	03/12/2019 13:40
21903125818	FB1	Water	03/05/2019 14:45	03/12/2019 13:40

Sample Results

CCR-1	Collect Date	03/05/2019 13:00	GCAL ID	21903125801
	Receive Date	03/12/2019 13:40	Matrix	Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 01:56	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	23.7	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-2	Collect Date	03/05/2019 11:50	GCAL ID	21903125802
	Receive Date	03/12/2019 13:40	Matrix	Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:01	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	23.6	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-3	Collect Date	03/05/2019 10:40	GCAL ID	21903125803
	Receive Date	03/12/2019 13:40	Matrix	Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:49	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

Sample Results

CCR-3

Collect Date 03/05/2019 10:40

GCAL ID 21903125803

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/30/2019 01:15	LWZ	656885

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	34.1	5.00	ug/L

CCR-4

Collect Date 03/07/2019 09:45

GCAL ID 21903125804

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:06	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	18.3	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-4 MS

Collect Date 03/07/2019 09:45

GCAL ID 21903125805

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:11	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	119	2.00	ug/L
7439-93-2	Lithium	275	5.00	ug/L
7440-28-0	Thallium	52.9	1.00	ug/L

Sample Results

CCR-4 MSD

Collect Date 03/07/2019 09:45

GCAL ID 21903125806

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:16	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	109	2.00	ug/L
7439-93-2	Lithium	255	5.00	ug/L
7440-28-0	Thallium	49.5	1.00	ug/L

CCR-5

Collect Date 03/07/2019 08:30

GCAL ID 21903125807

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:40	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	22.5	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-6

Collect Date 03/06/2019 16:10

GCAL ID 21903125808

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:45	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	14.7	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

Sample Results

CCR-7

Collect Date 03/06/2019 14:45

GCAL ID 21903125809

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:50	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	12.2	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-8

Collect Date 03/06/2019 13:20

GCAL ID 21903125810

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 02:55	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	39.3	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-9

Collect Date 03/06/2019 11:00

GCAL ID 21903125811

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:00	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	8.57	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

Sample Results

CCR-10

Collect Date 03/06/2019 09:30

GCAL ID 21903125812

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:05	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	7.88	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-11

Collect Date 03/06/2019 08:15

GCAL ID 21903125813

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:10	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	8.01	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-12

Collect Date 03/05/2019 17:00

GCAL ID 21903125814

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:15	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	24.7	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

Sample Results

CCR-13

Collect Date 03/05/2019 15:40

GCAL ID 21903125815

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:20	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	23.3	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

CCR-14

Collect Date 03/05/2019 14:25

GCAL ID 21903125816

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:24	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7439-93-2	Lithium	15.7	5.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

DUP

Collect Date 03/06/2019 00:01

GCAL ID 21903125817

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:39	LWZ	656784

CAS#	Parameter	Result	LOQ	Units
7440-36-0	Antimony	ND	2.00	ug/L
7440-28-0	Thallium	ND	1.00	ug/L

Sample Results

DUP
Collect Date 03/06/2019 00:01

GCAL ID 21903125817

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/30/2019 01:08	LWZ	656885
CAS#	Parameter	Result	LOQ	Units		
7439-93-2	Lithium	12.2	5.00	ug/L		

FB1
Collect Date 03/05/2019 14:45

GCAL ID 21903125818

Receive Date 03/12/2019 13:40

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/28/2019 03:44	LWZ	656784
CAS#	Parameter	Result	LOQ	Units		
7440-36-0	Antimony	ND	2.00	ug/L		
7440-28-0	Thallium	ND	1.00	ug/L		

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
03/13/2019 11:00	655756	EPA 3010A	1	03/30/2019 01:11	LWZ	656885
CAS#	Parameter	Result	LOQ	Units		
7439-93-2	Lithium	ND	5.00	ug/L		

Inorganics QC Summary

Analytical Batch 656784		Client ID GCAL ID	MB655756 1904835	LCS655756 1904836			
Prep Batch 655756		Sample Type	MB	LCS			
Prep Method EPA 3010A		Prep Date	03/13/2019 11:00	03/13/2019 11:00			
		Analysis Date	03/28/2019 01:46	03/28/2019 01:51			
		Matrix	Water	Water			
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Antimony	7440-36-0	ND	2.00	100	110	110	80 - 120
Lithium	7439-93-2	ND	5.00	250	250	100	80 - 120
Thallium	7440-28-0	ND	1.00	50.0	49.6	99	80 - 120

Analytical Batch		Client ID	CCR-4		CCR-4 MS			CCR-4 MSD					
656784		GCAL ID	21903125804		21903125805			21903125806					
Prep Batch		Sample Type	SAMPLE		MS			MSD					
655756		Prep Date	03/13/2019 11:00		03/13/2019 11:00			03/13/2019 11:00					
Prep Method		Analysis Date	03/28/2019 02:06		03/28/2019 02:11			03/28/2019 02:16					
EPA 3010A		Matrix	Water		Water			Water					
EPA 6020B			Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Antimony	7440-36-0		0.0	2.00	100	119	119	80 - 120	100	109	109	9	20
Lithium	7439-93-2		18.3	5.00	250	275	103	80 - 120	250	255	95	8	20
Thallium	7440-28-0		0.0	1.00	50.0	52.9	106	80 - 120	50.0	49.5	99	7	20



CHAIN OF CUSTODY RECORD

Omega COCID 8055

Client ID: 4462 - Element Materials Technology

SDG: 219031258

PM: JLM



TEL: (337) 235-0483

FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL COMPANY: Gulf Coast					SPECIAL INSTRUCTIONS / COMMENTS: sub for Li, Sb, Tl.		
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	19030184-001B SW6020A	CCR-1	250HDPEHNO3	Aqueous	3/5/2019 1:00:00 PM	1	
2	19030184-002B SW6020A	CCR-2	250HDPEHNO3	Aqueous	3/5/2019 11:50:00 AM	1	
3	19030184-003B SW6020A	CCR-3	250HDPEHNO3	Aqueous	3/5/2019 10:40:00 AM	1	
4	19030184-004B SW6020A	CCR-4	250HDPEHNO3	Aqueous	3/7/2019 9:45:00 AM	3	client specified MS/MSD
5	19030184-005B SW6020A	CCR-5	250HDPEHNO3	Aqueous	3/7/2019 8:30:00 AM	1	
6	19030184-006B SW6020A	CCR-6	250HDPEHNO3	Aqueous	3/6/2019 4:10:00 PM	1	
7	19030184-007B SW6020A	CCR-7	250HDPEHNO3	Aqueous	3/6/2019 2:45:00 PM	1	
8	19030184-008B SW6020A	CCR-8	250HDPEHNO3	Aqueous	3/6/2019 1:20:00 PM	1	
9	19030184-009B SW6020A	CCR-9	250HDPEHNO3	Aqueous	3/6/2019 11:00:00 AM	1	
Relinquished By:		Date:	Time:	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE FOR LAB USE ONLY Temp of samples _____ °C Attempt to Cool? _____ Comments: <i>*See original CDC's for signatures & temp. of samples.</i>
Relinquished By:		Date:	Time:	Received By:	Date:	Time:	
Relinquished By:		Date:	Time:	Received By:	Date:	Time:	
TAT: Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/> Note: RUSH requests will incur surcharges!							



CHAIN OF CUSTODY RECORD

Omega COCID 8055

Client ID: 4462 - Element Materials Technology

SDG: 219031258

PM: JLM



TEL: (337) 235-0483

FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS:			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
10	19030184-010B	CCR-10	250HDPEHNO3	Aqueous	3/6/2019 9:30:00 AM	1	
	SW6020A						
11	19030184-011B	CCR-11	250HDPEHNO3	Aqueous	3/6/2019 8:15:00 AM	1	
	SW6020A						
12	19030184-012B	CCR-12	250HDPEHNO3	Aqueous	3/5/2019 5:00:00 PM	1	
	SW6020A						
13	19030184-013B	CCR-13	250HDPEHNO3	Aqueous	3/5/2019 3:40:00 PM	1	
	SW6020A						
14	19030184-014B	CCR-14	250HDPEHNO3	Aqueous	3/5/2019 2:25:00 PM	1	
	SW6020A						
15	19030184-015B	DUP	250HDPEHNO3	Aqueous	3/6/2019	1	
	SW6020A						
16	19030184-016B	FB1	250HDPEHNO3	Aqueous	3/5/2019 2:45:00 PM	1	
	SW6020A						

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						FOR LAB USE ONLY
Note: RUSH requests will incur surcharges!						Temp of samples _____ °C Attempt to Cool ? _____
						Comments: <u>See</u>



CHAIN OF CUSTODY RECORD

Omega COCID 8045

PAGE

Client ID: 4462 - Element Materials Technology

SDG: 219031258

PM: JLM



FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS: Lithium			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	19030184-001C	CCR-1	250HDPEHNO3	Aqueous	3/5/2019 1:00:00 PM	1	
	SW6020A						
2	19030184-002C	CCR-2	250HDPEHNO3	Aqueous	3/5/2019 11:50:00 AM	1	
	SW6020A						
3	19030184-003C	CCR-3	250HDPEHNO3	Aqueous	3/5/2019 10:40:00 AM	1	
	SW6020A						
4	19030184-004C	CCR-4	250HDPEHNO3	Aqueous	3/7/2019 9:45:00 AM	3	
	SW6020A						
5	19030184-005C	CCR-5	250HDPEHNO3	Aqueous	3/7/2019 8:30:00 AM	1	
	SW6020A						
6	19030184-006C	CCR-6	250HDPEHNO3	Aqueous	3/6/2019 4:10:00 PM	1	
	SW6020A						
7	19030184-007C	CCR-7	250HDPEHNO3	Aqueous	3/6/2019 2:45:00 PM	1	
	SW6020A						
8	19030184-008C	CCR-8	250HDPEHNO3	Aqueous	3/6/2019 1:20:00 PM	1	
	SW6020A						
9	19030184-009C	CCR-9	250HDPEHNO3	Aqueous	3/6/2019 11:00:00 AM	1	
	SW6020A						

Relinquished By: <i>Donna H. H. H.</i>	Date: <i>3-11-19</i>	Time: <i>1500</i>	Received By: <i>David Dent</i>	Date: <i>3-11-19</i>	Time: <i>1500</i>	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By: <i>Walter B. B.</i>	Date: <i>3-12-19</i>	Time: <i>1340</i>	Received By: <i>Tiffany J.</i>	Date: <i>3-12-19</i>	Time: <i>1340</i>	FOR LAB USE ONLY	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						Temp of samples <i>2.4</i> °C Attempt to Cool? _____	
Note: RUSH requests will incur surcharges!						Comments: _____	



CHAIN OF CUSTODY RECORD

Omega COCID 8045

PAGE

Client ID: 4462 - Element Materials Technology

SDG: 219031258

PM: JLM



FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS: Lithium			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
10	19030184-010C	CCR-10	250HDPEHNO3	Aqueous	3/6/2019 9:30:00 AM	1	
	SW6020A						
11	19030184-011C	CCR-11	250HDPEHNO3	Aqueous	3/6/2019 8:15:00 AM	1	
	SW6020A						
12	19030184-012C	CCR-12	250HDPEHNO3	Aqueous	3/5/2019 5:00:00 PM	1	
	SW6020A						
13	19030184-013C	CCR-13	250HDPEHNO3	Aqueous	3/5/2019 3:40:00 PM	1	
	SW6020A						
14	19030184-014C	CCR-14	250HDPEHNO3	Aqueous	3/5/2019 2:25:00 PM	1	
	SW6020A						
15	19030184-015C	DUP	250HDPEHNO3	Aqueous	3/6/2019	1	
	SW6020A						
16	19030184-016C	FB1	250HDPEHNO3	Aqueous	3/5/2019 2:45:00 PM	1	
	SW6020A						

Relinquished By: <i>Danish Hollis</i>	Date: <i>3-11-19</i>	Time: <i>1500</i>	Received By: <i>Robert Deroit</i>	Date: <i>3-11-19</i>	Time: <i>1500</i>	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By: <i>Robert Deroit</i>	Date: <i>3-12-19</i>	Time: <i>1340</i>	Received By: <i>Tiffany Davis</i>	Date: <i>3-12-19</i>	Time: <i>1340</i>	FOR LAB USE ONLY	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						Temp of samples <i>2.4</i> °C Attempt to Cool? _____	
Note: RUSH requests will incur surcharges!						Comments: _____	

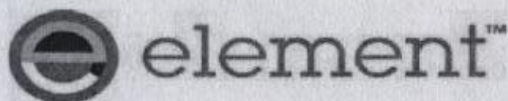


SAMPLE RECEIVING CHECKLIST



* 2 1 9 0 3 1 2 5 8 *

SAMPLE DELIVERY GROUP 219031258			CHECKLIST		YES	NO
Client PM JLM 4462 - Element Materials Technology	Transport Method CUST		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile Number 271810	Received By Savage, Tiffany R		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Line Item(s) 13 - Li, Sb, Ti	Receive Date(s) 03/12/19		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Samples collected in containers provided by GCAL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COOLERS			DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E29	Temp °C	None	None		
		2.4				
NOTES						



- ☐ 2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228
- ☐ 629 Washington St., Suite 300, Columbus, IN 47201
812-375-0531 Fax 812-375-0531
- ☐ 5738 Industrial Rd., Fort Wayne, IN 46825
219-471-7000 Fax 219-471-7777

- ☒ 2417 W. Pinhook Rd, Lafayette, LA 70508
337-235-0483/800-737-2378
Fax 337-233-6540
- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

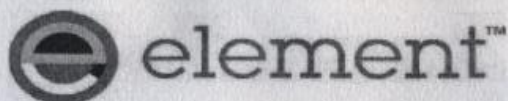
Page 1 of 2

Chain of Custody Record

Laboratory Number 19030184

Client Name: Pivotal Engineering LLC		Project: CCR Assessment Monitoring <u>15-125-1</u>		Preserv. HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃	Number / Type of Container	Matrix Code	Test Requested								Comments / Remarks	
Contact Name: Terry Elnaggar		Quote #: 3880					300: Fluoride	*6010/**6020 metal	***6020 Sub	7470 Mercury						
Phone/Fax: (504) 799-3653		Sampler's Signature: 														
Collection Date	Time	Grab	Comp	Sample Identification / Description												
<u>3/5/19</u>	<u>1300</u>	X		C	C	R	-	1	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se **6020 Metals: Sb, Ti ***6020 Sub Metal: Li
<u>↓</u>	<u>1150</u>	X		C	C	R	-	2	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>↓</u>	<u>1040</u>	X		C	C	R	-	3	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/7</u>	<u>0945</u>	X		C	C	R	-	4	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/8</u>	<u>0830</u>	X		C	C	R	-	5	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/6</u>	<u>1610</u>	X		C	C	R	-	6	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/6</u>	<u>1445</u>	X		C	C	R	-	7	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/6</u>	<u>1320</u>	X		C	C	R	-	8	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/6</u>	<u>1100</u>	X		C	C	R	-	9	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
<u>3/6</u>	<u>0930</u>	X		C	C	R	-	10	None/ HNO ₃	3 Plastic	Aq	X	X	X	X	
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.														P.O. Number		
Relinquished by: (Signature) 		Received by: (Signature) 		Date <u>3/7/19</u>	Time <u>1230</u>	Relinquished by: (Signature) 		Received by: (Signature) 		Date <u>3-7-19</u>	Time <u>1430</u>					
Relinquished by: (Signature)		Received by: (Signature)		Date	Time	Relinquished by: (Signature)		Received by: Laboratory: (Signature)		Date <u>3-7-19</u>	Time <u>1500</u>					
Matrix Codes DW = Drinking Water AQ = Aqueous LIQ = Liquid GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge				Container Types G = Glass P = Plastic V = Vial		Shipping Conditions <input checked="" type="checkbox"/> Iced <u>RB</u> Temp. <u>3.1</u> <input type="checkbox"/> Ambient		Requested TAT <input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr. <input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other		Thank-you for using Element Materials Technology						

12/10



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- ☐ 5738 Industrial Rd., Fort Wayne, IN 46825
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337-235-0483/800-737-2378
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- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

Page 2 of 2

Chain of Custody Record

Laboratory Number 190301814

Client Name: Pivotal Engineering LLC		Project: CCR Assessment Monitoring <u>15-125-1</u>		Preserv. HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃	Number / Type of Container	Matrix Code	Test Requested								Comments / Remarks	
Contact Name: Terry Elnaggar		Quote #: 3880					300: Fluoride	*6010/**6020 metal	***6020 Sub	7470 Mercury						
Phone/Fax: (504) 799-3653		Sampler's Signature: <u>[Signature]</u>														
Collection Date Time		Grab	Comp	Sample Identification / Description												
<u>3/4/10 0815</u>		X		C C R - 1 1		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se
<u>3/5/10 1700</u>		X		C C R - 1 2		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				
<u>1540</u>		X		C C R - 1 3		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				**6020 Metals: Sb, Ti
<u>1425</u>		X		C C R - 1 4		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				***6020 Sub Metal: Li
<u>3/7/10 1000</u>		X		M S (CCR- <u>4</u>)		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				
<u>3/7/10 1000</u>		X		M S D (CCR- <u>4</u>)		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				
<u>3/6/10</u>		X		D U P		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				
<u>3/5/10 1445</u>		X		F B 1		None/ HNO ₃	3 Plastic	Aq	X	X	X	X				
																UPS / FedEx Airborne / Element Hand / Mail
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.																P.O. Number
Relinquished by: (Signature) <u>[Signature]</u>		Received by: (Signature) <u>[Signature]</u>		Date <u>3/7/10</u>	Time <u>1230</u>	Relinquished by: (Signature) <u>[Signature]</u>		Received by: (Signature) <u>[Signature]</u>		Date <u>3-7-10</u>	Time <u>1430</u>					
Relinquished by: (Signature)		Received by: (Signature)		Date	Time	Relinquished by: (Signature)		Received by: (Signature)		Date	Time					
										<u>3-7-10</u>	<u>1500</u>					
Matrix Codes DW = Drinking Water AQ = Aqueous LIQ = Liquid GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge				Container Types G = Glass P = Plastic V = Vial		Shipping Conditions <input checked="" type="checkbox"/> Iced <u>14.1</u> Temp. <u>3.1</u> <input type="checkbox"/> Ambient		Requested TAT <input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr. <input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other		Thank-you for using Element Materials Technology						



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

July 16, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Detection Monitoring

Order No.: 19070028

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 7/1/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink, appearing to read 'Cristina Thibeaux'.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Case Narrative

WO#: **19070028**
Date: **7/16/2019**

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette
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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 5:40:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	44.7	2.50		mg/L	10	7/8/2019 11:19:08 AM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 11:19:08 AM
Sulfate	48.5	2.50		mg/L	10	7/8/2019 11:19:08 AM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 12:41:32 AM
Calcium	24.5	0.500		mg/L	1	7/3/2019 10:05:22 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	285	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 4:20:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	59.3	2.50		mg/L	10	7/8/2019 11:32:52 AM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 11:32:52 AM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 11:32:52 AM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 1:02:49 AM
Calcium	20.3	0.500		mg/L	1	7/3/2019 10:10:10 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	250	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Website: www.element.com

Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 3:05:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	112	5.00		mg/L	20	7/8/2019 11:46:36 AM
Fluoride	< 1.00	1.00		mg/L	20	7/8/2019 11:46:36 AM
Sulfate	< 5.00	5.00		mg/L	20	7/8/2019 11:46:36 AM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 1:07:37 AM
Calcium	26.6	0.500		mg/L	1	7/3/2019 10:14:57 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	255	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 3:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	36.7	2.50		mg/L	10	7/8/2019 12:00:20 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 12:00:20 PM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 12:00:20 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.116	0.100		mg/L	1	7/11/2019 1:12:24 AM
Calcium	19.0	0.500		mg/L	1	7/3/2019 10:19:44 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	253	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 10:25:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	58.4	5.00		mg/L	20	7/8/2019 12:41:34 PM
Fluoride	< 1.00	1.00		mg/L	20	7/8/2019 12:41:34 PM
Sulfate	< 5.00	5.00		mg/L	20	7/8/2019 12:41:34 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.121	0.100		mg/L	1	7/11/2019 1:26:19 AM
Calcium	33.0	0.500		mg/L	1	7/3/2019 10:33:38 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	396	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Lafayette, LA 70508-3344
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Website: www.element.com

Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 11:35:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	91.9	2.50		mg/L	10	7/8/2019 12:55:18 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 12:55:18 PM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 12:55:18 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.119	0.100		mg/L	1	7/11/2019 1:31:06 AM
Calcium	29.8	0.500		mg/L	1	7/3/2019 10:38:26 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	320	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 12:50:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	75.2	2.50		mg/L	10	7/8/2019 1:36:28 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 1:36:28 PM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 1:36:28 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.108	0.100		mg/L	1	7/11/2019 1:35:54 AM
Calcium	48.9	0.500		mg/L	1	7/3/2019 10:52:34 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	324	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 2:00:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	84.5	2.50		mg/L	10	7/8/2019 1:50:12 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 1:50:12 PM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 1:50:12 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 1:40:43 AM
Calcium	12.1	0.500		mg/L	1	7/3/2019 10:57:22 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	286	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 12:20:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	67.3	2.50		mg/L	10	7/8/2019 2:03:55 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 2:03:55 PM
Sulfate	2.52	2.50		mg/L	10	7/8/2019 2:03:55 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 1:45:29 AM
Calcium	30.5	0.500		mg/L	1	7/3/2019 11:02:10 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	310	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 1:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-010 **Matrix:** AQUEOUS
Client Sample ID: CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	41.9	2.50		mg/L	10	7/8/2019 2:17:40 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 2:17:40 PM
Sulfate	6.84	2.50		mg/L	10	7/8/2019 2:17:40 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:06:47 AM
Calcium	27.0	0.500		mg/L	1	7/3/2019 11:06:57 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	346	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 2:40:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-011 **Matrix:** AQUEOUS
Client Sample ID: CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	26.0	2.50		mg/L	10	7/8/2019 2:31:21 PM
Fluoride	< 0.500	0.500		mg/L	10	7/8/2019 2:31:21 PM
Sulfate	< 2.50	2.50		mg/L	10	7/8/2019 2:31:21 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:11:34 AM
Calcium	28.7	0.500		mg/L	1	7/3/2019 11:11:44 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	203	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: **19070028**

Date Reported **7/16/2019**

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 8:40:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	16.9	1.25		mg/L	5	7/8/2019 2:45:04 PM
Fluoride	< 0.250	0.250		mg/L	5	7/8/2019 2:45:04 PM
Sulfate	24.2	1.25		mg/L	5	7/8/2019 2:45:04 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:16:21 AM
Calcium	18.2	0.500		mg/L	1	7/3/2019 11:16:30 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	169	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 9:50:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	12.7	1.25		mg/L	5	7/8/2019 2:58:49 PM
Fluoride	< 0.250	0.250		mg/L	5	7/8/2019 2:58:49 PM
Sulfate	< 1.25	1.25		mg/L	5	7/8/2019 2:58:49 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:21:06 AM
Calcium	19.8	0.500		mg/L	1	7/3/2019 11:21:15 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	204	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 11:00:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	11.5	1.25		mg/L	5	7/8/2019 3:12:32 PM
Fluoride	< 0.250	0.250		mg/L	5	7/8/2019 3:12:32 PM
Sulfate	< 1.25	1.25		mg/L	5	7/8/2019 3:12:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:25:53 AM
Calcium	16.4	0.500		mg/L	1	7/3/2019 11:26:02 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	170	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: **19070028**

Date Reported **7/16/2019**

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	56.5	5.00		mg/L	20	7/8/2019 3:26:17 PM
Fluoride	< 1.00	1.00		mg/L	20	7/8/2019 3:26:17 PM
Sulfate	< 5.00	5.00		mg/L	20	7/8/2019 3:26:17 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.114	0.100		mg/L	1	7/11/2019 2:30:39 AM
Calcium	32.6	0.500		mg/L	1	7/3/2019 11:30:48 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	379	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19070028

Date Reported 7/16/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 5:00:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19070028-016 **Matrix:** AQUEOUS
Client Sample ID FB 1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0		Analyst: SGP
Chloride	< 0.250	0.250		mg/L	1	7/8/2019 3:40:01 PM
Fluoride	< 0.0500	0.0500		mg/L	1	7/8/2019 3:40:01 PM
Sulfate	< 0.250	0.250		mg/L	1	7/8/2019 3:40:01 PM
METALS IN WATER BY ICP, TOTALS				SW6010B		Analyst: STS
Boron	< 0.100	0.100		mg/L	1	7/11/2019 2:35:26 AM
Calcium	< 0.500	0.500		mg/L	1	7/3/2019 11:35:34 PM
TOTAL DISSOLVED SOLIDS				SM2540C		Analyst: GMS
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0		mg/L	1	7/3/2019 11:44:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19070028
16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 30702

Sample ID: MB-30702	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: PBW	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007607						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	< 0.500	0.500									
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Sample ID: LCS-30702	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: LCSW	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007611						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	51.3	0.500	50.00	0	103	80	120				
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Sample ID: LCSD-30702	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: LCSS02	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007612						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	51.2	0.500	50.00	0	102	80	120	51.30	0.293	20	
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Sample ID: 19070028-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: CCR-4	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007617						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	68.2	0.500	50.00	18.95	98.5	75	125				
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Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19070028

16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 30702

Sample ID: 19070028-004BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: CCR-4	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	68.3	0.500	50.00	18.95	98.8	75	125	68.18	0.234	20	

Sample ID: 19070028-016BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: FB 1	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007635						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	49.3	0.500	50.00	0.1015	98.4	75	125				

Sample ID: 19070028-016BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80132						
Client ID: FB 1	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/3/2019	SeqNo: 2007636						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.0	0.500	50.00	0.1015	99.7	75	125	49.30	1.35	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19070028
16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 30702

Sample ID: MB-30702	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124
Client ID: PBW	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007060
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron < 0.100 0.100

Sample ID: LCS-30702	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124
Client ID: LCSW	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007061
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron 0.497 0.100 0.5000 0 99.3 80 120

Sample ID: LCSD-30702	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124
Client ID: LCSS02	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007062
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron 0.497 0.100 0.5000 0 99.4 80 120 0.4966 0.101 20

Sample ID: 19070028-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124
Client ID: CCR-4	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007071
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron 0.602 0.100 0.5000 0.1156 97.3 75 125

Qualifiers: H Holding times for preparation or analysis exceeded
RL Reporting Limit
U Analyte not detected
M Matrix Interference
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19070028

16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 30702

Sample ID: 19070028-004BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124						
Client ID: CCR-4	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007072						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.609	0.100	0.5000	0.1156	98.7	75	125	0.6021	1.16	20	

Sample ID: 19070028-016BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124						
Client ID: FB 1	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007089						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.473	0.100	0.5000	0	94.5	75	125				

Sample ID: 19070028-016BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 7/2/2019	RunNo: 80124						
Client ID: FB 1	Batch ID: 30702	TestNo: SW6010B		Analysis Date: 7/11/2019	SeqNo: 2007090						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.494	0.100	0.5000	0	98.8	75	125	0.4726	4.47	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette
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TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

QC SUMMARY REPORT

WO#: 19070028
16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R79905

Sample ID: MB-R79905	SampType: MBLK	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 79905		
Client ID: PBW	Batch ID: R79905	TestNo: SM2540C	Analysis Date: 7/3/2019					SeqNo: 2003107			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: LCS-R79905	SampType: LCS	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 79905		
Client ID: LCSW	Batch ID: R79905	TestNo: SM2540C	Analysis Date: 7/3/2019					SeqNo: 2003108			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 918 20.0 1,000 0 91.8 85 115

Sample ID: LCSD-R79905	SampType: LCSD	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 79905		
Client ID: LCSS02	Batch ID: R79905	TestNo: SM2540C	Analysis Date: 7/3/2019					SeqNo: 2003109			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 949 20.0 1,000 0 94.9 85 115 918.0 3.32 10

Sample ID: 19070028-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 79905						
Client ID: CCR-4	Batch ID: R79905	TestNo: SM2540C		Analysis Date: 7/3/2019	SeqNo: 2003114						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 260 20.0 253.0 2.73 10

Qualifiers: H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit
U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19070028
16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R79905

Sample ID: 19070028-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 79905						
Client ID: CCR-4	Batch ID: R79905	TestNo: SM2540C		Analysis Date: 7/3/2019	SeqNo: 2003114						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 19070028-016ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 79905						
Client ID: FB 1	Batch ID: R79905	TestNo: SM2540C		Analysis Date: 7/3/2019	SeqNo: 2003127						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0						0	0	10	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19070028

16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R80006

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: PBW	Batch ID: R80006	TestNo: E 300.0		Analysis Date: 7/8/2019	SeqNo: 2004295						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Fluoride	< 0.0500	0.0500									
Sulfate	< 0.250	0.250									

Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: LCSW	Batch ID: R80006	TestNo: E 300.0	Analysis Date: 7/8/2019	SeqNo: 2004296							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.81	0.250	10.00	0	98.1	90	110				
Fluoride	2.02	0.0500	2.000	0	101	90	110				
Sulfate	10.4	0.250	10.00	0	104	90	110				

Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: LCSS02	Batch ID: R80006	TestNo: E 300.0		Analysis Date: 7/8/2019	SeqNo: 2004297						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.85	0.250	10.00	0	98.5	90	110	9.809	0.370	15	
Fluoride	2.03	0.0500	2.000	0	102	90	110	2.018	0.747	15	
Sulfate	10.4	0.250	10.00	0	104	90	110	10.36	0.447	15	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19070028

16-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R80006

Sample ID: 19070028-004AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: CCR-4	Batch ID: R80006	TestNo: E 300.0	Analysis Date: 7/8/2019	SeqNo: 2004306							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	84.6	2.50	50.00	36.72	95.7	80	120				
Fluoride	9.65	0.500	10.00	0	96.5	80	120				
Sulfate	49.9	2.50	50.00	2.362	95.1	80	120				

Sample ID: 19070028-004AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: CCR-4	Batch ID: R80006	TestNo: E 300.0	Analysis Date: 7/8/2019	SeqNo: 2004307							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	84.4	2.50	50.00	36.72	95.4	80	120	84.58	0.215	15	
Fluoride	9.66	0.500	10.00	0	96.6	80	120	9.645	0.146	15	
Sulfate	50.0	2.50	50.00	2.362	95.2	80	120	49.92	0.114	15	

Sample ID: 19070028-016AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: FB 1	Batch ID: R80006	TestNo: E 300.0	Analysis Date: 7/8/2019	SeqNo: 2004322							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.92	0.250	5.000	0.06082	97.2	80	120				
Fluoride	0.959	0.0500	1.000	0	95.9	80	120				
Sulfate	4.45	0.250	5.000	0	89.0	80	120				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19070028

16-Jul-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring

BatchID: R80006

Sample ID: 19070028-016AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80006						
Client ID: FB 1	Batch ID: R80006	TestNo: E 300.0	Analysis Date: 7/8/2019	SeqNo: 2004323							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.21	0.250	5.000	0.06082	103	80	120	4.921	5.74	15	
Fluoride	1.08	0.0500	1.000	0	108	80	120	0.9593	11.7	15	
Sulfate	4.66	0.250	5.000	0	93.3	80	120	4.452	4.66	15	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19070028**

RcptNo: **1**

Logged by: **Tammy Thibodeaux** **7/1/2019 12:25:00 PM**

Tammy Thibodeaux

Completed By: **Tammy Thibodeaux** **7/1/2019 2:51:14 PM**

Tammy Thibodeaux

Reviewed By: **Caitlin Duplantis** **7/16/2019 7:30:24 AM**

Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:
No sampler's signature by client.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Not Present			



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Fax 918-828-7756

Page 1 of 2

Chain of Custody Record

Laboratory Number 1907028

Client Name: Pivotal Engineering LLC				Project: CCR Detection Monitoring				Preserv.		Number / Type of Container	Matrix Code	Test Requested										Comments / Remarks			
Contact Name: Terry Elnaggar				Quote #: 5124				HCl HNO ₃ H ₂ SO ₄				TDS	300: Cl, F, SO ₄	6010 metals*											
Phone/Fax: (504) 799-3653				Sampler's Signature:				NaOH Na ₂ S ₂ O ₃																	
Collection		Grab	Comp	Sample Identification / Description																					
Date	Time																								
6/29/1740		X		C	C	R	-	1	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/1620		X		C	C	R	-	2	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/1505		X		C	C	R	-	3	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/1630		X		C	C	R	-	4	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/1025		X		C	C	R	-	5	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/1135		X		C	C	R	-	6	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/28/1250		X		C	C	R	-	7	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/28/1400		X		C	C	R	-	8	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/30/1220		X		C	C	R	-	9	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/30/1330		X		C	C	R	-	10	None/ HNO ₃	2 Plastic	Aq	X	X	X											
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.												P.O. Number													
Relinquished by: (Signature)				Received by: (Signature)				Date		Time		Relinquished by: (Signature)				Received by: (Signature)				Date		Time			
<i>[Signature]</i>				John Hebert				6/30/19		1500		<i>[Signature]</i>				John Hebert				6/30/19		12:25			
Relinquished by: (Signature)				Received by: (Signature)				Date		Time		Relinquished by: (Signature)				Received by: (Signature)				Date		Time			
Matrix Codes				Container Types				Shipping Conditions				Requested TAT				Thank-you for using Element Materials Technology									
DW = Drinking Water AQ = Aqueous LIQ = Liquid				G = Glass				<input checked="" type="checkbox"/> Iced				<input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr.													
GW = Ground Water O = Oil SLD = Solid				<input checked="" type="checkbox"/> Plastic				Temp. <u>3.3</u>				<input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard													
WW = Waste Water SO = Soil SL = Sludge				V = Vial				<input type="checkbox"/> Ambient <u>21</u>				<input type="checkbox"/> Other													

IR10



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- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
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Page 2 of 2

Chain of Custody Record

Laboratory Number 19070028

Client Name: Pivotal Engineering LLC				Project: CCR Detection Monitoring				Preserv.		Number / Type of Container	Matrix Code	Test Requested								Comments / Remarks				
Contact Name: Terry Elnaggar				Quote #: 5124				HCl	HNO ₃			H ₂ SO ₄	TDS	300: Cl, F, SO ₄	6010 metals*									
Phone/Fax: (504) 799-3653				Sampler's Signature:				NaOH	Na ₂ S ₂ O ₃															
Collection Date	Time	Grab	Comp	Sample Identification / Description																				
6/30/14	1440	X		C	C	R	- 1 1	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/30/14	0840	X		C	C	R	- 1 2	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/30/14	0950	X		C	C	R	- 1 3	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/30/14	1100	X		C	C	R	- 1 4	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/28/14	1545	X		M	S		(CCR- <u>4</u>)	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/28/14	1545	X		M	S	D	(CCR- <u>4</u>)	None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/28/14		X		D	U	P		None/ HNO ₃	2 Plastic	Aq	X	X	X											
6/29/14	1700	X		F	B		1	None/ HNO ₃	2 Plastic	Aq	X	X	X											
<div style="display: flex; justify-content: space-between;"> UPS / FedEx Airborne Element Hand / Mail </div>																								

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>John Hebert</i>	Date <u>6/30</u>	Time <u>1500</u>	Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature) <i>John Hebert</i>	Received by: (Signature) <i>[Signature]</i>	Date <u>7/1/14</u>	Time <u>1225</u>

Matrix Codes		Container Types		Shipping Conditions		Requested TAT	
DW = Drinking Water	AQ = Aqueous	LIQ = Liquid	G = Glass	<input checked="" type="checkbox"/> Iced	<input type="checkbox"/> 24-Hr.	<input type="checkbox"/> 72-Hr.	Thank-you for using Element Materials Technology
GW = Ground Water	O = Oil	SLD = Solid	P = Plastic	Temp. <u>33</u>	<input type="checkbox"/> 48-Hr.	<input checked="" type="checkbox"/> Standard	
WW = Waste Water	SO = Soil	SL = Sludge	V = Vial	<input type="checkbox"/> Ambient	<input type="checkbox"/> Other		

IR 10



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TEL: (337) 235-0483 FAX: (337) 233-6540
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July 25, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Assessment Monitoring

Order No.: 19070045

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 7/1/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Case Narrative

WO#: 19070045

Date: 7/25/2019

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

The Lithium by Method 6020 analyses were subcontracted to Gulf Coast Analytical Laboratories, Inc. Their report is attached in its entirety.



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Analytical Report

(consolidated)

WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 5:40:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:09:29 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.279	0.0500		mg/L	1	7/23/2019 12:32:09 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Barium	0.169	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:05:22 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:05:22 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:05:22 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 10:05:22 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:18:33 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:18:33 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette
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Analytical Report

(consolidated)

WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 4:20:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:11:46 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.341	0.0500		mg/L	1	7/23/2019 12:45:48 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0240	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Barium	0.149	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:10:10 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:10:10 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:10:10 PM
Selenium	0.0219	0.0200		mg/L	1	7/3/2019 10:10:10 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:21:20 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:21:20 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 3:05:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:14:06 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.400	0.0500		mg/L	1	7/23/2019 12:59:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0201	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Barium	0.227	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:14:57 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:14:57 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:14:57 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 10:14:57 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:24:08 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:24:08 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 3:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:01:29 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.213	0.0500		mg/L	1	7/23/2019 1:13:16 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Barium	0.100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:19:44 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:19:44 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:19:44 PM
Selenium	0.0217	0.0200		mg/L	1	7/3/2019 10:19:44 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:41:51 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:41:51 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 10:25:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:16:22 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.230	0.0500		mg/L	1	7/23/2019 1:27:00 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Barium	0.207	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:33:38 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:33:38 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:33:38 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 10:33:38 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:53:03 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:53:03 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 11:35:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:18:38 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.243	0.0500		mg/L	1	7/23/2019 1:40:44 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Barium	0.205	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:38:26 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:38:26 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:38:26 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 10:38:26 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:55:51 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:55:51 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 12:50:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:20:55 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.260	0.0500		mg/L	1	7/23/2019 2:21:56 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Barium	0.232	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:52:34 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:52:34 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Molybdenum	0.0100	0.0100		mg/L	1	7/3/2019 10:52:34 PM
Selenium	0.0209	0.0200		mg/L	1	7/3/2019 10:52:34 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 1:58:39 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 1:58:39 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019 2:00:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:23:12 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.134	0.0500		mg/L	1	7/23/2019 2:35:39 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0147	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Barium	0.109	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 10:57:22 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 10:57:22 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 10:57:22 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 10:57:22 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:01:27 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:01:27 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 12:20:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:30:40 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.519	0.0500		mg/L	1	7/23/2019 2:49:23 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Barium	0.196	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:02:10 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:02:10 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:02:10 PM
Selenium	0.0304	0.0200		mg/L	1	7/3/2019 11:02:10 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:04:14 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:04:14 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 1:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:32:57 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.459	0.0500		mg/L	1	7/23/2019 3:03:07 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Barium	0.208	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:06:57 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:06:57 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:06:57 PM
Selenium	0.0272	0.0200		mg/L	1	7/3/2019 11:06:57 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:07:02 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:07:02 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 2:40:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-011 **Matrix:** AQUEOUS
Client Sample ID CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:35:15 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.715	0.0500		mg/L	1	7/23/2019 3:16:50 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Barium	0.143	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:11:44 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:11:44 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Molybdenum	0.0100	0.0100		mg/L	1	7/3/2019 11:11:44 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 11:11:44 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:23:52 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:23:52 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Website: www.element.com

Analytical Report

(consolidated)

WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 8:40:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:37:32 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.131	0.0500		mg/L	1	7/23/2019 3:30:34 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	0.0197	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Barium	0.155	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:16:30 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:16:30 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:16:30 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 11:16:30 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:26:42 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:26:42 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 9:50:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:39:50 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.206	0.0500		mg/L	1	7/23/2019 3:44:18 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Barium	0.0934	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:21:15 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:21:15 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:21:15 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 11:21:15 PM
METALS IN WATER BY ICP-MS			SW6020A		Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:29:29 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:29:29 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/30/2019 11:00:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:42:09 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.154	0.0500		mg/L	1	7/23/2019 3:58:02 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0104	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Barium	0.0695	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:26:02 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:26:02 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:26:02 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 11:26:02 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:32:17 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:32:17 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/28/2019
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:44:27 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.229	0.0500		mg/L	1	7/23/2019 4:11:46 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	0.0130	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Barium	0.207	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:30:48 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:30:48 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:30:48 PM
Selenium	0.0251	0.0200		mg/L	1	7/3/2019 11:30:48 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:35:05 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:35:05 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19070045

Date Reported: 7/25/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 6/29/2019 5:00:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19070045-016 **Matrix:** AQUEOUS
Client Sample ID FB 1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	7/3/2019 2:46:45 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	< 0.0500	0.0500		mg/L	1	7/8/2019 3:40:01 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Barium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Beryllium	< 0.00100	0.00100		mg/L	1	7/3/2019 11:35:34 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/3/2019 11:35:34 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Cobalt	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Lead	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	7/3/2019 11:35:34 PM
Selenium	< 0.0200	0.0200		mg/L	1	7/3/2019 11:35:34 PM
METALS IN WATER BY ICP-MS				SW6020A	Analyst: KML	
Antimony	< 0.250	0.250		µg/L	1	7/16/2019 2:37:53 PM
Thallium	< 0.250	0.250		µg/L	1	7/16/2019 2:37:53 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30703

Sample ID	MB-30703	SampType:	MBLK	TestCode:	6020A_W	Units:	µg/L	Prep Date:	7/2/2019	RunNo:	80267		
Client ID:	PBW	Batch ID:	30703	TestNo:	SW6020A			Analysis Date:	7/16/2019	SeqNo:	2011719		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	< 0.250	0.250
Thallium	< 0.250	0.250

Sample ID	LCS-30703	SampType:	LCS	TestCode:	6020A_W	Units:	µg/L	Prep Date:	7/2/2019	RunNo:	80267		
Client ID:	LCSW	Batch ID:	30703	TestNo:	SW6020A			Analysis Date:	7/16/2019	SeqNo:	2011720		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	445	5.00	500.0	0	88.9	80	120
Thallium	471	5.00	500.0	0	94.1	80	120

Sample ID	LCSD-30703	SampType:	LCSD	TestCode:	6020A_W	Units:	µg/L	Prep Date:	7/2/2019	RunNo:	80267			
Client ID:	LCSS02	Batch ID:	30703	TestNo:	SW6020A			Analysis Date:	7/16/2019	SeqNo:	2011721			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	468	5.00	500.0	0	93.6	80	120	444.7	5.09	20
Thallium	502	5.00	500.0	0	100	80	120	470.7	6.42	20

Sample ID	19070045-004BMS	SampType:	MS	TestCode:	6020A_W	Units:	µg/L	Prep Date:	7/2/2019	RunNo:	80267			
Client ID:	CCR-4	Batch ID:	30703	TestNo:	SW6020A			Analysis Date:	7/16/2019	SeqNo:	2011732			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	462	5.00	500.0	0.07774	92.3	75	125
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Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30703

Sample ID	19070045-004BMS	SampType: MS	TestCode: 6020A_W	Units: µg/L	Prep Date: 7/2/2019	RunNo: 80267					
Client ID: CCR-4	Batch ID: 30703	TestNo: SW6020A	Analysis Date: 7/16/2019	SeqNo: 2011732							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	481	5.00	500.0	0	96.2	75	125				

Sample ID	19070045-004BMSD	SampType: MSD	TestCode: 6020A_W	Units: µg/L	Prep Date: 7/2/2019	RunNo: 80267					
Client ID: CCR-4	Batch ID: 30703	TestNo: SW6020A	Analysis Date: 7/16/2019	SeqNo: 2011733							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	449	5.00	500.0	0.07774	89.9	75	125	461.6	2.70	20	
Thallium	485	5.00	500.0	0	96.9	75	125	480.8	0.813	20	

Sample ID	19070045-016BMS	SampType: MS	TestCode: 6020A_W	Units: µg/L	Prep Date: 7/2/2019	RunNo: 80267					
Client ID: FB 1	Batch ID: 30703	TestNo: SW6020A	Analysis Date: 7/16/2019	SeqNo: 2011752							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	455	5.00	500.0	0	90.9	75	125				
Thallium	482	5.00	500.0	0	96.3	75	125				

Sample ID	19070045-016BMSD	SampType: MSD	TestCode: 6020A_W	Units: µg/L	Prep Date: 7/2/2019	RunNo: 80267					
Client ID: FB 1	Batch ID: 30703	TestNo: SW6020A	Analysis Date: 7/16/2019	SeqNo: 2011753							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	450	5.00	500.0	0	90.1	75	125	454.6	0.934	20	
Thallium	488	5.00	500.0	0	97.7	75	125	481.7	1.36	20	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30703

Sample ID	19070045-016BMSD	SampType:	MSD	TestCode:	6020A_W	Units:	µg/L	Prep Date:	7/2/2019	RunNo:	80267
Client ID:	FB 1	Batch ID:	30703	TestNo:	SW6020A			Analysis Date:	7/16/2019	SeqNo:	2011753
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30704

Sample ID	MB-30704	SampType:	MBLK	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	PBW	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005073
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.0100	0.0100									
Barium	< 0.0100	0.0100									
Beryllium	< 0.00100	0.00100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Cobalt	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID	LCS-30704	SampType:	LCS	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	LCSW	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005077
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.504	0.0100	0.5000	0	101	80	120				
Barium	0.500	0.0100	0.5000	0	99.9	80	120				
Beryllium	0.503	0.00100	0.5000	0	101	80	120				
Cadmium	0.504	0.00500	0.5000	0	101	80	120				
Chromium	0.502	0.0100	0.5000	0	100	80	120				
Cobalt	0.504	0.0100	0.5000	0	101	80	120				
Lead	0.505	0.0100	0.5000	0	101	80	120				
Molybdenum	0.510	0.0100	0.5000	0	102	80	120				
Selenium	0.511	0.0200	0.5000	0	102	80	120				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as specified



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30704

Sample ID	LCSD-30704	SampType:	LCSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	LCSS02	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005078
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.501	0.0100	0.5000	0	100	80	120	0.5044	0.656	20	
Barium	0.498	0.0100	0.5000	0	99.7	80	120	0.4995	0.241	20	
Beryllium	0.502	0.00100	0.5000	0	100	80	120	0.5033	0.239	20	
Cadmium	0.505	0.00500	0.5000	0	101	80	120	0.5037	0.317	20	
Chromium	0.500	0.0100	0.5000	0	100	80	120	0.5018	0.299	20	
Cobalt	0.506	0.0100	0.5000	0	101	80	120	0.5042	0.356	20	
Lead	0.505	0.0100	0.5000	0	101	80	120	0.5052	0.0990	20	
Molybdenum	0.510	0.0100	0.5000	0	102	80	120	0.5101	0.118	20	
Selenium	0.502	0.0200	0.5000	0	100	80	120	0.5108	1.76	20	

Sample ID	19070045-004BMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	CCR-4	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005083
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.496	0.0100	0.5000	0.009800	97.3	75	125				
Barium	0.576	0.0100	0.5000	0.1002	95.1	75	125				
Beryllium	0.471	0.00100	0.5000	0	94.1	75	125				
Cadmium	0.461	0.00500	0.5000	0.0008000	92.1	75	125				
Chromium	0.466	0.0100	0.5000	0	93.1	75	125				
Cobalt	0.461	0.0100	0.5000	0	92.2	75	125				
Lead	0.466	0.0100	0.5000	0	93.1	75	125				
Molybdenum	0.470	0.0100	0.5000	0.005500	92.8	75	125				
Selenium	0.486	0.0200	0.5000	0.02170	92.9	75	125				

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30704

Sample ID	19070045-004BMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	CCR-4	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005084
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.471	0.0100	0.5000	0.009800	92.2	75	125	0.4961	5.21	20	
Barium	0.566	0.0100	0.5000	0.1002	93.2	75	125	0.5758	1.70	20	
Beryllium	0.462	0.00100	0.5000	0	92.5	75	125	0.4707	1.76	20	
Cadmium	0.451	0.00500	0.5000	0.0008000	90.0	75	125	0.4613	2.30	20	
Chromium	0.457	0.0100	0.5000	0	91.4	75	125	0.4657	1.93	20	
Cobalt	0.450	0.0100	0.5000	0	90.0	75	125	0.4612	2.44	20	
Lead	0.457	0.0100	0.5000	0	91.4	75	125	0.4656	1.84	20	
Molybdenum	0.460	0.0100	0.5000	0.005500	90.9	75	125	0.4695	2.00	20	
Selenium	0.468	0.0200	0.5000	0.02170	89.3	75	125	0.4864	3.79	20	

Sample ID	19070045-016BMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	FB 1	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005101
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.464	0.0100	0.5000	0	92.8	75	125				
Barium	0.467	0.0100	0.5000	0	93.4	75	125				
Beryllium	0.467	0.00100	0.5000	0	93.3	75	125				
Cadmium	0.458	0.00500	0.5000	0	91.7	75	125				
Chromium	0.465	0.0100	0.5000	0	93.1	75	125				
Cobalt	0.466	0.0100	0.5000	0	93.2	75	125				
Lead	0.470	0.0100	0.5000	0	94.1	75	125				
Molybdenum	0.472	0.0100	0.5000	0.004000	93.6	75	125				
Selenium	0.484	0.0200	0.5000	0.01090	94.5	75	125				

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30704

Sample ID	19070045-016BMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/2/2019	RunNo:	80050
Client ID:	FB 1	Batch ID:	30704	TestNo:	SW6010B			Analysis Date:	7/3/2019	SeqNo:	2005102
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.504	0.0100	0.5000	0	101	75	125	0.4642	8.20	20	
Barium	0.484	0.0100	0.5000	0	96.8	75	125	0.4672	3.55	20	
Beryllium	0.482	0.00100	0.5000	0	96.3	75	125	0.4666	3.14	20	
Cadmium	0.471	0.00500	0.5000	0	94.1	75	125	0.4584	2.63	20	
Chromium	0.481	0.0100	0.5000	0	96.2	75	125	0.4654	3.30	20	
Cobalt	0.479	0.0100	0.5000	0	95.8	75	125	0.4662	2.71	20	
Lead	0.480	0.0100	0.5000	0	96.0	75	125	0.4704	2.04	20	
Molybdenum	0.485	0.0100	0.5000	0.004000	96.2	75	125	0.4718	2.76	20	
Selenium	0.481	0.0200	0.5000	0.01090	94.0	75	125	0.4835	0.539	20	

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

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RL Reporting Limit
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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30725

Sample ID	MB-30725	SampType:	MBLK	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	7/3/2019	RunNo:	79929	
Client ID:	PBW	Batch ID:	30725	TestNo:	SW7470A			Analysis Date:	7/3/2019	SeqNo:	2001915	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200	0.000200									

Sample ID	LCS-30725	SampType:	LCS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	7/3/2019	RunNo:	79929	
Client ID:	LCSW	Batch ID:	30725	TestNo:	SW7470A			Analysis Date:	7/3/2019	SeqNo:	2001916	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0111	0.000200	0.01000	0	111	80	120				

Sample ID	LCSD-30725	SampType:	LCSD	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	7/3/2019	RunNo:	79929	
Client ID:	LCSS02	Batch ID:	30725	TestNo:	SW7470A			Analysis Date:	7/3/2019	SeqNo:	2001917	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0109	0.000200	0.01000	0	109	80	120	0.01111	2.33	20	

Sample ID	19070045-004BMS	SampType:	MS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	7/3/2019	RunNo:	79929	
Client ID:	CCR-4	Batch ID:	30725	TestNo:	SW7470A			Analysis Date:	7/3/2019	SeqNo:	2001921	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0107	0.000200	0.01000	0	107	75	125				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as specified



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 30725

Sample ID	19070045-004BMSD	SampType: MSD	TestCode: HG_W_7470		Units: mg/L	Prep Date: 7/3/2019			RunNo: 79929			
Client ID:	CCR-4	Batch ID: 30725	TestNo: SW7470A			Analysis Date: 7/3/2019			SeqNo: 2001922			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0106	0.000200	0.01000	0	106	75	125	0.01069	0.614	20	

Qualifiers:

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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R80036

Sample ID	MBLK	SampType:	MBLK	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80036	
Client ID:	PBW	Batch ID:	R80036	TestNo:	E 300.0			Analysis Date:	7/8/2019	SeqNo:	2004354	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		< 0.0500	0.0500									

Sample ID	LCS	SampType:	LCS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80036	
Client ID:	LCSW	Batch ID:	R80036	TestNo:	E 300.0			Analysis Date:	7/8/2019	SeqNo:	2004355	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.02	0.0500	2.000	0	101	90	110				

Sample ID	LCSD	SampType:	LCSD	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80036	
Client ID:	LCSS02	Batch ID:	R80036	TestNo:	E 300.0			Analysis Date:	7/8/2019	SeqNo:	2004356	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.03	0.0500	2.000	0	102	90	110	2.018	0.747	15	

Sample ID	19070045-016AMS	SampType:	MS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80036	
Client ID:	FB 1	Batch ID:	R80036	TestNo:	E 300.0			Analysis Date:	7/8/2019	SeqNo:	2004381	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		0.959	0.0500	1.000	0	95.9	80	120				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as specified



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: R80036

Sample ID	19070045-016AMSD	SampType: MSD	TestCode: 300.0		Units: mg/L	Prep Date:			RunNo: 80036			
Client ID:	FB 1	Batch ID: R80036	TestNo: E 300.0			Analysis Date: 7/8/2019			SeqNo: 2004382			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.08	0.0500	1.000	0	108	80	120	0.9593	11.7	15	

Qualifiers:

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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R80491

Sample ID	MBLK	SampType:	MBLK	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80491			
Client ID:	PBW	Batch ID:	R80491	TestNo:	E 300.0			Analysis Date:	7/23/2019	SeqNo:	2017917			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		< 0.0500		0.0500										

Sample ID	LCS	SampType:	LCS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80491	
Client ID:	LCSW	Batch ID:	R80491	TestNo:	E 300.0			Analysis Date:	7/23/2019	SeqNo:	2017918	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.98	0.0500	2.000	0	99.1	90	110				

Sample ID	LCSD	SampType:	LCSD	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80491			
Client ID:	LCSS02	Batch ID:	R80491	TestNo:	E 300.0			Analysis Date:	7/23/2019	SeqNo:	2017919			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.00		0.0500	2.000	0		99.9	90	110	1.982	0.756	15	

Sample ID	19070775-003AMS	SampType:	MS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	80491			
Client ID:	ZZZZZZ	Batch ID:	R80491	TestNo:	E 300.0			Analysis Date:	7/23/2019	SeqNo:	2017923			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		47.1		2.50	50.00	51.85		-9.47	80	120				S

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sq



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QC SUMMARY REPORT

WO#: 19070045
25-Jul-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R80491

Sample ID	19070775-003AMSD	SampType: MSD	TestCode: 300.0		Units: mg/L		Prep Date:			RunNo: 80491		
Client ID:	ZZZZZZ	Batch ID: R80491	TestNo: E 300.0		Analysis Date: 7/23/2019				SeqNo: 2017924			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		46.4	2.50	50.00	51.85	-11.0	80	120	47.11	1.58	15	S

NOTES:

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

Sample ID	19070045-014AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80491					
Client ID: CCR-14	Batch ID: R80491	TestNo: E 300.0	Analysis Date: 7/24/2019	SeqNo: 2017947							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.13	0.0500	1.000	0.1542	97.2	80	120				

Sample ID	19070045-014AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 80491					
Client ID:	CCR-14	Batch ID: R80491	TestNo: E 300.0	Analysis Date: 7/24/2019	SeqNo: 2017948						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.13	0.0500	1.000	0.1542	97.7	80	120	1.126	0.456	15	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19070045**

RcptNo: **1**

Logged by: **Tammy Thibodeaux** **7/1/2019 12:25:00 PM**

Tammy Thibodeaux

Completed By: **Tammy Thibodeaux** **7/2/2019 12:21:26 PM**

Tammy Thibodeaux

Reviewed By: **Caitlin Duplantis** **7/16/2019 8:37:43 AM**

Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:
No sampler's signature by client.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Not Present			

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 07/05/2019

GCAL Report 219070320



Project 19070045

<i>Deliver To</i>	<i>Additional Recipients</i>
Annie Reedy	Caitlin Duplantis, Element Materials Technology
Element Materials Technology	Cristina Thibeaux, Element Materials Technology
2417 W Pinhook Rd	Rhonda David, Element Materials Technology
Lafayette, LA 70508	Buffy Hudson, Element Materials Technology
800-737-2378	



Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

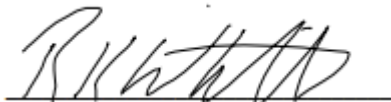
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % difference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
GCAL Report 219070320

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: Element Materials Technology **Report:** 219070320

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

No anomalies were found for the analyzed sample(s).

Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21907032001	CCR-1	Water	06/29/2019 17:40	07/03/2019 12:13
21907032002	CCR-2	Water	06/29/2019 16:20	07/03/2019 12:13
21907032003	CCR-3	Water	06/29/2019 15:05	07/03/2019 12:13
21907032004	CCR-4	Water	06/28/2019 15:30	07/03/2019 12:13
21907032005	CCR-4 MS	Water	06/28/2019 15:30	07/03/2019 12:13
21907032006	CCR-4 MSD	Water	06/28/2019 15:30	07/03/2019 12:13
21907032007	CCR-5	Water	06/28/2019 10:25	07/03/2019 12:13
21907032008	CCR-6	Water	06/28/2019 11:35	07/03/2019 12:13
21907032009	CCR-7	Water	06/28/2019 12:50	07/03/2019 12:13
21907032010	CCR-8	Water	06/28/2019 14:00	07/03/2019 12:13
21907032011	CCR-9	Water	06/30/2019 12:20	07/03/2019 12:13
21907032012	CCR-10	Water	06/30/2019 13:30	07/03/2019 12:13
21907032013	CCR-11	Water	06/30/2019 14:40	07/03/2019 12:13
21907032014	CCR-12	Water	06/30/2019 08:40	07/03/2019 12:13
21907032015	CCR-13	Water	06/30/2019 09:50	07/03/2019 12:13
21907032016	CCR-14	Water	06/30/2019 11:00	07/03/2019 12:13
21907032017	DUPLICATE	Water	06/28/2019 00:01	07/03/2019 12:13
21907032018	FIELD BLANK	Water	06/29/2019 17:00	07/03/2019 12:13

Sample Results

CCR-1

Collect Date 06/29/2019 17:40

GCAL ID 21907032001

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:16	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.1	5.00	ug/L

CCR-2

Collect Date 06/29/2019 16:20

GCAL ID 21907032002

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:20	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.9	5.00	ug/L

CCR-3

Collect Date 06/29/2019 15:05

GCAL ID 21907032003

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:23	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	26.9	5.00	ug/L

CCR-4

Collect Date 06/28/2019 15:30

GCAL ID 21907032004

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:27	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	17.3	5.00	ug/L

Sample Results

CCR-4 MS

Collect Date 06/28/2019 15:30

GCAL ID 21907032005

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:31	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	269	5.00	ug/L

CCR-4 MSD

Collect Date 06/28/2019 15:30

GCAL ID 21907032006

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:34	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	270	5.00	ug/L

CCR-5

Collect Date 06/28/2019 10:25

GCAL ID 21907032007

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:45	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	21.8	5.00	ug/L

Sample Results

CCR-6

Collect Date 06/28/2019 11:35

GCAL ID 21907032008

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:48	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	14.0	5.00	ug/L

CCR-7

Collect Date 06/28/2019 12:50

GCAL ID 21907032009

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:52	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	14.6	5.00	ug/L

CCR-8

Collect Date 06/28/2019 14:00

GCAL ID 21907032010

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 12:55	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	37.5	5.00	ug/L

Sample Results

CCR-9

Collect Date 06/30/2019 12:20

GCAL ID 21907032011

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:06	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.7	5.00	ug/L

CCR-10

Collect Date 06/30/2019 13:30

GCAL ID 21907032012

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:10	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	27.4	5.00	ug/L

CCR-11

Collect Date 06/30/2019 14:40

GCAL ID 21907032013

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:13	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	7.71	5.00	ug/L

Sample Results

CCR-12

Collect Date 06/30/2019 08:40

GCAL ID 21907032014

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:17	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	26.7	5.00	ug/L

CCR-13

Collect Date 06/30/2019 09:50

GCAL ID 21907032015

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:20	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	31.8	5.00	ug/L

CCR-14

Collect Date 06/30/2019 11:00

GCAL ID 21907032016

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:24	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	16.2	5.00	ug/L

Sample Results

DUPLICATE

Collect Date 06/28/2019 00:01

GCAL ID 21907032017

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:27	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	21.7	5.00	ug/L

FIELD BLANK

Collect Date 06/29/2019 17:00

GCAL ID 21907032018

Receive Date 07/03/2019 12:13

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
07/03/2019 14:20	663152	EPA 3010A	1	07/05/2019 13:31	LWZ	663224

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	ND	5.00	ug/L

Inorganics QC Summary

Analytical Batch 663224	Client ID GCAL ID	MB663152 1940640	LCS663152 1940641				
Prep Batch 663152	Sample Type Prep Date	MB 07/03/2019 14:20	LCS 07/03/2019 14:20				
Prep Method EPA 3010A	Analysis Date Matrix	07/05/2019 12:09 Water	07/05/2019 12:13 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Lithium	7439-93-2	ND	5.00	250	256	102	80 - 120

Analytical Batch 663224	Client ID GCAL ID	CCR-4 21907032004	CCR-4 MS 21907032005					CCR-4 MSD 21907032006				
Prep Batch 663152	Sample Type Prep Date	SAMPLE 07/03/2019 14:20	MS 07/03/2019 14:20					MSD 07/03/2019 14:20				
Prep Method EPA 3010A	Analysis Date Matrix	07/05/2019 12:27 Water	07/05/2019 12:31 Water					07/05/2019 12:34 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Lithium	7439-93-2	17.3	5.00	250	269	101	80 - 120	250	270	101	0	20



CHAIN OF CUSTODY RECORD

Omega COCID 8363

Client ID: 4462 - Element Materials Technology

SDG: 219070320

PM: JLM



TEL: (337) 233-0463

FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS: ela 072090in			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	19070045-001C 6020_W_SUB (SW6020A)	CCR-1	250HDPEHNO3	Aqueous	6/29/2019 5:40:00 PM	1	
2	19070045-002C 6020_W_SUB (SW6020A)	CCR-2	250HDPEHNO3	Aqueous	6/29/2019 4:20:00 PM	1	
3	19070045-003C 6020_W_SUB (SW6020A)	CCR-3	250HDPEHNO3	Aqueous	6/29/2019 3:05:00 PM	1	
4	19070045-004C 6020_W_SUB (SW6020A)	CCR-4	250HDPEHNO3	Aqueous	6/28/2019 3:30:00 PM	3	
5	19070045-005C 6020_W_SUB (SW6020A)	CCR-5	250HDPEHNO3	Aqueous	6/28/2019 10:25:00 AM	1	
6	19070045-006C 6020_W_SUB (SW6020A)	CCR-6	250HDPEHNO3	Aqueous	6/28/2019 11:35:00 AM	1	
7	19070045-007C 6020_W_SUB (SW6020A)	CCR-7	250HDPEHNO3	Aqueous	6/28/2019 12:50:00 PM	1	
8	19070045-008C 6020_W_SUB (SW6020A)	CCR-8	250HDPEHNO3	Aqueous	6/28/2019 2:00:00 PM	1	
9	19070045-009C 6020_W_SUB (SW6020A)	CCR-9	250HDPEHNO3	Aqueous	6/30/2019 12:20:00 PM	1	

Relinquished By: <i>Signature of Shroeder</i>	Date: <i>7-2-19</i>	Time: <i>1530</i>	Received By: <i>Signature of [illegible]</i>	Date: <i>7-2-19</i>	Time: <i>1530</i>	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date: <i>7/1/2019</i>	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARDCOPY (extra cost)	<input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE
Relinquished By: <i>Signature of [illegible]</i>	Date: <i>7-3-19</i>	Time: <i>1213</i>	Received By: <i>Signature of [illegible]</i>	Date: <i>7-3-19</i>	Time: <i>1213</i>	FOR LAB USE ONLY	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						Temp of samples <i>2.6</i> °C Attempt to Cool? <i>ice</i>	
Note: RUSH requests will incur surcharges!						Comments: <i>37CPL EOL</i>	



CHAIN OF CUSTODY RECORD

Omega COCID 8363

PAGE

Client ID: 4462 - Element Materials Technology

SDG: 219070320

PM: JLM



TEL: (337) 233-0403

FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS:			
ADDRESS: 7979 GSRI Avenue				ela 072090in			
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900		FAX: (225) 767-5717		EMAIL:			
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
10	19070045-010C 6020_W_SUB (SW6020A)	CCR-10	250HDPEHNO3	Aqueous	6/30/2019 1:30:00 PM	1	
11	19070045-011C 6020_W_SUB (SW6020A)	CCR-11	250HDPEHNO3	Aqueous	6/30/2019 2:40:00 PM	1	
12	19070045-012C 6020_W_SUB (SW6020A)	CCR-12	250HDPEHNO3	Aqueous	6/30/2019 8:40:00 AM	1	
13	19070045-013C 6020_W_SUB (SW6020A)	CCR-13	250HDPEHNO3	Aqueous	6/30/2019 9:50:00 AM	1	
14	19070045-014C 6020_W_SUB (SW6020A)	CCR-14	250HDPEHNO3	Aqueous	6/30/2019 11:00:00 AM	1	
15	19070045-015C 6020_W_SUB (SW6020A)	DUPLICATE	250HDPEHNO3	Aqueous	6/28/2019	1	
16	19070045-016C 6020_W_SUB (SW6020A)	FIELD BLANK	250HDPEHNO3	Aqueous	6/29/2019 5:00:00 PM	1	

Relinquished By: <i>[Signature]</i>	Date: <i>7/1/2019</i>	Time: <i>1530</i>	Received By: <i>[Signature]</i>	Date: <i>7-2-19</i>	Time: <i>1530</i>	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date: <i>7-2-19</i>	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By: <i>[Signature]</i>	Date: <i>7-3-19</i>	Time: <i>1213</i>	Received By: <i>[Signature]</i>	Date: <i>7-3-19</i>	Time: <i>1213</i>	FOR LAB USE ONLY	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						Temp of samples <i>37CPM</i> <i>E34</i> <i>2.6</i> °C Attempt to Cool? <i>ice</i>	
Note: RUSH requests will incur surcharges!						Comments: _____	



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 219070320			CHECKLIST		YES	NO
Client PM JLM 4462 - Element Materials Technology	Transport Method CUST		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile Number 271810	Received By Savage, Tiffany R		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Line Item(s) 1 - Water	Receive Date(s) 07/03/19		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Samples collected in containers provided by GCAL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COOLERS			DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E34	Temp °C	None	None		
		2.6				
NOTES						



- ☒ **2417 W. Pinhook Rd, Lafayette, LA 70508**
337-235-0483/800-737-2378
Fax 337-233-6540
- ☐ **3445 S Sheridan, Tulsa, OK 74145**
918-828-9977/800324-5757
Fax 918-828-7756

Chain of Custody Record

Laboratory Number 19070045

Client Name: Pivotal Engineering LLC				Project: CCR Assessment Monitoring				Preserv. HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃		Number / Type of Container	Matrix Code	Test Requested										Comments / Remarks												
Contact Name: Terry Elnaggar				Quote #: 5124								300: Fluoride	*6010/**6020 metals	***6020 Sub	7470 Mercury																			
Phone/Fax: (504) 799-3653				Sampler's Signature:																														
Collection		Grab	Comp	Sample Identification / Description						HCl	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	Number / Type of Container	Matrix Code	300: Fluoride	*6010/**6020 metals	***6020 Sub	7470 Mercury														
Date	Time																																	
6/29	1740	X		C	C	R	-	1	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se
6/29	1620	X		C	C	R	-	2	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/29	1505	X		C	C	R	-	3	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			**6020 Metals: Sb, Ti
6/28	1530	X		C	C	R	-	4	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			***6020 Sub Metal: Li
6/28	1025	X		C	C	R	-	5	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/28	1135	X		C	C	R	-	6	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/28	1250	X		C	C	R	-	7	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/28	1400	X		C	C	R	-	8	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/30	1220	X		C	C	R	-	9	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			
6/30	1330	X		C	C	R	-	10	None/ HNO ₃	3 Plastic	Aq	X	X	X	X																			UPS / FedEx Airborne / Element Hand / Mail
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.																				P.O. Number														
Relinquished by: (Signature)				Received by: (Signature)				Date		Time		Relinquished by: (Signature)				Received by: (Signature)				Date		Time												
				John Hebert				6/30		1500										7/1/19		1228												
Relinquished by: (Signature)				Received by: (Signature)				Date		Time		Relinquished by: (Signature)				Received by Laboratory: (Signature)				Date		Time												
Matrix Codes								Container Types				Shipping Conditions				Requested TAT				Thank-you for using Element Materials Technology														
DW = Drinking Water AQ = Aqueous LIQ = Liquid								G = Glass				<input checked="" type="checkbox"/> Iced				<input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr.																		
GW = Ground Water O = Oil SLD = Solid								P = Plastic				Temp. 3.3				<input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard																		
WW = Waste Water SO = Soil SL = Sludge								V = Vial				<input type="checkbox"/> Ambient				<input type="checkbox"/> Other																		



☐ 2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228

☐ 629 Washington St., Suite 300, Columbus, IN 47201
812-375-0531 Fax 812-375-0531

☐ 5738 Industrial Rd., Fort Wayne, IN 46825
219-471-7000 Fax 219-471-7777

☒ 2417 W. Pinhook Rd, Lafayette, LA 70508
337-235-0483/800-737-2378

Fax 337-233-6540
☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

Page 2 of 2

Chain of Custody Record

Laboratory Number 9070045

Client Name: Pivotal Engineering LLC				Project: CCR Assessment Monitoring				Preserv.		Number / Type of Container	Matrix Code	Test Requested								Comments / Remarks				
Contact Name: Terry Elnaggar				Quote #: 5124				HCl HNO ₃ H ₂ SO ₄	NaOH Na ₂ S ₂ O ₃			300: Fluoride	*6010/**6020 metal	***6020 Sub	7470 Mercury									
Phone/Fax: (504) 799-3653				Sampler's Signature:																				
Collection		Grab	Comp	Sample Identification / Description																				
Date	Time																							
6/30	1440	X		C	C	R	-	1	1	None/ HNO ₃	3 Plastic	Aq	X	X	X	X							*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se	
6/30	0840	X		C	C	R	-	1	2	None/ HNO ₃	3 Plastic	Aq	X	X	X	X								
6/30	0950	X		C	C	R	-	1	3	None/ HNO ₃	3 Plastic	Aq	X	X	X	X							**6020 Metals: Sb, Ti	
6/30	1100	X		C	C	R	-	1	4	None/ HNO ₃	3 Plastic	Aq	X	X	X	X							***6020 Sub Metal: Li	
6/28	1545	X		M	S			(CCR- <u>4</u>)		None/ HNO ₃	3 Plastic	Aq	X	X	X	X								
6/28	1545	X		M	S	D		(CCR- <u>4</u>)		None/ HNO ₃	3 Plastic	Aq	X	X	X	X								
6/28	—	X		D	U	P				None/ HNO ₃	3 Plastic	Aq	X	X	X	X								
6/29	1700	X		F	B	1				None/ HNO ₃	3 Plastic	Aq	X	X	X	X								
																							UPS / FedEx Airborne / Element Hand / Mail	

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

P.O. Number

Relinquished by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Received by: (Signature)	Date	Time
	John Hebert	6/30	1500				
Relinquished by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Received by Laboratory: (Signature)	Date	Time
				John Hebert		7/1/19	1225

Matrix Codes		Container Types		Shipping Conditions		Requested TAT		Thank-you for using Element Materials Technology
DW = Drinking Water	AQ = Aqueous	LIQ = Liquid	G = Glass	<input checked="" type="checkbox"/> Iced	<input type="checkbox"/> 24-Hr.	<input type="checkbox"/> 72-Hr.		
GW = Ground Water	O = Oil	SLD = Solid	P = Plastic	Temp. _____	<input type="checkbox"/> 48-Hr.	<input checked="" type="checkbox"/> Standard		
WW = Waste Water	SO = Soil	SL = Sludge	V = Vial	<input type="checkbox"/> Ambient	<input type="checkbox"/> Other _____			



Element Materials Technology Lafayette
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October 15, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Detection Monitoring

Order No.: 19091194

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 9/27/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
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Case Narrative

WO#: 19091194
Date: 10/15/2019

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 1:35:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-001 **Matrix:** AQUEOUS
Client Sample ID: CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	44.2	2.50		mg/L	10	10/1/2019 10:16:45 AM
Fluoride	0.301	0.0500		mg/L	1	10/1/2019 3:18:48 PM
Sulfate	2.72	0.250		mg/L	1	10/1/2019 3:18:48 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 4:43:42 PM
Calcium	24.7	0.500		mg/L	1	10/7/2019 4:43:42 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	305	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 12:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	55.6	2.50		mg/L	10	10/1/2019 10:30:28 AM
Fluoride	0.350	0.0500		mg/L	1	10/1/2019 3:32:31 PM
Sulfate	1.39	0.250		mg/L	1	10/1/2019 3:32:31 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 4:47:50 PM
Calcium	23.2	0.500		mg/L	1	10/7/2019 4:47:50 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	274	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 11:30:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	107	5.00		mg/L	20	10/1/2019 10:44:13 AM
Fluoride	0.403	0.0500		mg/L	1	10/1/2019 4:13:41 PM
Sulfate	3.68	0.250		mg/L	1	10/1/2019 4:13:41 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 4:54:53 PM
Calcium	28.3	0.500		mg/L	1	10/7/2019 4:54:53 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	398	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 1:00:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	41.5	2.50		mg/L	10	10/1/2019 10:57:56 AM
Fluoride	0.215	0.0500		mg/L	1	10/1/2019 4:27:24 PM
Sulfate	7.72	0.250		mg/L	1	10/1/2019 4:27:24 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.103	0.100		mg/L	1	10/7/2019 4:59:01 PM
Calcium	17.9	0.500		mg/L	1	10/7/2019 4:59:01 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	268	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 11:40:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	55.8	5.00		mg/L	20	10/1/2019 11:39:09 AM
Fluoride	0.235	0.0500		mg/L	1	10/1/2019 4:41:07 PM
Sulfate	< 0.250	0.250		mg/L	1	10/1/2019 4:41:07 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.110	0.100		mg/L	1	10/7/2019 5:11:37 PM
Calcium	27.9	0.500		mg/L	1	10/7/2019 5:11:37 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	401	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 10:20:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	81.8	2.50		mg/L	10	10/1/2019 11:52:53 AM
Fluoride	0.252	0.0500		mg/L	1	10/1/2019 4:54:51 PM
Sulfate	< 0.250	0.250		mg/L	1	10/1/2019 4:54:51 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.118	0.100		mg/L	1	10/7/2019 5:28:11 PM
Calcium	30.5	0.500		mg/L	1	10/7/2019 5:28:11 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	332	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 8:50:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	72.2	2.50		mg/L	10	10/1/2019 12:06:37 PM
Fluoride	0.274	0.0500		mg/L	1	10/1/2019 5:08:34 PM
Sulfate	< 0.250	0.250		mg/L	1	10/1/2019 5:08:34 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 5:32:21 PM
Calcium	43.3	0.500		mg/L	1	10/7/2019 5:32:21 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	339	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 6:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	83.5	2.50		mg/L	10	10/1/2019 12:20:20 PM
Fluoride	0.145	0.0500		mg/L	1	10/1/2019 5:22:17 PM
Sulfate	0.517	0.250		mg/L	1	10/1/2019 5:22:17 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 5:58:59 PM
Calcium	11.6	0.500		mg/L	1	10/7/2019 5:58:59 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	308	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 4:55:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	64.5	2.50		mg/L	10	10/1/2019 1:01:30 PM
Fluoride	0.558	0.0500		mg/L	1	10/1/2019 5:36:00 PM
Sulfate	5.87	0.250		mg/L	1	10/1/2019 5:36:00 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 5:40:35 PM
Calcium	29.9	0.500		mg/L	1	10/7/2019 5:40:35 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	357	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 3:45:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-010 **Matrix:** AQUEOUS
Client Sample ID: CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	39.9	2.50		mg/L	10	10/1/2019 1:15:13 PM
Fluoride	0.614	0.0500		mg/L	1	10/1/2019 5:49:43 PM
Sulfate	12.7	0.250		mg/L	1	10/1/2019 5:49:43 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 5:50:44 PM
Calcium	29.4	0.500		mg/L	1	10/7/2019 5:50:44 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	347	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 2:40:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-011 **Matrix:** AQUEOUS
Client Sample ID: CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	25.3	2.50		mg/L	10	10/1/2019 1:28:57 PM
Fluoride	0.704	0.0500		mg/L	1	10/1/2019 6:03:26 PM
Sulfate	3.94	0.250		mg/L	1	10/1/2019 6:03:26 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 6:03:11 PM
Calcium	26.7	0.500		mg/L	1	10/7/2019 6:03:11 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	239	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 5:10:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	16.2	1.25		mg/L	5	10/1/2019 1:42:40 PM
Fluoride	0.140	0.0500		mg/L	1	10/1/2019 6:17:11 PM
Sulfate	9.26	0.250		mg/L	1	10/1/2019 6:17:11 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 6:07:18 PM
Calcium	18.3	0.500		mg/L	1	10/7/2019 6:07:18 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	172	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

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WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 3:45:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	11.4	1.25		mg/L	5	10/1/2019 1:56:23 PM
Fluoride	0.227	0.0500		mg/L	1	10/1/2019 6:58:23 PM
Sulfate	1.03	0.250		mg/L	1	10/1/2019 6:58:23 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 6:27:55 PM
Calcium	21.8	0.500		mg/L	1	10/7/2019 6:27:55 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	196	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 2:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	10.9	1.25		mg/L	5	10/1/2019 2:10:07 PM
Fluoride	0.156	0.0500		mg/L	1	10/1/2019 7:12:06 PM
Sulfate	0.567	0.250		mg/L	1	10/1/2019 7:12:06 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	10/7/2019 6:32:03 PM
Calcium	17.6	0.500		mg/L	1	10/7/2019 6:32:03 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	159	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-015 **Matrix:** AQUEOUS
Client Sample ID Dup

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Chloride	69.8	2.50		mg/L	10	10/1/2019 2:23:51 PM
Fluoride	0.277	0.0500		mg/L	1	10/1/2019 7:25:50 PM
Sulfate	< 0.250	0.250		mg/L	1	10/1/2019 7:25:50 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.101	0.100		mg/L	1	10/7/2019 6:36:09 PM
Calcium	45.1	0.500		mg/L	1	10/7/2019 6:36:09 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	344	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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Analytical Report

(consolidated)

WO#: 19091194

Date Reported 10/15/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 4:20:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19091194-016 **Matrix:** AQUEOUS
Client Sample ID FB-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0		Analyst: SGP
Chloride	< 0.250	0.250		mg/L	1	10/1/2019 2:37:34 PM
Fluoride	< 0.0500	0.0500		mg/L	1	10/1/2019 2:37:34 PM
Sulfate	< 0.250	0.250		mg/L	1	10/1/2019 2:37:34 PM
METALS IN WATER BY ICP, TOTALS				SW6010B		Analyst: STS
Boron	< 0.100	0.100		mg/L	1	10/14/2019 4:58:24 PM
Calcium	< 0.500	0.500		mg/L	1	10/7/2019 6:45:13 PM
TOTAL DISSOLVED SOLIDS				SM2540C		Analyst: GMS
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0		mg/L	1	9/30/2019 1:41:00 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19091194

15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 31738A

Sample ID: MB-31738	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: PBW	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070443						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron	< 0.100	0.100									
Calcium	< 0.500	0.500									

Sample ID: LCS-31738	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: LCSW	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070444						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron	0.489	0.100	0.5000	0	97.9	80	120				
Calcium	48.8	0.500	50.00	0	97.5	80	120				

Sample ID: LCSD-31738	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: LCSS02	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070445						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron	0.509	0.100	0.5000	0	102	80	120	0.4893	4.03	20	
Calcium	49.0	0.500	50.00	0	98.0	80	120	48.76	0.450	20	

Sample ID: 19091194-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: CCR-4	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070450						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron	0.614	0.100	0.5000	0.1026	102	75	125				
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Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19091194
15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 31738A

Sample ID: 19091194-004BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: CCR-4	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070450						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	67.8	0.500	50.00	17.90	99.7	75	125				

Sample ID: 19091194-004BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 10/1/2019	RunNo: 82689						
Client ID: CCR-4	Batch ID: 31738A	TestNo: SW6010B		Analysis Date: 10/7/2019	SeqNo: 2070451						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.604	0.100	0.5000	0.1026	100	75	125	0.6141	1.69	20	
Calcium	64.3	0.500	50.00	17.90	92.9	75	125	67.75	5.18	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit
SDL Sample detection limit



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QC SUMMARY REPORT

WO#: 19091194

15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R82461

Sample ID: MB-R82461	SampType: MBLK	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 82461		
Client ID: PBW	Batch ID: R82461	TestNo: SM2540C	Analysis Date: 9/30/2019					SeqNo: 2065448			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: LCS-R82461	SampType: LCS	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 82461		
Client ID: LCSW	Batch ID: R82461	TestNo: SM2540C	Analysis Date: 9/30/2019					SeqNo: 2065449			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 1,000 20.0 1,000 0 100 85 115

Sample ID: LCSD-R82461	SampType: LCSD	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 82461		
Client ID: LCSS02	Batch ID: R82461	TestNo: SM2540C	Analysis Date: 9/30/2019					SeqNo: 2065450			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 1,000 20.0 1,000 0 100 85 115 1,004 0.199 10

Sample ID: 19091194-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 82461		
Client ID: CCR-4	Batch ID: R82461	TestNo: SM2540C	Analysis Date: 9/30/2019					SeqNo: 2065471			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 267 20.0 268.0 0.374 10

Qualifiers: H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit
U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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QC SUMMARY REPORT

WO#: 19091194
15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R82461

Sample ID: 19091194-004ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 82461						
Client ID: CCR-4	Batch ID: R82461	TestNo: SM2540C		Analysis Date: 9/30/2019	SeqNo: 2065471						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 19091194-005ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 82461						
Client ID: CCR-5	Batch ID: R82461	TestNo: SM2540C	Analysis Date: 9/30/2019	SeqNo: 2065472							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	401	20.0						401.0	0	10	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19091194

15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R82480

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: PBW	Batch ID: R82480	TestNo: E 300.0		Analysis Date: 10/1/2019	SeqNo: 2065719						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Fluoride	< 0.0500	0.0500									
Sulfate	< 0.250	0.250									

Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: LCSW	Batch ID: R82480	TestNo: E 300.0	Analysis Date: 10/1/2019	SeqNo: 2065720							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.96	0.250	10.00	0	99.6	90	110				
Fluoride	2.01	0.0500	2.000	0	100	90	110				
Sulfate	10.0	0.250	10.00	0	100	90	110				

Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: LCSS02	Batch ID: R82480	TestNo: E 300.0		Analysis Date: 10/1/2019	SeqNo: 2065721						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.98	0.250	10.00	0	99.8	90	110	9.959	0.198	15	
Fluoride	2.03	0.0500	2.000	0	101	90	110	2.006	1.19	15	
Sulfate	10.3	0.250	10.00	0	103	90	110	10.05	2.46	15	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19091194

15-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R82480

Sample ID: 19091194-004AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: CCR-4	Batch ID: R82480	TestNo: E 300.0		Analysis Date: 10/1/2019	SeqNo: 2065728						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	86.7	2.50	50.00	41.55	90.3	80	120				
Fluoride	9.82	0.500	10.00	0	98.2	80	120				
Sulfate	52.8	2.50	50.00	6.440	92.8	80	120				

Sample ID: 19091194-004AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: CCR-4	Batch ID: R82480	TestNo: E 300.0	Analysis Date: 10/1/2019	SeqNo: 2065729							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	88.2	2.50	50.00	41.55	93.3	80	120	86.70	1.68	15	
Fluoride	10.0	0.500	10.00	0	100	80	120	9.821	2.18	15	
Sulfate	53.4	2.50	50.00	6.440	94.0	80	120	52.85	1.12	15	

Sample ID: 19091194-016AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: FB-1	Batch ID: R82480	TestNo: E 300.0		Analysis Date: 10/1/2019	SeqNo: 2065744						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.01	0.250	5.000	0.03401	99.5	80	120				
Fluoride	1.04	0.0500	1.000	0	104	80	120				
Sulfate	5.01	0.250	5.000	0	100	80	120				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19091194

15-Oct-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring

BatchID: R82480

Sample ID: 19091194-016AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82480						
Client ID: FB-1	Batch ID: R82480	TestNo: E 300.0	Analysis Date: 10/1/2019	SeqNo: 2065745							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.98	0.250	5.000	0.03401	99.0	80	120	5.008	0.470	15	
Fluoride	1.06	0.0500	1.000	0	106	80	120	1.043	1.85	15	
Sulfate	5.52	0.250	5.000	0	110	80	120	5.007	9.68	15	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19091194**

RcptNo: **1**

Logged by: **Danielle Hollier** **9/27/2019 3:30:00 PM**
Completed By: **Danielle Hollier** **9/30/2019 8:46:33 AM**
Reviewed By: **Caitlin Duplantis** **10/10/2019 11:51:51 AM**

Danielle Hollier
Danielle Hollier
Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:

Added year of collection to COC as per samples received.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Not Present			
2	3.5	Good	Not Present			

918-828-9977/800324-5757
Fax 918-828-7756

Page 1 of 2

Chain of Custody Record

Laboratory Number 1909/19C

Client Name: Pivotal Engineering LLC		Project: CCR Detection Monitoring		Preserv.		Number / Type of Container		Matrix Code		Test Requested						Comments / Remarks				
Contact Name: Terry Elnaggar		Quote #: 3880		HCl HNO ₃ H ₂ SO ₄		NaOH Na ₂ S ₂ O ₃														
Phone/Fax: (504) 799-3653		Sampler's Signature:																		
Collection		Grab	Comp	Sample Identification / Description				TDS	300: Cl, Fl, SO ₄	6010 metals*										
Date	Time																			
9/25/13	1335	X		C	C	R	-	1	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	1230	X		C	C	R	-	2	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	1130	X		C	C	R	-	3	None/ HNO ₃	2 Plastic	Aq	X	X	X						
9/24/13	1300	X		C	C	R	-	4	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	1140	X		C	C	R	-	5	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	1020	X		C	C	R	-	6	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	0850	X		C	C	R	-	7	None/ HNO ₃	2 Plastic	Aq	X	X	X						
↓	1830	X		C	C	R	-	8	None/ HNO ₃	2 Plastic	Aq	X	X	X						
9/25/13	1655	X		C	C	R	-	9	None/ HNO ₃	2 Plastic	Aq	X	X	X						
9/25/13	1545	X		C	C	R	-	10	None/ HNO ₃	2 Plastic	Aq	X	X	X						

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

Relinquished by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Received by: (Signature)	Date	Time
		9/27/13	3:13			9/27/13	1455
Relinquished by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Received by: (Signature)	Date	Time
						9/27/13	1530

P.O. Number

Matrix Codes

DW = Drinking Water AQ = Aqueous LIQ = Liquid

GW = Ground Water O = Oil SLD = Solid

WW = Waste Water SO = Soil SL = Sludge

Container Types

G = Glass

P = Plastic

V = Vial

Shipping Conditions

☒ Iced 3.7°C

Temp. 3.5°C

☐ Ambient RTD

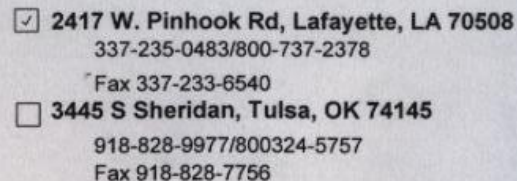
Requested TAT

☐ 24-Hr. ☐ 72-Hr.

☐ 48-Hr. ☒ Standard

☐ Other

Thank-you for using Element Materials Technology



Laboratory Number 19091194

Thank-you for using Element Materials
Technology



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

October 24, 2019

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Assessment Monitoring

Order No.: 19091195

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 9/27/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



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Case Narrative

WO#: 19091195
Date: 10/24/2019

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Exception: Due to a lab oversight, the MS/MSD for the 7470 Mercury analysis was not performed on the client specified sample CCR-4 (Lab ID: 19091195-004). The Mercury batch MS/MSD was performed on the client's sample, CCR-1 (Lab ID: 19091195-001).

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

The Lithium (6020) analyses were subcontracted to Pace Analytical. Their report is attached in its entirety.



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 1:35:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 12:51:33 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.301	0.0500		mg/L	1	10/1/2019 3:18:48 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Barium	0.178	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 4:43:42 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 4:43:42 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 4:43:42 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 4:43:42 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:25:50 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:25:50 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 12:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 12:59:38 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.350	0.0500		mg/L	1	10/1/2019 3:32:31 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Barium	0.173	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 4:47:50 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 4:47:50 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 4:47:50 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 4:47:50 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:39:53 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:39:53 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 11:30:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:01:57 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.403	0.0500		mg/L	1	10/1/2019 4:13:41 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Barium	0.259	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 4:54:53 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 4:54:53 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 4:54:53 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 4:54:53 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:42:43 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:42:43 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 1:00:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:04:18 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.215	0.0500		mg/L	1	10/1/2019 4:27:24 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Barium	0.101	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 4:59:01 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 4:59:01 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 4:59:01 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 4:59:01 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:45:31 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:45:31 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 11:40:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:06:37 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.235	0.0500		mg/L	1	10/1/2019 4:41:07 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Barium	0.186	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:11:37 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:11:37 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:11:37 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:11:37 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:51:07 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:51:07 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 10:20:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-006 **Matrix:** AQUEOUS
Client Sample ID: CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:08:54 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.252	0.0500		mg/L	1	10/1/2019 4:54:51 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Barium	0.203	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:28:11 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:28:11 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:28:11 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:28:11 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:53:55 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:53:55 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 8:50:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:11:13 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.274	0.0500		mg/L	1	10/1/2019 5:08:34 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Barium	0.221	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:32:21 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:32:21 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:32:21 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:32:21 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:56:43 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:56:43 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 6:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:13:31 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.145	0.0500		mg/L	1	10/1/2019 5:22:17 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Barium	0.113	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:58:59 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:58:59 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:58:59 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:58:59 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 3:59:31 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 3:59:31 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 4:55:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:21:04 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.558	0.0500		mg/L	1	10/1/2019 5:36:00 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Barium	0.236	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:40:35 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:40:35 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:40:35 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:40:35 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:02:18 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:02:18 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette
2417 W. Pinhook Road
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TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 3:45:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:23:22 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	0.614	0.0500		mg/L	1	10/1/2019 5:49:43 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Barium	0.287	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 5:50:44 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 5:50:44 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 5:50:44 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 5:50:44 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:05:06 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:05:06 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 2:40:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-011 **Matrix:** AQUEOUS
Client Sample ID CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:25:41 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.704	0.0500		mg/L	1	10/1/2019 6:03:26 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Barium	0.137	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:03:11 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:03:11 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:03:11 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:03:11 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:19:09 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:19:09 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 5:10:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:28:00 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.140	0.0500		mg/L	1	10/1/2019 6:17:11 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Barium	0.162	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:07:18 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:07:18 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:07:18 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:07:18 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:21:59 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:21:59 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 3:45:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:30:18 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.227	0.0500		mg/L	1	10/1/2019 6:58:23 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Barium	0.104	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:27:55 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:27:55 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:27:55 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:27:55 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:24:47 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:24:47 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019 2:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-014 **Matrix:** AQUEOUS
Client Sample ID: CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:32:37 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.156	0.0500		mg/L	1	10/1/2019 7:12:06 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Barium	0.0808	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:32:03 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:32:03 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:32:03 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:32:03 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:27:35 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:27:35 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/26/2019
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL			SW7470A		Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:34:55 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: SGP	
Fluoride	0.277	0.0500		mg/L	1	10/1/2019 7:25:50 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Barium	0.232	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:36:09 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:36:09 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:36:09 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:36:09 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:30:23 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:30:23 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19091195

Date Reported: 10/24/2019

CLIENT: Pivotal Engineering LLC **Collection Date:** 9/25/2019 4:20:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19091195-016 **Matrix:** AQUEOUS
Client Sample ID FB-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: BXB	
Mercury	< 0.000200	0.000200		mg/L	1	10/2/2019 1:37:13 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: SGP	
Fluoride	< 0.0500	0.0500		mg/L	1	10/1/2019 2:37:34 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Arsenic	< 0.0100	0.0100		mg/L	1	10/15/2019 5:45:05 PM
Barium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:45:13 PM
Beryllium	< 0.00100	0.00100		mg/L	1	10/7/2019 6:45:13 PM
Cadmium	< 0.00500	0.00500		mg/L	1	10/7/2019 6:45:13 PM
Chromium	< 0.0100	0.0100		mg/L	1	10/7/2019 6:45:13 PM
Cobalt	< 0.0100	0.0100		mg/L	1	10/7/2019 6:45:13 PM
Lead	< 0.0100	0.0100		mg/L	1	10/7/2019 6:45:13 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	10/7/2019 6:45:13 PM
Selenium	< 0.0200	0.0200		mg/L	1	10/7/2019 6:45:13 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	10/7/2019 4:33:11 PM
Thallium	< 0.250	0.250		µg/L	1	10/7/2019 4:33:11 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 31738B

Sample ID	MB-31738	SampType:	MBLK	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	82690	
Client ID:	PBW	Batch ID:	31738B	TestNo:	SW6010B			Analysis Date:	10/7/2019	SeqNo:	2070297	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.0100	0.0100									
Barium		< 0.0100	0.0100									
Beryllium		< 0.00100	0.00100									
Cadmium		< 0.00500	0.00500									
Chromium		< 0.0100	0.0100									
Cobalt		< 0.0100	0.0100									
Lead		< 0.0100	0.0100									
Molybdenum		< 0.0100	0.0100									
Selenium		< 0.0200	0.0200									

Sample ID	LCS-31738	SampType:	LCS	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	82690
Client ID:	LCSW	Batch ID:	31738B	TestNo:	SW6010B			Analysis Date:	10/7/2019	SeqNo:	2070298
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.504	0.0100	0.5000	0	101	80	120				
Barium	0.496	0.0100	0.5000	0	99.2	80	120				
Beryllium	0.499	0.00100	0.5000	0	99.8	80	120				
Cadmium	0.498	0.00500	0.5000	0	99.6	80	120				
Chromium	0.495	0.0100	0.5000	0	98.9	80	120				
Cobalt	0.497	0.0100	0.5000	0	99.5	80	120				
Lead	0.496	0.0100	0.5000	0	99.3	80	120				
Molybdenum	0.488	0.0100	0.5000	0	97.7	80	120				
Selenium	0.501	0.0200	0.5000	0	100	80	120				

Qualifiers: H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195

24-Oct-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 31738B

Sample ID	LCSD-31738	SampType:	LCSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	82690
Client ID:	LCSS02	Batch ID:	31738B	TestNo:	SW6010B			Analysis Date:	10/7/2019	SeqNo:	2070299
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.500	0.0100	0.5000	0	100	80	120	0.5036	0.757	20	
Barium	0.497	0.0100	0.5000	0	99.5	80	120	0.4961	0.242	20	
Beryllium	0.502	0.00100	0.5000	0	100	80	120	0.4991	0.659	20	
Cadmium	0.502	0.00500	0.5000	0	100	80	120	0.4980	0.720	20	
Chromium	0.496	0.0100	0.5000	0	99.2	80	120	0.4947	0.222	20	
Cobalt	0.502	0.0100	0.5000	0	100	80	120	0.4973	0.921	20	
Lead	0.502	0.0100	0.5000	0	100	80	120	0.4963	1.22	20	
Molybdenum	0.495	0.0100	0.5000	0	98.9	80	120	0.4883	1.28	20	
Selenium	0.509	0.0200	0.5000	0	102	80	120	0.5010	1.62	20	

Sample ID	19091195-004BMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	82690
Client ID:	CCR-4	Batch ID:	31738B	TestNo:	SW6010B			Analysis Date:	10/7/2019	SeqNo:	2070304
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.504	0.0100	0.5000	0	101	75	125				
Barium	0.589	0.0100	0.5000	0.1009	97.7	75	125				
Beryllium	0.484	0.00100	0.5000	0	96.7	75	125				
Cadmium	0.467	0.00500	0.5000	0	93.4	75	125				
Chromium	0.475	0.0100	0.5000	0	95.0	75	125				
Cobalt	0.469	0.0100	0.5000	0	93.7	75	125				
Lead	0.477	0.0100	0.5000	0	95.4	75	125				
Molybdenum	0.483	0.0100	0.5000	0	96.6	75	125				
Selenium	0.461	0.0200	0.5000	0	92.2	75	125				

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 31738B

Sample ID	19091195-004BMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	82690
Client ID:	CCR-4	Batch ID:	31738B	TestNo:	SW6010B			Analysis Date:	10/7/2019	SeqNo:	2070305
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.515	0.0100	0.5000	0	103	75	125	0.5036	2.16	20	
Barium	0.566	0.0100	0.5000	0.1009	93.0	75	125	0.5892	4.02	20	
Beryllium	0.465	0.00100	0.5000	0	92.9	75	125	0.4837	4.01	20	
Cadmium	0.452	0.00500	0.5000	0	90.5	75	125	0.4671	3.20	20	
Chromium	0.456	0.0100	0.5000	0	91.2	75	125	0.4750	4.04	20	
Cobalt	0.454	0.0100	0.5000	0	90.8	75	125	0.4686	3.19	20	
Lead	0.458	0.0100	0.5000	0	91.6	75	125	0.4772	4.06	20	
Molybdenum	0.468	0.0100	0.5000	0	93.6	75	125	0.4830	3.15	20	
Selenium	0.467	0.0200	0.5000	0	93.5	75	125	0.4609	1.38	20	

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as specified



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 31740

Sample ID	MB-31740	SampType:	MBLK	TestCode:	6020A_W	Units:	µg/L	Prep Date:	10/1/2019	RunNo:	82688			
Client ID:	PBW	Batch ID:	31740	TestNo:	SW6020A			Analysis Date:	10/7/2019	SeqNo:	2070015			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		< 0.250		0.250										
Thallium		< 0.250		0.250										

Sample ID	LCS-31740	SampType:	LCS	TestCode:	6020A_W	Units:	µg/L	Prep Date:	10/1/2019	RunNo:	82688	
Client ID:	LCSW	Batch ID:	31740	TestNo:	SW6020A			Analysis Date:	10/7/2019	SeqNo:	2070016	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		463	5.00	500.0	0	92.6	80	120				
Thallium		486	5.00	500.0	0	97.1	80	120				

Sample ID	LCSD-31740	SampType:	LCSD	TestCode:	6020A_W	Units:	µg/L	Prep Date:	10/1/2019	RunNo:	82688			
Client ID:	LCSS02	Batch ID:	31740	TestNo:	SW6020A			Analysis Date:	10/7/2019	SeqNo:	2070017			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		498		5.00	500.0	0		99.6	80	120	462.9	7.29	20	
Thallium		547		5.00	500.0	0		109	80	120	485.7	11.9	20	

Sample ID	19091195-004BMS	SampType:	MS	TestCode:	6020A_W	Units:	µg/L	Prep Date:	10/1/2019	RunNo:	82688	
Client ID:	CCR-4	Batch ID:	31740	TestNo:	SW6020A			Analysis Date:	10/7/2019	SeqNo:	2070026	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		484	5.00	500.0	0.05333	96.8	75	125				

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 31740

Sample ID	19091195-004BMS	SampType: MS	TestCode: 6020A_W	Units: µg/L	Prep Date: 10/1/2019	RunNo: 82688					
Client ID: CCR-4	Batch ID: 31740	TestNo: SW6020A	Analysis Date: 10/7/2019	SeqNo: 2070026							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	507	5.00	500.0	0.04288	101	75	125				

Sample ID	19091195-004BMSD	SampType: MSD	TestCode: 6020A_W	Units: µg/L	Prep Date: 10/1/2019	RunNo: 82688					
Client ID: CCR-4	Batch ID: 31740	TestNo: SW6020A	Analysis Date: 10/7/2019	SeqNo: 2070027							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	464	5.00	500.0	0.05333	92.9	75	125	483.8	4.07	20	
Thallium	488	5.00	500.0	0.04288	97.6	75	125	507.3	3.91	20	

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 31752

Sample ID	MB-31752	SampType:	MBLK	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/2/2019	RunNo:	82545	
Client ID:	PBW	Batch ID:	31752	TestNo:	SW7470A			Analysis Date:	10/2/2019	SeqNo:	2066675	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200	0.000200									

Sample ID	LCS-31752	SampType:	LCS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/2/2019	RunNo:	82545	
Client ID:	LCSW	Batch ID:	31752	TestNo:	SW7470A			Analysis Date:	10/2/2019	SeqNo:	2066676	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0107	0.000200	0.01000	0	107	80	120				

Sample ID	LCSD-31752	SampType:	LCSD	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/2/2019	RunNo:	82545			
Client ID:	LCSS02	Batch ID:	31752	TestNo:	SW7470A			Analysis Date:	10/2/2019	SeqNo:	2066677			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0107		0.000200	0.01000	0		107	80	120	0.01066	0.495	20	

Sample ID	19091195-001BMS	SampType:	MS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/2/2019	RunNo:	82545	
Client ID:	CCR-1	Batch ID:	31752	TestNo:	SW7470A			Analysis Date:	10/2/2019	SeqNo:	2066681	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104	0.000200	0.01000	0	104	75	125				

Qualifiers:

H Holding times for preparation or analysis exceeded
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RL Reporting Limit
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ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 31752

Sample ID	19091195-001BMSD	SampType: MSD	TestCode: HG_W_7470	Units: mg/L	Prep Date: 10/2/2019	RunNo: 82545					
Client ID: CCR-1	Batch ID: 31752	TestNo: SW7470A	Analysis Date: 10/2/2019	SeqNo: 2066682							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0105	0.000200	0.01000	0	105	75	125	0.01043	0.603	20	

Qualifiers:

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
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RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R82497

Sample ID	MBLK	SampType:	MBLK	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	82497	
Client ID:	PBW	Batch ID:	R82497	TestNo:	E 300.0			Analysis Date:	10/1/2019	SeqNo:	2065794	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		< 0.0500	0.0500									

Sample ID	LCS	SampType:	LCS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	82497	
Client ID:	LCSW	Batch ID:	R82497	TestNo:	E 300.0			Analysis Date:	10/1/2019	SeqNo:	2065795	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.01	0.0500	2.000	0	100	90	110				

Sample ID	LCSD	SampType:	LCSD	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	82497			
Client ID:	LCSS02	Batch ID:	R82497	TestNo:	E 300.0			Analysis Date:	10/1/2019	SeqNo:	2065796			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.03		0.0500	2.000	0		101	90	110	2.006	1.19	15	

Sample ID	19091195-004AMS	SampType:	MS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	82497	
Client ID:	CCR-4	Batch ID:	R82497	TestNo:	E 300.0			Analysis Date:	10/1/2019	SeqNo:	2065803	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		9.82	0.500	10.00	0	98.2	80	120				

Qualifiers:

H Holding times for preparation or analysis exceeded
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ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as s



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QC SUMMARY REPORT

WO#: 19091195
24-Oct-19

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R82497

Sample ID	19091195-004AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82497					
Client ID: CCR-4	Batch ID: R82497	TestNo: E 300.0	Analysis Date: 10/1/2019	SeqNo: 2065804							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	10.0	0.500	10.00	0	100	80	120	9.821	2.18	15	

Sample ID	19091195-016AMS	SampType:	MS	TestCode:	300.0	Units:	mg/L	Prep Date:		RunNo:	82497	
Client ID:	FB-1	Batch ID:	R82497	TestNo:	E 300.0			Analysis Date:	10/1/2019	SeqNo:	2065819	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.04	0.0500	1.000	0	104	80	120				

Sample ID	19091195-016AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 82497					
Client ID: FB-1	Batch ID: R82497	TestNo: E 300.0	Analysis Date: 10/1/2019	SeqNo: 2065820							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.06	0.0500	1.000	0	106	80	120	1.043	1.85	15	

Qualifiers:

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SDL Sample detection limit

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W Sample container temperature is out of limit as s



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19091195**

RcptNo: **1**

Logged by: **Danielle Hollier** **9/27/2019 3:30:00 PM**
Completed By: **Danielle Hollier** **9/30/2019 8:47:04 AM**
Reviewed By: **Caitlin Duplantis** **10/10/2019 11:47:59 AM**

Danielle Hollier
Danielle Hollier
Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:

Added year of collection to COC as per samples received.

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Not Present			
2	3.5	Good	Not Present			



LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 10/24/2019

Report # 219100122



Project 19091195

<i>Deliver To</i>	<i>Additional Recipients</i>
Annie Reedy	Caitlin Duplantis, Element Materials Technology
Element Materials Technology	Cristina Thibeaux, Element Materials Technology
2417 W Pinhook Rd	Rhonda David, Element Materials Technology
Lafayette, LA 70508	Buffy Hudson, Element Materials Technology
800-737-2378	



Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % difference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
Pace Gulf Coast Report 219100122

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Case Narrative

Client: Element Materials Technology **Report:** 219100122

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

No anomalies were found for the analyzed sample(s).



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910012201	CCR-1	Water	09/25/2019 13:35	10/01/2019 11:34
21910012202	CCR-2	Water	09/25/2019 12:30	10/01/2019 11:34
21910012203	CCR-3	Water	09/25/2019 11:30	10/01/2019 11:34
21910012204	CCR-4	Water	09/26/2019 13:00	10/01/2019 11:34
21910012205	CCR-4 MS	Water	09/26/2019 13:00	10/01/2019 11:34
21910012206	CCR-4 MSD	Water	09/26/2019 13:00	10/01/2019 11:34
21910012207	CCR-5	Water	09/26/2019 11:40	10/01/2019 11:34
21910012208	CCR-6	Water	09/26/2019 10:20	10/01/2019 11:34
21910012209	CCR-7	Water	09/26/2019 08:50	10/01/2019 11:34
21910012210	CCR-8	Water	09/26/2019 18:30	10/01/2019 11:34
21910012211	CCR-9	Water	09/25/2019 16:55	10/01/2019 11:34
21910012212	CCR-10	Water	09/25/2019 15:45	10/01/2019 11:34
21910012213	CCR-11	Water	09/25/2019 14:40	10/01/2019 11:34
21910012214	CCR-12	Water	09/26/2019 17:10	10/01/2019 11:34
21910012215	CCR-13	Water	09/26/2019 15:45	10/01/2019 11:34
21910012216	CCR-14	Water	09/26/2019 14:30	10/01/2019 11:34
21910012217	DUP	Water	09/26/2019 00:01	10/01/2019 11:34
21910012218	FB-1	Water	09/25/2019 14:20	10/01/2019 11:34



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

CCR-1

Collect Date 09/25/2019 13:35

LAB ID 21910012201

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:18	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	26.4	5.00	ug/L

CCR-2

Collect Date 09/25/2019 12:30

LAB ID 21910012202

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:32	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.9	5.00	ug/L

CCR-3

Collect Date 09/25/2019 11:30

LAB ID 21910012203

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:35	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	27.3	5.00	ug/L

CCR-4

Collect Date 09/26/2019 13:00

LAB ID 21910012204

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:38	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	18.0	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

CCR-4 MS

Collect Date 09/26/2019 13:00

LAB ID 21910012205

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:42	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	267	5.00	ug/L

CCR-4 MSD

Collect Date 09/26/2019 13:00

LAB ID 21910012206

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:45	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	262	5.00	ug/L

CCR-5

Collect Date 09/26/2019 11:40

LAB ID 21910012207

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:49	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.7	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

CCR-6

Collect Date 09/26/2019 10:20

LAB ID 21910012208

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:52	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	15.5	5.00	ug/L

CCR-7

Collect Date 09/26/2019 08:50

LAB ID 21910012209

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:56	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	13.3	5.00	ug/L

CCR-8

Collect Date 09/26/2019 18:30

LAB ID 21910012210

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 18:59	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	37.9	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

CCR-9

Collect Date 09/25/2019 16:55

LAB ID 21910012211

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:10	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	11.4	5.00	ug/L

CCR-10

Collect Date 09/25/2019 15:45

LAB ID 21910012212

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:13	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	10.5	5.00	ug/L

CCR-11

Collect Date 09/25/2019 14:40

LAB ID 21910012213

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:17	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	8.56	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

CCR-12

Collect Date 09/26/2019 17:10

LAB ID 21910012214

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:20	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	25.8	5.00	ug/L

CCR-13

Collect Date 09/26/2019 15:45

LAB ID 21910012215

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:24	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	22.4	5.00	ug/L

CCR-14

Collect Date 09/26/2019 14:30

LAB ID 21910012216

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:27	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	16.6	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Sample Results

DUP

Collect Date 09/26/2019 00:01

LAB ID 21910012217

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 08:30	668513	EPA 3010A	1	10/23/2019 19:31	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	12.7	5.00	ug/L

FB-1

Collect Date 09/25/2019 14:20

LAB ID 21910012218

Receive Date 10/01/2019 11:34

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/02/2019 09:30	668515	EPA 3010A	1	10/23/2019 19:41	LWZ	669958

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	ND	5.00	ug/L



Report#: 219100122

Project ID: 19091195

Report Date: 10/24/2019

Inorganics QC Summary

Analytical Batch 668670	Client ID LAB ID	MB668513 1967209	LCS668513 1967210				
Prep Batch 668513	Sample Type Prep Date	MB 10/02/2019 08:30	LCS 10/02/2019 08:30				
Prep Method EPA 3010A	Analysis Date Matrix	10/03/2019 18:00 Water	10/03/2019 18:04 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Lithium	7439-93-2	ND	5.00	250	242	97	80 - 120

Analytical Batch 669958	Client ID LAB ID	CCR-4 21910012204	CCR-4 MS 21910012205					CCR-4 MSD 21910012206				
Prep Batch 668513	Sample Type Prep Date	SAMPLE 10/02/2019 08:30	MS 10/02/2019 08:30					MSD 10/02/2019 08:30				
Prep Method EPA 3010A	Analysis Date Matrix	10/23/2019 18:38 Water	10/23/2019 18:42 Water					10/23/2019 18:45 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Lithium	7439-93-2	18.0	5.00	250	267	100	80 - 120	250	262	98	2	20

Analytical Batch 669453	Client ID LAB ID	MB668515 1967215	LCS668515 1967216				
Prep Batch 668515	Sample Type Prep Date	MB 10/02/2019 09:30	LCS 10/02/2019 09:30				
Prep Method EPA 3010A	Analysis Date Matrix	10/15/2019 20:06 Water	10/15/2019 20:11 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Lithium	7439-93-2	ND	5.00	250	237	95	80 - 120



CHAIN OF CUSTODY RECORD

Omega COCID 8582

Client ID: 4462 - Element Materials Technology

SDG: 219100122

PM: JLM

FAX: (337) 233-6540
Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Pace Analytical (FKA GCAL)		SPECIAL INSTRUCTIONS / COMMENTS: Lithium by 6020			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900		FAX: (225) 767-5717		EMAIL:			
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	19091195-001C 6020_W_SUB (SW6020A)	CCR-1	250HDPEHNO3	Aqueous	9/25/2019 1:35:00 PM	1	
2	19091195-002C 6020_W_SUB (SW6020A)	CCR-2	250HDPEHNO3	Aqueous	9/25/2019 12:30:00 PM	1	
3	19091195-003C 6020_W_SUB (SW6020A)	CCR-3	250HDPEHNO3	Aqueous	9/25/2019 11:30:00 AM	1	
4	19091195-004C 6020_W_SUB (SW6020A)	CCR-4	250HDPEHNO3	Aqueous	9/26/2019 1:00:00 PM	3	
5	19091195-005C 6020_W_SUB (SW6020A)	CCR-5	250HDPEHNO3	Aqueous	9/26/2019 11:40:00 AM	1	
6	19091195-006C 6020_W_SUB (SW6020A)	CCR-6	250HDPEHNO3	Aqueous	9/26/2019 10:20:00 AM	1	
7	19091195-007C 6020_W_SUB (SW6020A)	CCR-7	250HDPEHNO3	Aqueous	9/26/2019 8:50:00 AM	1	
8	19091195-008C 6020_W_SUB (SW6020A)	CCR-8	250HDPEHNO3	Aqueous	9/26/2019 6:30:00 PM	1	
9	19091195-009C 6020_W_SUB (SW6020A)	CCR-9	250HDPEHNO3	Aqueous	9/25/2019 4:55:00 PM	1	

Relinquished By: <i>[Signature]</i>	Date: 9/30/2019	Time: 1:00	Received By: <i>[Signature]</i>	Date: 9-30-19	Time: 1:00	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:		
Relinquished By: <i>[Signature]</i>	Date: 10-1-19	Time: 11:34	Received By: <i>[Signature]</i>	Date: 10-1-19	Time: 11:34	FOR LAB USE ONLY Temp of samples <u>3.7</u> °C Attempt to Cool? <u>ice</u> Comments: <u>E34</u> <u>44CPM</u>	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>							
Note: RUSH requests will incur surcharges!							



CHAIN OF CUSTODY RECORD

Omega COCID 8582

Client ID: 4462 - Element Materials Technology

SDG: 219100122

PM: JLM



FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Pace Analytical (FKA GCAL)		SPECIAL INSTRUCTIONS / COMMENTS: Lithium by 6020			
ADDRESS: 7979 GSRI Avenue							
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900		FAX: (225) 767-5717		EMAIL:			
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
10	19091195-010C 6020_W_SUB (SW6020A)	CCR-10	250HDPEHNO3	Aqueous	9/25/2019 3:45:00 PM	1	
11	19091195-011C 6020_W_SUB (SW6020A)	CCR-11	250HDPEHNO3	Aqueous	9/25/2019 2:40:00 PM	1	
12	19091195-012C 6020_W_SUB (SW6020A)	CCR-12	250HDPEHNO3	Aqueous	9/26/2019 5:10:00 PM	1	
13	19091195-013C 6020_W_SUB (SW6020A)	CCR-13	250HDPEHNO3	Aqueous	9/26/2019 3:45:00 PM	1	
14	19091195-014C 6020_W_SUB (SW6020A)	CCR-14	250HDPEHNO3	Aqueous	9/26/2019 2:30:00 PM	1	
15	19091195-015C 6020_W_SUB (SW6020A)	DUP	250HDPEHNO3	Aqueous	9/26/2019	1	
16	19091195-016C 6020_W_SUB (SW6020A)	FB-1	250HDPEHNO3	Aqueous	9/25/2019 4:20:00 PM	1	

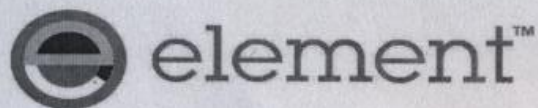
Relinquished By: <i>[Signature]</i>	Date: 9/30/2019	Time: 1500	Received By: <i>[Signature]</i>	Date: 9-30-19	Time: 1500	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:		
Relinquished By: <i>[Signature]</i>	Date: 10-1-19	Time: 1134	Received By: <i>[Signature]</i>	Date: 10-1-19	Time: 1134	FOR LAB USE ONLY Temp of samples: 3.7 °C Attempt to Cool? ice Comments: E34 44cpm	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>							
Note: RUSH requests will incur surcharges!							



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 219100122			CHECKLIST		YES	NO
Client PM JLM 4462 - Element Materials Technology	Transport Method CUST		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile Number 271810	Received By Savage, Tiffany R		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Line Item(s) 1 - Water	Receive Date(s) 10/01/19		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Samples collected in containers provided by Pace Gulf Coast?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COOLERS			DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E34	Temp °C	None	None		
		3.7				
NOTES						



- ☐ 2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228
- ☐ 629 Washington St., Suite 300, Columbus, IN 47201
812-375-0531 Fax 812-375-0531
- ☐ 5738 Industrial Rd., Fort Wayne, IN 46825
219-471-7000 Fax 219-471-7777

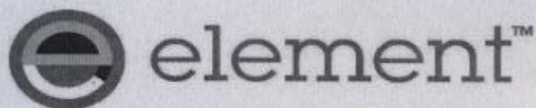
- ☒ 2417 W. Pinhook Rd, Lafayette, LA 70508
337-235-0483/800-737-2378
Fax 337-233-6540
- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

Page 1 of 2

Chain of Custody Record

Laboratory Number 9091195

Client Name: Pivotal Engineering LLC		Project: CCR Assessment Monitoring		Preserv.		Number / Type of Container		Matrix Code		Test Requested								Comments / Remarks	
Contact Name: Terry Elnaggar		Quote #: 5346		HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃						300: Fluoride	*6010/**6020 metals	***6020 Sub	7470 Mercury						
Phone/Fax: (504) 799-3653		Sampler's Signature:																	
Collection		Grab	Comp	Sample Identification / Description															
Date	Time																		
9/25/19	1335	X		C C R - 1	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se
↓	1230	X		C C R - 2	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
↓	1130	X		C C R - 3	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							**6020 Metals: Sb, Ti
9/26/19	1300	X		C C R - 4	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							***6020 Sub Metal: Li
↓	1140	X		C C R - 5	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
↓	1020	X		C C R - 6	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
↓	0850	X		C C R - 7	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
↓	1830	X		C C R - 8	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
9/25/19	1655	X		C C R - 9	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							
9/25/19	1545	X		C C R - 10	None/ HNO ₃		3 Plastic	Aq	X	X	X	X							UPS / FedEx Airborne Element Hand / Mail
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.										P.O. Number									
Relinquished by: (Signature)		Received by: (Signature)		Date/Time: 9/27/19 13:13		Relinquished by: (Signature)		Received by: (Signature)		Date/Time: 9/27/19 14:55									
Relinquished by: (Signature)		Received by: (Signature)		Date/Time:		Relinquished by: (Signature)		Received by: (Signature)		Date/Time: 9/27/19 15:30									
Matrix Codes DW = Drinking Water AQ = Aqueous LIQ = Liquid GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge				Container Types G = Glass P = Plastic V = Vial		Shipping Conditions <input checked="" type="checkbox"/> Iced 3.7°C Temp. 3.9°C <input type="checkbox"/> Ambient 80 (180)		Requested TAT <input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr. <input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other		Thank-you for using Element Materials Technology									



- ☐ 2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228
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- ☐ 5738 Industrial Rd., Fort Wayne, IN 46825
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- ☐ 3445 S Sheridan, Tulsa, OK 74145
918-828-9977/800324-5757
Fax 918-828-7756

Page 2 of 2

Chain of Custody Record

Laboratory Number 19091195

Client Name: Pivotal Engineering LLC				Project: CCR Assessment Monitoring				Preserv.		Number / Type of Container		Matrix Code		Test Requested								Comments / Remarks							
Contact Name: Terry Elnaggar				Quote #: 5346				HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃						300: Fluoride *6010/**6020 metals ***6020 Sub 7470 Mercury															
Phone/Fax: (504) 799-3653				Sampler's Signature:																									
Collection		Grab	Comp	Sample Identification / Description										HCl HNO ₃ H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃		Number / Type of Container		Matrix Code		Test Requested								Comments / Remarks	
Date	Time																			300: Fluoride *6010/**6020 metals ***6020 Sub 7470 Mercury									
9/25/11	1440	X		C C R - 1 1										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X							*6010 Metals: As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se	
9/26/11	1710	X		C C R - 1 2										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X								
	1545	X		C C R - 1 3										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X							**6020 Metals: Sb, Ti	
	1430	X		C C R - 1 4										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X							***6020 Sub Metal: Li	
	1300	X		M S (CCR- <u>4</u>)										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X								
	1300	X		M S D (CCR- <u>4</u>)										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X								
9/26/11		X		D U P										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X								
9/25/11	1620	X		F B 1										None/ HNO ₃ 3 Plastic		Aq		X	X	X	X								
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.														P.O. Number															
Relinquished by: (Signature)				Received by: (Signature)				Date/Time 9/27/11 3:13		Relinquished by: (Signature)				Received by: (Signature)				Date/Time 9/27/11 1455											
Relinquished by: (Signature)				Received by: (Signature)				Date/Time		Relinquished by: (Signature)				Received by: (Signature)				Date/Time 9/27/11 1530											
Matrix Codes DW = Drinking Water AQ = Aqueous LIQ = Liquid GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge				Container Types G = Glass P = Plastic V = Vial				Shipping Conditions <input checked="" type="checkbox"/> Iced 37°C Temp. 35°C <input type="checkbox"/> Ambient 80 (IR10)				Requested TAT <input type="checkbox"/> 24-Hr. <input type="checkbox"/> 72-Hr. <input type="checkbox"/> 48-Hr. <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other				Thank-you for using Element Materials Technology													



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

January 08, 2020

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX:

RE: Entergy: CCR Detection Monitoring

Order No.: 19121059

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 12/20/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Case Narrative

WO#: 19121059
Date: 1/8/2020

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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Analytical Report

(consolidated)

WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 5:15:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-001 **Matrix:** AQUEOUS
Client Sample ID: CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	42.0	2.50		mg/L	10	12/30/2019 2:08:45 PM
Fluoride	0.303	0.0500		mg/L	1	12/30/2019 7:12:23 PM
Sulfate	2.86	0.250		mg/L	1	12/30/2019 7:12:23 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:05:59 PM
Calcium	24.9	0.500		mg/L	1	12/26/2019 7:05:59 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	283	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 3:45:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	56.5	2.50		mg/L	10	12/30/2019 2:22:28 PM
Fluoride	0.352	0.0500		mg/L	1	12/30/2019 7:26:08 PM
Sulfate	1.05	0.250		mg/L	1	12/30/2019 7:26:08 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:10:29 PM
Calcium	20.5	0.500		mg/L	1	12/26/2019 7:10:29 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	265	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 2:20:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	126	5.00		mg/L	20	12/30/2019 2:36:11 PM
Fluoride	0.390	0.0500		mg/L	1	12/30/2019 7:39:52 PM
Sulfate	3.82	0.250		mg/L	1	12/30/2019 7:39:52 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:15:03 PM
Calcium	27.4	0.500		mg/L	1	12/26/2019 7:15:03 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	381	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 12:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	42.8	2.50		mg/L	10	12/30/2019 2:49:55 PM
Fluoride	0.221	0.0500		mg/L	1	12/30/2019 7:53:36 PM
Sulfate	9.79	0.250		mg/L	1	12/30/2019 7:53:36 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:19:31 PM
Calcium	18.3	0.500		mg/L	1	12/26/2019 7:19:31 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	249	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 7:40:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-005 **Matrix:** AQUEOUS
Client Sample ID CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	57.9	5.00		mg/L	20	12/30/2019 3:03:38 PM
Fluoride	0.256	0.0500		mg/L	1	12/30/2019 8:07:20 PM
Sulfate	< 0.250	0.250		mg/L	1	12/30/2019 8:07:20 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.112	0.100		mg/L	1	12/26/2019 7:23:59 PM
Calcium	32.8	0.500		mg/L	1	12/26/2019 7:23:59 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	399	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 9:10:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	85.8	2.50		mg/L	10	12/30/2019 3:17:21 PM
Fluoride	0.267	0.0500		mg/L	1	12/30/2019 8:21:04 PM
Sulfate	< 0.250	0.250		mg/L	1	12/30/2019 8:21:04 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.101	0.100		mg/L	1	12/26/2019 7:28:27 PM
Calcium	30.3	0.500		mg/L	1	12/26/2019 7:28:27 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	318	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 10:45:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-007 **Matrix:** AQUEOUS
Client Sample ID: CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	76.3	5.00		mg/L	20	12/30/2019 3:31:04 PM
Fluoride	0.293	0.0500		mg/L	1	12/30/2019 8:34:47 PM
Sulfate	< 0.250	0.250		mg/L	1	12/30/2019 8:34:47 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:32:56 PM
Calcium	44.3	0.500		mg/L	1	12/26/2019 7:32:56 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	331	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 5:30:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-008 **Matrix:** AQUEOUS
Client Sample ID: CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	84.1	2.50		mg/L	10	12/30/2019 4:12:16 PM
Fluoride	0.167	0.0500		mg/L	1	12/30/2019 8:48:32 PM
Sulfate	0.540	0.250		mg/L	1	12/30/2019 8:48:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 7:56:33 PM
Calcium	11.1	0.500		mg/L	1	12/26/2019 7:56:33 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	276	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 4:15:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	69.5	5.00		mg/L	20	12/30/2019 4:55:10 PM
Fluoride	0.593	0.0500		mg/L	1	12/30/2019 9:57:09 PM
Sulfate	6.10	0.250		mg/L	1	12/30/2019 9:57:09 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:11:24 PM
Calcium	30.8	0.500		mg/L	1	12/26/2019 8:11:24 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	315	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 2:25:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	40.2	2.50		mg/L	10	12/30/2019 5:08:53 PM
Fluoride	0.635	0.0500		mg/L	1	12/30/2019 10:10:52 PM
Sulfate	11.6	0.250		mg/L	1	12/30/2019 10:10:52 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:15:51 PM
Calcium	26.9	0.500		mg/L	1	12/26/2019 8:15:51 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	338	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 1:00:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-011 **Matrix:** AQUEOUS
Client Sample ID: CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	24.6	0.250		mg/L	1	12/30/2019 10:24:36 PM
Fluoride	0.715	0.0500		mg/L	1	12/30/2019 10:24:36 PM
Sulfate	3.62	0.250		mg/L	1	12/30/2019 10:24:36 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:20:19 PM
Calcium	27.1	0.500		mg/L	1	12/26/2019 8:20:19 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	218	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 11:30:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	16.6	0.250		mg/L	1	12/30/2019 10:38:20 PM
Fluoride	0.155	0.0500		mg/L	1	12/30/2019 10:38:20 PM
Sulfate	8.99	0.250		mg/L	1	12/30/2019 10:38:20 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:24:48 PM
Calcium	17.7	0.500		mg/L	1	12/26/2019 8:24:48 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	156	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 10:00:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	12.2	0.250		mg/L	1	12/30/2019 10:52:03 PM
Fluoride	0.236	0.0500		mg/L	1	12/30/2019 10:52:03 PM
Sulfate	1.90	0.250		mg/L	1	12/30/2019 10:52:03 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:29:18 PM
Calcium	21.8	0.500		mg/L	1	12/26/2019 8:29:18 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	170	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 8:40:00 AM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	11.3	0.250		mg/L	1	12/30/2019 11:05:47 PM
Fluoride	0.177	0.0500		mg/L	1	12/30/2019 11:05:47 PM
Sulfate	< 0.250	0.250		mg/L	1	12/30/2019 11:05:47 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:33:47 PM
Calcium	16.4	0.500		mg/L	1	12/26/2019 8:33:47 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	120	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	43.7	2.50		mg/L	10	12/30/2019 6:17:29 PM
Fluoride	0.220	0.0500		mg/L	1	12/30/2019 11:19:32 PM
Sulfate	9.64	0.250		mg/L	1	12/30/2019 11:19:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	0.109	0.100		mg/L	1	12/26/2019 8:38:16 PM
Calcium	18.8	0.500		mg/L	1	12/26/2019 8:38:16 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	266	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Analytical Report

(consolidated)

WO#: 19121059

Date Reported: 1/8/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 5:00:00 PM
Project: Entergy: CCR Detection Monitoring
Lab ID: 19121059-016 **Matrix:** AQUEOUS
Client Sample ID FB1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Chloride	< 0.250	0.250		mg/L	1	12/30/2019 6:58:39 PM
Fluoride	< 0.0500	0.0500		mg/L	1	12/30/2019 6:58:39 PM
Sulfate	< 0.250	0.250		mg/L	1	12/30/2019 6:58:39 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Boron	< 0.100	0.100		mg/L	1	12/26/2019 8:51:18 PM
Calcium	< 0.500	0.500		mg/L	1	12/26/2019 8:51:18 PM
TOTAL DISSOLVED SOLIDS				SM2540C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0		mg/L	1	12/23/2019 10:19:00 AM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 32670

Sample ID: MB-32670	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: PBW	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126436						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	< 0.100	0.100									
Calcium	< 0.500	0.500									

Sample ID: LCS-32670	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: LCSW	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126437						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.490	0.100	0.5000	0	97.9	80	120				
Calcium	48.9	0.500	50.00	0	97.8	80	120				

Sample ID: LCSD-32670	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: LCSS02	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126438						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.499	0.100	0.5000	0	99.9	80	120	0.4896	1.96	20	
Calcium	48.8	0.500	50.00	0	97.6	80	120	48.90	0.184	20	

Sample ID: 19121059-008BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: CCR-8	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126451						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.573	0.100	0.5000	0	115	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: 32670

Sample ID: 19121059-008BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: CCR-8	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126451						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	61.4	0.500	50.00	11.14	101	75	125				

Sample ID: 19121059-008BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84870						
Client ID: CCR-8	Batch ID: 32670	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126452						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.589	0.100	0.5000	0	118	75	125	0.5732	2.69	20	
Calcium	62.1	0.500	50.00	11.14	102	75	125	61.44	1.04	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R84781

Sample ID: MB-R84781	SampType: MBLK	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 84781		
Client ID: PBW	Batch ID: R84781	TestNo: SM2540C	Analysis Date: 12/23/2019					SeqNo: 2126393			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: LCS-R84781	SampType: LCS	TestCode: TDS_2540C	Units: mg/L	Prep Date:					RunNo: 84781		
Client ID: LCSW	Batch ID: R84781	TestNo: SM2540C	Analysis Date: 12/23/2019					SeqNo: 2126394			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 1,000 20.0 1,000 0 100 85 115

Sample ID: LCSD-R84781	SampType: LCSD	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 84781						
Client ID: LCSS02	Batch ID: R84781	TestNo: SM2540C		Analysis Date: 12/23/2019	SeqNo: 2126395						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 1,010 20.0 1,000 0 101 85 115 1,001 0.895 10

Sample ID: 19121059-008ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 84781						
Client ID: CCR-8	Batch ID: R84781	TestNo: SM2540C		Analysis Date: 12/23/2019	SeqNo: 2126404						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 276 20.0 276.0 0 10

Qualifiers: H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits
SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R84781

Sample ID: 19121059-008ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 84781						
Client ID: CCR-8	Batch ID: R84781	TestNo: SM2540C		Analysis Date: 12/23/2019	SeqNo: 2126404						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 19121059-015ADUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 84781						
Client ID: DUP	Batch ID: R84781	TestNo: SM2540C		Analysis Date: 12/23/2019	SeqNo: 2126413						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	256	20.0						266.0	3.83	10	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R84930

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: PBW	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129175						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Fluoride	< 0.0500	0.0500									
Sulfate	< 0.250	0.250									

Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: LCSW	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129176						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.3	0.250	10.00	0	103	90	110				
Fluoride	2.03	0.0500	2.000	0	101	90	110				
Sulfate	10.4	0.250	10.00	0	104	90	110				

Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: LCSS02	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129177						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.7	0.250	10.00	0	107	90	110	10.35	3.79	15	
Fluoride	2.17	0.0500	2.000	0	109	90	110	2.027	7.03	15	
Sulfate	11.0	0.250	10.00	0	110	90	110	10.38	5.72	15	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121059
08-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Detection Monitoring

BatchID: R84930

Sample ID: 19121059-008AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: CCR-8	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129192						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	130	2.50	50.00	84.13	91.8	80	120				
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Sample ID: 19121059-008AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: CCR-8	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129194						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	130	2.50	50.00	84.13	92.0	80	120	130.1	0.0523	15	
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Sample ID: 19121059-008AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: CCR-8	Batch ID: R84930	TestNo: E 300.0	Analysis Date: 12/30/2019	SeqNo: 2129229							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	1.15	0.0500	1.000	0.1671	98.1	80	120				
Sulfate	5.43	0.250	5.000	0.5404	97.7	80	120				

Sample ID: 19121059-008AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84930						
Client ID: CCR-8	Batch ID: R84930	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129233						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	1.15	0.0500	1.000	0.1671	98.3	80	120	1.148	0.166	15	
Sulfate	5.37	0.250	5.000	0.5404	96.6	80	120	5.427	1.04	15	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19121059**

RcptNo: **1**

Logged by: **Danielle Hollier** **12/20/2019 1:16:00 PM**

Completed By: **Danielle Hollier** **12/20/2019 2:38:12 PM**

Reviewed By: **Caitlin Duplantis** **1/2/2020 3:49:25 PM**

Danielle Hollier
Danielle Hollier
Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels? Yes ☒ No ☐
(Note discrepancies on chain of custody)
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met? Yes ☒ No ☐
(If no, notify customer for authorization.)

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Not Present			



element

Chain of Custody

Laboratory
Number:

19121059

Client Information: Company Name: <u>Pivotal Eng. LLC</u> Contact Name: <u>Terry Elnaggar</u> Address: City, State Zip: Phone Number: <u>504-799-3653</u> Ext: Fax Number: E-mail Address:		Billing Information: PO Number: Quote Number: <u>5554</u> Required QC Level: Bill Monthly: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Project Name/Number: <u>CCR Detection Monitoring</u> Sampler's Signature: Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail		Page of Matrix Code DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
--	--	---	--	--	--	--

Which Regulations Apply:		Turn Time		(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests				Comments
<input type="checkbox"/> RCRA	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Standard	<input type="checkbox"/> RUSH		Quantity	Type						
<input type="checkbox"/> POTW	<input type="checkbox"/> Distribution	<input type="checkbox"/> 1 Day										
<input type="checkbox"/> NPDES	<input type="checkbox"/> Special	<input type="checkbox"/> 2 Day										
<input type="checkbox"/> USDA/FDA	<input type="checkbox"/> State	<input type="checkbox"/> Other										
<input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Other											
Sample ID/Description		Date	Time	Grab / Composite	Matrix	Quantity	Type	Pres.	TDS	300:1 FL 504	6010	
CCR-1		12/17/19	1715		AQ	2	P	HNO3				
CCR-2		12/17/19	1545									
CCR-3		12/17/19	1420									
CCR-4		12/17/19	1230									
CCR-5		12/19/19	0740									
CCR-6		12/19/19	0910									
CCR-7		12/19/19	1045									
CCR-8		12/18/19	1730									
CCR-9		12/19/19	1615									

Relinquished by		Date/Time	Received by		Date/Time	Field Notes:
1		12/19 1400	John Herbert		12/19/19 1400	
2						Received at lab on ice?
3	John Herbert	12/20/19 1316			12-20-19 1316	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.4 °C

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

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47201 USA
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F 812-375-0731

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46825 USA
P 260-471-7000
F 260-471-7777

909 Executive Dr
Warsaw, IN
46580 USA
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F 574-269-6569

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Lafayette, LA
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F 337-233-6540



element

Chain of Custody

Laboratory
Number:

19121059

Client Information:		Billing Information:		PO Number:	Project Name/Number:	Page of
Company Name: <u>Pivotal Eng. LLC</u>					<u>CCR Detection</u>	Matrix Code
Contact Name: <u>Terry Elmaggar</u>				Quote Number: <u>5554</u>	<u>Monitoring</u>	DW = Drinking Water
Address:				Required QC Level		WW = Waste Water
City, State Zip:				Bill Monthly		GW = Ground Water
Phone Number: <u>504-799-3653</u> Ext:		Ext:		<input type="checkbox"/> Yes	Shipping Method:	AQ = Aqueous
Fax Number:				<input type="checkbox"/> No	<u>UPS / FedEx / NOW</u>	OT = Other
E-mail Address:					<u>DHL / Element / Hand / Mail</u>	SL = Sludge SOL = Solid
						O = Oil SO = Soil
						F = Food SW = Swab
						NG = Natural Gas
						NGL = Natural Gas Liquid
						PW = Produced Water
						CF = Completion Fluid

Which Regulations Apply:		Turn Time		(Rush turn times will incur a surcharge and must be pre-approved by lab.)		Container		Pres.		Requested Tests				Comments	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC		<input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other		Quantity Type P=Plastic, G=Glass, V=Vial		HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₃						*Metals: B, Ca	
Sample ID/Description		Collection Information		Matrix											
		Date	Time	Grab / Composite											
<u>CCR-10</u>		<u>12/18/19</u>	<u>1425</u>		<u>AQ</u>	<u>2</u>	<u>P</u>	<u>HNO₃</u>							
<u>CCR-11</u>		<u>12/18/19</u>	<u>1300</u>												
<u>CCR-12</u>		<u>12/18/19</u>	<u>1130</u>												
<u>CCR-13</u>		<u>12/18/19</u>	<u>1000</u>												
<u>CCR-14</u>		<u>12/18/19</u>	<u>0840</u>												
<u>MS/MSD (CCR-2)</u>		<u>12/18/19</u>	<u>1800</u>			<u>4</u>									
<u>FIELD BLANK</u>		<u>12/18/19</u>	<u>1700</u>												
<u>DUPLICATE</u>		<u>12/17/19</u>													

Relinquished by		Date/Time		Received by		Date/Time		Field Notes:	
<u>[Signature]</u>		<u>12/19 1600</u>		<u>John Herbert</u>		<u>12/20/19 1100</u>			
								Received at lab on ice?	
<u>John Herbert</u>		<u>12/20/19 1316</u>		<u>[Signature]</u>		<u>12-20-19 1316</u>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>2.4</u>	

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 Element Materials Technology reserves the right to return unused sample portions.

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 F 260-471-7777

909 Executive Dr
 Warsaw, IN
 46580 USA
 P 574-267-3305
 F 574-269-6569

3371 Cleveland Road, Suite 100A
 South Bend, IN
 46628 USA
 P 574-277-0707
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2417 W. Pinhook Rd
 Lafayette, LA
 70508 USA
 P 337-235-0483
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Element Materials Technology Lafayette
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January 09, 2020

Terry Elnaggar
Pivotal Engineering LLC
1515 Poydras St., STE. 1875
New Orleans, LA 70112
TEL: (504) 799-3653
FAX

RE: Entergy: CCR Assessment Monitoring

Order No.: 19121061

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 12/20/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Cristina Thibeaux
Customer Service Supervisor
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
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Case Narrative

WO#: 19121061
Date: 1/9/2020

CLIENT: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Metals Note: Due to an interference during analytical run, the Arsenic analytical was reported by Method 6020, not 6010 as listed on COC.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

The Lithium analyses by Method 6020 were subcontracted to Pace Analytical. Their report is attached in its entirety.



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 5:15:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-001 **Matrix:** AQUEOUS
Client Sample ID CCR-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:31:57 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.303	0.0500		mg/L	1	12/30/2019 7:12:23 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.178	0.0100		mg/L	1	12/26/2019 7:05:59 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:05:59 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:05:59 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:05:59 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:05:59 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:05:59 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:05:59 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:05:59 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 12:57:44 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 12:57:44 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 12:57:44 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 3:45:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-002 **Matrix:** AQUEOUS
Client Sample ID CCR-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:34:15 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.352	0.0500		mg/L	1	12/30/2019 7:26:08 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.147	0.0100		mg/L	1	12/26/2019 7:10:29 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:10:29 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:10:29 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:10:29 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:10:29 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:10:29 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:10:29 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:10:29 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:11:45 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:11:45 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:11:45 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 2:20:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-003 **Matrix:** AQUEOUS
Client Sample ID CCR-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:36:33 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.390	0.0500		mg/L	1	12/30/2019 7:39:52 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.251	0.0100		mg/L	1	12/26/2019 7:15:03 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:15:03 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:15:03 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:15:03 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:15:03 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:15:03 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:15:03 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:15:03 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:14:35 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:14:35 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:14:35 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019 12:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-004 **Matrix:** AQUEOUS
Client Sample ID CCR-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:38:52 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.221	0.0500		mg/L	1	12/30/2019 7:53:36 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.100	0.0100		mg/L	1	12/26/2019 7:19:31 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:19:31 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:19:31 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:19:31 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:19:31 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:19:31 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:19:31 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:19:31 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:17:22 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:17:22 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:17:22 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 7:40:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-005 **Matrix:** AQUEOUS
Client Sample ID: CCR-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:41:10 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.256	0.0500		mg/L	1	12/30/2019 8:07:20 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.214	0.0100		mg/L	1	12/26/2019 7:23:59 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:23:59 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:23:59 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:23:59 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:23:59 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:23:59 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:23:59 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:23:59 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:20:10 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:20:10 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:20:10 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 9:10:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-006 **Matrix:** AQUEOUS
Client Sample ID CCR-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:43:28 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.267	0.0500		mg/L	1	12/30/2019 8:21:04 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.199	0.0100		mg/L	1	12/26/2019 7:28:27 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:28:27 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:28:27 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:28:27 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:28:27 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:28:27 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:28:27 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:28:27 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:22:58 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:22:58 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:22:58 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/19/2019 10:45:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-007 **Matrix:** AQUEOUS
Client Sample ID CCR-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:51:02 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.293	0.0500		mg/L	1	12/30/2019 8:34:47 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.215	0.0100		mg/L	1	12/26/2019 7:32:56 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:32:56 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:32:56 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:32:56 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:32:56 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:32:56 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:32:56 PM
Selenium	0.0210	0.0200		mg/L	1	12/26/2019 7:32:56 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:25:46 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:25:46 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:25:46 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 5:30:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-008 **Matrix:** AQUEOUS
Client Sample ID CCR-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 6:53:20 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.167	0.0500		mg/L	1	12/30/2019 8:48:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.105	0.0100		mg/L	1	12/26/2019 7:56:33 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 7:56:33 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 7:56:33 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 7:56:33 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 7:56:33 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 7:56:33 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 7:56:33 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 7:56:33 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:28:33 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:28:33 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:28:33 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 4:15:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-009 **Matrix:** AQUEOUS
Client Sample ID CCR-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	0.000341	0.000200		mg/L	1	12/23/2019 7:01:22 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.593	0.0500		mg/L	1	12/30/2019 9:57:09 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.242	0.0100		mg/L	1	12/26/2019 8:11:24 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:11:24 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:11:24 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:11:24 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:11:24 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:11:24 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:11:24 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:11:24 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:50:59 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:50:59 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:50:59 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

Analytical Report

(consolidated)

WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 2:25:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-010 **Matrix:** AQUEOUS
Client Sample ID CCR-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:04:14 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.635	0.0500		mg/L	1	12/30/2019 10:10:52 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.261	0.0100		mg/L	1	12/26/2019 8:15:51 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:15:51 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:15:51 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:15:51 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:15:51 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:15:51 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:15:51 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:15:51 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:53:48 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:53:48 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:53:48 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 1:00:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-011 **Matrix:** AQUEOUS
Client Sample ID CCR-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:06:36 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.715	0.0500		mg/L	1	12/30/2019 10:24:36 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.139	0.0100		mg/L	1	12/26/2019 8:20:19 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:20:19 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:20:19 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:20:19 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:20:19 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:20:19 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:20:19 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:20:19 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:56:35 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:56:35 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:56:35 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 11:30:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-012 **Matrix:** AQUEOUS
Client Sample ID CCR-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:08:55 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.155	0.0500		mg/L	1	12/30/2019 10:38:20 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.158	0.0100		mg/L	1	12/26/2019 8:24:48 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:24:48 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:24:48 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:24:48 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:24:48 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:24:48 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:24:48 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:24:48 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 1:59:23 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 1:59:23 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 1:59:23 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 10:00:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-013 **Matrix:** AQUEOUS
Client Sample ID CCR-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:11:13 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.236	0.0500		mg/L	1	12/30/2019 10:52:03 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.0936	0.0100		mg/L	1	12/26/2019 8:29:18 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:29:18 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:29:18 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:29:18 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:29:18 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:29:18 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:29:18 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:29:18 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 2:02:11 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 2:02:11 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 2:02:11 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 8:40:00 AM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-014 **Matrix:** AQUEOUS
Client Sample ID CCR-14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:13:32 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.177	0.0500		mg/L	1	12/30/2019 11:05:47 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.0754	0.0100		mg/L	1	12/26/2019 8:33:47 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:33:47 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:33:47 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:33:47 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:33:47 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:33:47 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:33:47 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:33:47 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 2:04:59 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 2:04:59 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 2:04:59 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/17/2019
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-015 **Matrix:** AQUEOUS
Client Sample ID DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:21:07 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	0.220	0.0500		mg/L	1	12/30/2019 11:19:32 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	0.104	0.0100		mg/L	1	12/26/2019 8:38:16 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:38:16 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:38:16 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:38:16 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:38:16 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:38:16 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:38:16 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:38:16 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 2:07:47 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 2:07:47 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 2:07:47 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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Analytical Report

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WO#: 19121061

Date Reported 1/9/2020

CLIENT: Pivotal Engineering LLC **Collection Date:** 12/18/2019 5:00:00 PM
Project: Entergy: CCR Assessment Monitoring
Lab ID: 19121061-016 **Matrix:** AQUEOUS
Client Sample ID FB1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MERCURY IN GROUND WATER, TOTAL				SW7470A	Analyst: MRM	
Mercury	< 0.000200	0.000200		mg/L	1	12/23/2019 7:23:25 PM
INORGANIC ANIONS IN WATER BY IC				E 300.0	Analyst: MRM	
Fluoride	< 0.0500	0.0500		mg/L	1	12/30/2019 6:58:39 PM
METALS IN WATER BY ICP, TOTALS				SW6010B	Analyst: STS	
Barium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:51:18 PM
Beryllium	< 0.00100	0.00100		mg/L	1	12/26/2019 8:51:18 PM
Cadmium	< 0.00500	0.00500		mg/L	1	12/26/2019 8:51:18 PM
Chromium	< 0.0100	0.0100		mg/L	1	12/26/2019 8:51:18 PM
Cobalt	< 0.0100	0.0100		mg/L	1	12/26/2019 8:51:18 PM
Lead	< 0.0100	0.0100		mg/L	1	12/26/2019 8:51:18 PM
Molybdenum	< 0.0100	0.0100		mg/L	1	12/26/2019 8:51:18 PM
Selenium	< 0.0200	0.0200		mg/L	1	12/26/2019 8:51:18 PM
METALS IN WATER BY ICP-MS, TOTAL				SW6020A	Analyst: MRM	
Antimony	< 0.250	0.250		µg/L	1	1/6/2020 2:10:34 PM
Arsenic	< 10.0	10.0		µg/L	1	1/6/2020 2:10:34 PM
Thallium	< 0.250	0.250		µg/L	1	1/6/2020 2:10:34 PM

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 32671

Sample ID: MB-32671	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84878						
Client ID: PBW	Batch ID: 32671	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126712						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Beryllium	< 0.00100	0.00100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Cobalt	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID: LCS-32671	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84878						
Client ID: LCSW	Batch ID: 32671	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126713						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.484	0.0100	0.5000	0	96.7	80	120				
Beryllium	0.488	0.00100	0.5000	0	97.7	80	120				
Cadmium	0.479	0.00500	0.5000	0	95.7	80	120				
Chromium	0.482	0.0100	0.5000	0	96.5	80	120				
Cobalt	0.483	0.0100	0.5000	0	96.5	80	120				
Lead	0.485	0.0100	0.5000	0	96.9	80	120				
Molybdenum	0.473	0.0100	0.5000	0	94.6	80	120				
Selenium	0.461	0.0200	0.5000	0	92.2	80	120				

Qualifiers: H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 32671

Sample ID: LCSD-32671	SampType: LCSD	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84878						
Client ID: LCSS02	Batch ID: 32671	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126714						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.488	0.0100	0.5000	0	97.6	80	120	0.4836	0.865	20	
Beryllium	0.488	0.00100	0.5000	0	97.6	80	120	0.4885	0.123	20	
Cadmium	0.484	0.00500	0.5000	0	96.7	80	120	0.4787	0.998	20	
Chromium	0.487	0.0100	0.5000	0	97.4	80	120	0.4825	0.887	20	
Cobalt	0.487	0.0100	0.5000	0	97.4	80	120	0.4826	0.867	20	
Lead	0.483	0.0100	0.5000	0	96.6	80	120	0.4846	0.351	20	
Molybdenum	0.471	0.0100	0.5000	0	94.2	80	120	0.4728	0.424	20	
Selenium	0.487	0.0200	0.5000	0	97.5	80	120	0.4608	5.59	20	

Sample ID: 19121061-008BMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84878						
Client ID: CCR-8	Batch ID: 32671	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126727						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.606	0.0100	0.5000	0.1053	100	75	125				
Beryllium	0.504	0.00100	0.5000	0	101	75	125				
Cadmium	0.488	0.00500	0.5000	0	97.7	75	125				
Chromium	0.493	0.0100	0.5000	0	98.6	75	125				
Cobalt	0.490	0.0100	0.5000	0	98.1	75	125				
Lead	0.490	0.0100	0.5000	0	98.0	75	125				
Molybdenum	0.489	0.0100	0.5000	0	97.9	75	125				
Selenium	0.505	0.0200	0.5000	0	101	75	125				

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 32671

Sample ID: 19121061-008BMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84878						
Client ID: CCR-8	Batch ID: 32671	TestNo: SW6010B		Analysis Date: 12/26/2019	SeqNo: 2126728						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.610	0.0100	0.5000	0.1053	101	75	125	0.6062	0.625	20	
Beryllium	0.507	0.00100	0.5000	0	101	75	125	0.5037	0.614	20	
Cadmium	0.491	0.00500	0.5000	0	98.1	75	125	0.4884	0.449	20	
Chromium	0.495	0.0100	0.5000	0	99.0	75	125	0.4928	0.466	20	
Cobalt	0.494	0.0100	0.5000	0	98.8	75	125	0.4903	0.732	20	
Lead	0.496	0.0100	0.5000	0	99.2	75	125	0.4899	1.22	20	
Molybdenum	0.496	0.0100	0.5000	0	99.2	75	125	0.4894	1.32	20	
Selenium	0.509	0.0200	0.5000	0	102	75	125	0.5052	0.808	20	

Qualifiers:
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: 32672

Sample ID: MB-32672	SampType: MBLK	TestCode: 6020A_W	Units: µg/L	Prep Date: 12/23/2019	RunNo: 85070						
Client ID: PBW	Batch ID: 32672	TestNo: SW6020A		Analysis Date: 1/6/2020	SeqNo: 2130898						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	< 0.250	0.250									
Arsenic	< 0.250	0.250									
Thallium	< 0.250	0.250									

Sample ID: LCS-32672	SampType: LCS	TestCode: 6020A_W	Units: µg/L	Prep Date: 12/23/2019	RunNo: 85070						
Client ID: LCSW	Batch ID: 32672	TestNo: SW6020A		Analysis Date: 1/6/2020	SeqNo: 2130899						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	499	5.00	500.0	0	99.8	80	120				
Arsenic	498	5.00	500.0	0	99.7	80	120				
Thallium	509	5.00	500.0	0	102	80	120				

Sample ID: LCSD-32672	SampType: LCSD	TestCode: 6020A_W	Units: µg/L	Prep Date: 12/23/2019	RunNo: 85070						
Client ID: LCSS02	Batch ID: 32672	TestNo: SW6020A		Analysis Date: 1/6/2020	SeqNo: 2130900						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	495	5.00	500.0	0	99.1	80	120	498.8	0.696	20	
Arsenic	500	5.00	500.0	0	100	80	120	498.4	0.279	20	
Thallium	511	5.00	500.0	0	102	80	120	508.9	0.461	20	

Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 32672

Sample ID: 19121061-008BMS	SampType: MS	TestCode: 6020A_W	Units: µg/L	Prep Date: 12/23/2019	RunNo: 85070						
Client ID: CCR-8	Batch ID: 32672	TestNo: SW6020A		Analysis Date: 1/6/2020	SeqNo: 2130918						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	475	5.00	500.0	0	95.1	75	125				
Arsenic	515	5.00	500.0	0.04689	103	75	125				
Thallium	512	5.00	500.0	0	102	75	125				

Sample ID: 19121061-008BMSD	SampType: MSD	TestCode: 6020A_W	Units: µg/L	Prep Date: 12/23/2019	RunNo: 85070						
Client ID: CCR-8	Batch ID: 32672	TestNo: SW6020A		Analysis Date: 1/6/2020	SeqNo: 2130920						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	492	5.00	500.0	0	98.3	75	125	475.3	3.36	20	
Arsenic	520	5.00	500.0	0.04689	104	75	125	515.1	0.987	20	
Thallium	500	5.00	500.0	0	100	75	125	512.2	2.38	20	

Qualifiers: H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
SDL Sample detection limit

M Matrix Interference
RL Reporting Limit
U Analyte not detected

ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
W Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 32675

Sample ID: MB-32675	SampType: MBLK	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84816						
Client ID: PBW	Batch ID: 32675	TestNo: SW7470A		Analysis Date: 12/23/2019	SeqNo: 2125396						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	< 0.000200	0.000200									
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Sample ID: 19121061-008BMS	SampType: MS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84816						
Client ID: CCR-8	Batch ID: 32675	TestNo: SW7470A		Analysis Date: 12/23/2019	SeqNo: 2125409						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0114	0.000200	0.01000	0	114	75	125				
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Sample ID: 19121061-008BMSD	SampType: MSD	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84816						
Client ID: CCR-8	Batch ID: 32675	TestNo: SW7470A		Analysis Date: 12/23/2019	SeqNo: 2125410						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0114	0.000200	0.01000	0	114	75	125	0.01140	0.149	20	
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Sample ID: LCS-32675	SampType: LCS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84816						
Client ID: LCSW	Batch ID: 32675	TestNo: SW7470A		Analysis Date: 12/26/2019	SeqNo: 2125929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.00970	0.000200	0.01000	0	97.0	80	120				
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Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: 32675

Sample ID: LCSD-32675	SampType: LCSD	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 12/23/2019	RunNo: 84816						
Client ID: LCSS02	Batch ID: 32675	TestNo: SW7470A		Analysis Date: 12/26/2019	SeqNo: 2125930						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00949	0.000200	0.01000	0	94.9	80	120	0.009699	2.21	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits
SDL	Sample detection limit

M	Matrix Interference
RL	Reporting Limit
U	Analyte not detected

ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC
Project: Entergy: CCR Assessment Monitoring

BatchID: R84976

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84976						
Client ID: PBW	Batch ID: R84976	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129257						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	< 0.0500	0.0500									
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Sample ID: LCS	SampType: LCS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84976						
Client ID: LCSW	Batch ID: R84976	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129258						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	2.03	0.0500	2.000	0	101	90	110				
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Sample ID: LCSD	SampType: LCSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84976						
Client ID: LCSS02	Batch ID: R84976	TestNo: E 300.0		Analysis Date: 12/30/2019	SeqNo: 2129259						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	2.17	0.0500	2.000	0	109	90	110	2.027	7.03	15	
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Sample ID: 19121061-008AMS	SampType: MS	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84976						
Client ID: CCR-8	Batch ID: R84976	TestNo: E 300.0	Analysis Date: 12/30/2019	SeqNo: 2129290							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	1.15	0.0500	1.000	0.1671	98.1	80	120				
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Qualifiers:	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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QC SUMMARY REPORT

WO#: 19121061

09-Jan-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring

BatchID: R84976

Sample ID: 19121061-008AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 84976						
Client ID: CCR-8	Batch ID: R84976	TestNo: E 300.0	Analysis Date: 12/30/2019	SeqNo: 2129293							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.15	0.0500	1.000	0.1671	98.3	80	120	1.148	0.166	15	

Qualifiers:

H	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits
SDL	Sample detection limit

M	Matrix Interference
RL	Reporting Limit
U	Analyte not detected

ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as sj



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Sample Log-In Check List

Client Name: **PIVOTAL_ENGINEERIN**

Work Order Number: **19121061**

RcptNo: **1**

Logged by: **Danielle Hollier** **12/20/2019 1:16:00 PM**

Completed By: **Danielle Hollier** **12/20/2019 2:59:13 PM**

Reviewed By: **Caitlin Duplantis** **1/2/2020 3:51:32 PM**

Danielle Hollier
Danielle Hollier
Caitlin Duplantis

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Element

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
4. Shipping container/cooler in good condition? Yes ☒ No ☐
Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒
No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Not Present			



LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 01/06/2020

Report # 219122644



Project 19121061

<i>Deliver To</i>	<i>Additional Recipients</i>
Annie Reedy	Caitlin Duplantis, Element Materials Technology
Element Materials Technology	Cristina Thibeaux, Element Materials Technology
2417 W Pinhook Rd	Rhonda David, Element Materials Technology
Lafayette, LA 70508	Buffy Hudson, Element Materials Technology
800-737-2378	



Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % difference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
Pace Gulf Coast Report 219122644

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Case Narrative

Client: Element Materials Technology **Report:** 219122644

Pace Analytical Gulf Coast received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

No anomalies were found for the analyzed sample(s).



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21912264401	CCR-1	Water	12/17/2019 17:15	12/26/2019 09:24
21912264402	CCR-2	Water	12/17/2019 15:45	12/26/2019 09:24
21912264403	CCR-3	Water	12/17/2019 14:20	12/26/2019 09:24
21912264404	CCR-4	Water	12/17/2019 12:30	12/26/2019 09:24
21912264405	CCR-5	Water	12/19/2019 07:40	12/26/2019 09:24
21912264406	CCR-6	Water	12/19/2019 09:10	12/26/2019 09:24
21912264407	CCR-7	Water	12/19/2019 10:45	12/26/2019 09:24
21912264408	CCR-8	Water	12/18/2019 17:30	12/26/2019 09:24
21912264409	CCR-8 MS	Water	12/18/2019 17:30	12/26/2019 09:24
21912264410	CCR-8 MSD	Water	12/18/2019 17:30	12/26/2019 09:24
21912264411	CCR-9	Water	12/18/2019 16:15	12/26/2019 09:24
21912264412	CCR-10	Water	12/18/2019 14:25	12/26/2019 09:24
21912264413	CCR-11	Water	12/18/2019 13:00	12/26/2019 09:24
21912264414	CCR-12	Water	12/18/2019 11:30	12/26/2019 09:24
21912264415	CCR-13	Water	12/18/2019 10:00	12/26/2019 09:24
21912264416	CCR-14	Water	12/18/2019 08:40	12/26/2019 09:24
21912264417	DUP	Water	12/17/2019 00:01	12/26/2019 09:24
21912264418	FB1	Water	12/18/2019 17:00	12/26/2019 09:24



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

CCR-1

Collect Date 12/17/2019 17:15

LAB ID 21912264401

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 21:47	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	26.0	5.00	ug/L

CCR-2

Collect Date 12/17/2019 15:45

LAB ID 21912264402

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 21:51	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	23.2	5.00	ug/L

CCR-3

Collect Date 12/17/2019 14:20

LAB ID 21912264403

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 21:54	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	29.7	5.00	ug/L

CCR-4

Collect Date 12/17/2019 12:30

LAB ID 21912264404

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 21:58	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	18.2	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

CCR-5

Collect Date 12/19/2019 07:40

LAB ID 21912264405

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:01	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	23.1	5.00	ug/L

CCR-6

Collect Date 12/19/2019 09:10

LAB ID 21912264406

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:05	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	16.3	5.00	ug/L

CCR-7

Collect Date 12/19/2019 10:45

LAB ID 21912264407

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:08	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	12.7	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

CCR-8

Collect Date 12/18/2019 17:30

LAB ID 21912264408

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:12	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	38.1	5.00	ug/L

CCR-8 MS

Collect Date 12/18/2019 17:30

LAB ID 21912264409

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:15	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	281	5.00	ug/L

CCR-8 MSD

Collect Date 12/18/2019 17:30

LAB ID 21912264410

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:19	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	279	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

CCR-9

Collect Date 12/18/2019 16:15

LAB ID 21912264411

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:36	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	17.8	5.00	ug/L

CCR-10

Collect Date 12/18/2019 14:25

LAB ID 21912264412

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:40	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	12.6	5.00	ug/L

CCR-11

Collect Date 12/18/2019 13:00

LAB ID 21912264413

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:43	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	7.82	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

CCR-12

Collect Date 12/18/2019 11:30

LAB ID 21912264414

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:47	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	24.9	5.00	ug/L

CCR-13

Collect Date 12/18/2019 10:00

LAB ID 21912264415

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:50	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	19.2	5.00	ug/L

CCR-14

Collect Date 12/18/2019 08:40

LAB ID 21912264416

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:54	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	16.5	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Sample Results

DUP

Collect Date 12/17/2019 00:01

LAB ID 21912264417

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 22:57	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	19.6	5.00	ug/L

FB1

Collect Date 12/18/2019 17:00

LAB ID 21912264418

Receive Date 12/26/2019 09:24

Matrix Water

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/30/2019 09:30	674413	EPA 3010A	1	01/03/2020 23:01	LWZ	674717

CAS#	Parameter	Result	LOQ	Units
7439-93-2	Lithium	ND	5.00	ug/L



Report#: 219122644

Project ID: 19121061

Report Date: 01/06/2020

Inorganics QC Summary

Analytical Batch 674717	Client ID LAB ID	MB674413 1997108	LCS674413 1997109				
Prep Batch 674413	Sample Type Prep Date	MB 12/30/2019 09:30	LCS 12/30/2019 09:30				
Prep Method EPA 3010A	Analysis Date Matrix	01/03/2020 21:40 Water	01/03/2020 21:44 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Lithium	7439-93-2	ND	5.00	250	248	99	80 - 120

Analytical Batch 674717	Client ID LAB ID	CCR-8 21912264408	CCR-8 MS 21912264409					CCR-8 MSD 21912264410				
Prep Batch 674413	Sample Type Prep Date	SAMPLE 12/30/2019 09:30	MS 12/30/2019 09:30					MSD 12/30/2019 09:30				
Prep Method EPA 3010A	Analysis Date Matrix	01/03/2020 22:12 Water	01/03/2020 22:15 Water					01/03/2020 22:19 Water				
EPA 6020B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Lithium	7439-93-2	38.1	5.00	250	281	97	80 - 120	250	279	97	1	20



CHAIN OF CUSTODY RECORD

Omega COCID 8870

PAGE

Client ID: 4462 - Element Materials Technology

SDG: 219122644

PM: JLM



FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL	COMPANY: Pace Analytical (FKA GCAL)	SPECIAL INSTRUCTIONS / COMMENTS: 6020-Lithium
ADDRESS: 7979 GSRI Avenue		
CITY, STATE, ZIP: Baton Rouge, LA 70820		
PHONE: (225) 769-4900 FAX: (225) 767-5717 EMAIL:		
ACCOUNT #:		

ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	19121061-001C 6020_W_SUB (SW6020A)	CCR-1	250HDPEHNO3	Aqueous	12/17/2019 5:15:00 PM	1	+1
2	19121061-002C 6020_W_SUB (SW6020A)	CCR-2	250HDPEHNO3	Aqueous	12/17/2019 3:45:00 PM	1	+2
3	19121061-003C 6020_W_SUB (SW6020A)	CCR-3	250HDPEHNO3	Aqueous	12/17/2019 2:20:00 PM	1	+3
4	19121061-004C 6020_W_SUB (SW6020A)	CCR-4	250HDPEHNO3	Aqueous	12/17/2019 12:30:00 PM	1	+4
5	19121061-005C 6020_W_SUB (SW6020A)	CCR-5	250HDPEHNO3	Aqueous	12/19/2019 7:40:00 AM	1	+5
6	19121061-006C 6020_W_SUB (SW6020A)	CCR-6	250HDPEHNO3	Aqueous	12/19/2019 9:10:00 AM	1	+6
7	19121061-007C 6020_W_SUB (SW6020A)	CCR-7	250HDPEHNO3	Aqueous	12/19/2019 10:45:00 AM	1	+7
8	19121061-008C 6020_W_SUB (SW6020A)	CCR-8	250HDPEHNO3	Aqueous	12/18/2019 5:30:00 PM	3	+8,9,10
9	19121061-009C 6020_W_SUB (SW6020A)	CCR-9	250HDPEHNO3	Aqueous	12/18/2019 4:15:00 PM	1	+11

Relinquished By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0700</i>	Received By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0700</i>	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE
Relinquished By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0924</i>	Received By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0924</i>	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						FOR LAB USE ONLY Temp of samples: <i>1.9</i> °C Attempt to Cool? <i>ice</i> Comments: <i>14CPM E34</i>
Note: RUSH requests will incur surcharges!						



CHAIN OF CUSTODY RECORD

Omega COCID 8870

PAGE

Client ID: 4462 - Element Materials Technology

SDG: 219122644

PM: JLM



FAX: (337) 233-6540

Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Pace Analytical (FKA GCAL)		SPECIAL INSTRUCTIONS / COMMENTS:			
ADDRESS: 7979 GSRI Avenue				6020-Lithium			
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900		FAX: (225) 767-5717		EMAIL:			
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
10	19121061-010C 6020_W_SUB (SW6020A)	CCR-10	250HDPEHNO3	Aqueous	12/18/2019 2:25:00 PM	1	+12
11	19121061-011C 6020_W_SUB (SW6020A)	CCR-11	250HDPEHNO3	Aqueous	12/18/2019 1:00:00 PM	1	+13
12	19121061-012C 6020_W_SUB (SW6020A)	CCR-12	250HDPEHNO3	Aqueous	12/18/2019 11:30:00 AM	1	+14
13	19121061-013C 6020_W_SUB (SW6020A)	CCR-13	250HDPEHNO3	Aqueous	12/18/2019 10:00:00 AM	1	+15
14	19121061-014C 6020_W_SUB (SW6020A)	CCR-14	250HDPEHNO3	Aqueous	12/18/2019 8:40:00 AM	1	+16
15	19121061-015C 6020_W_SUB (SW6020A)	DUP	250HDPEHNO3	Aqueous	12/17/2019	1	+17
16	19121061-016C 6020_W_SUB (SW6020A)	FB1	250HDPEHNO3	Aqueous	12/18/2019 5:00:00 PM	1	+18

Relinquished By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0700</i>	Received By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0700</i>	REPORT TRANSMITTAL DESIRED:	
Relinquished By: <i>[Signature]</i>	Date: <i>12-20-2019</i>	Time: <i>0700</i>	Received By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0700</i>	<input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE	
Relinquished By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0924</i>	Received By: <i>[Signature]</i>	Date: <i>12-26-19</i>	Time: <i>0924</i>	FOR LAB USE ONLY	
TAT: Standard <input type="checkbox"/> RUSH <input type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						Temp of samples <i>1.9</i> °C Attempt to Cool? <i>ice</i>	
Note: RUSH requests will incur surcharges!						Comments: <i>14CPM EBY</i>	



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 219122644			CHECKLIST		YES	NO
Client PM JLM 4462 - Element Materials Technology	Transport Method CUST		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile Number 271810	Received By Savage, Tiffany R		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Line Item(s) 1 - Water	Receive Date(s) 12/26/19		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Samples collected in containers provided by Pace Gulf Coast?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COOLERS			DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E34	Temp °C	None	None		
		1.9				
NOTES						



element™

DH 12-23-19

Chain of Custody

Laboratory
Number:

1912 1061

Company

Name:

Contact Name:

Address:

City, State Zip:

Phone

Number:

Fax Number:

E-mail

Address:

Client Information:

Billing Information:

PO Number:

Project Name/Number:

Page of

Matrix Code

DW = Drinking Water

WW = Waste Water

GW = Ground Water

AQ = Aqueous

OT = Other

SL = Sludge SOL = Solid

O = Oil SO = Soil

F = Food SW = Swab

NG = Natural Gas

NGL = Natural Gas Liquid

PW = Produced Water

CF = Completion Fluid

Quote Number:

5554

Required QC Level

Bill Monthly

☐ Yes☐ No

Sampler's Signature

Shipping Method:

UPS / FedEx / NOW

DHL / Element / Hand / Mail

Which Regulations Apply:

☐ RCRA☐ POTW☐ NPDES☐ USDA/FDA☐ RECAP/RISC☐ Drinking Water☐ Distribution☐ Special☐ State☐ Other

Turn Time

☐ StandardRUSH☐ 1 Day☐ 2 Day☐ Other(Rush turn times
will incur a
surcharge and
must be pre-
approved by
lab.)

Container

Pres.

Requested Tests

Comments

Sample ID/Description

Collection Information

Date

Time

Grab /
Composite

Matrix

Quantity

Type

P=Plastic,
G=Glass, V=VialHCl, HNO₃, H₂SO₄,
NaOH, Na₂S₂O₃

300: Fluoride

6010/6020

6020 Sub

Hg 7470

CCR-1

12/17/15

AR

3

P

HNO₃

X

X

X

X

CCR-2

12/17/15

CCR-3

12/17/15

CCR-4

12/17/15

CCR-5

12/17/15

CCR-6

12/17/15

CCR-7

12/17/15

CCR-8

12/18/15

CCR-9

12/18/15

Relinquished by

Date/Time

Received by

Date/Time

Field Notes:

1

12/19/15 14:00

John Herbert

12/19/15 16:00

2

3 John Herbert

12/20/15 13:16

12-20-15 13:16

Received at lab on ice?

☒ Yes ☐ No Temp: 2.4

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31
Columbus, IN
47201 USA
P 812-375-0531
F 812-375-0731

328 Ley Road, Suite 100
Fort Wayne, IN
46825 USA
P 260-471-7000
F 260-471-7777

909 Executive Dr
Warsaw, IN
46580 USA
P 574-267-3305
F 574-269-6569

3371 Cleveland Road, Suite 100A
South Bend, IN
46628 USA
P 574-277-0707
F 574-273-5699

2417 W. Pinhook Rd
Lafayette, LA
70508 USA
P 337-235-0483
F 337-233-6540



element

24-12-23-19

Chain of Custody

Laboratory
Number:

1912 1061

Company

Name:

Contact Name:

Address:

City, State Zip:

Phone

Number:

Fax Number:

E-mail

Address:

Client Information:

Billing Information:

PO Number:

Project Name/Number:

Page of

Matrix Code

DW = Drinking Water

WW = Waste Water

GW = Ground Water

AQ = Aqueous

OT = Other

SL = Sludge SOL = Solid

O = Oil SO = Soil

F = Food SW = Swab

NG = Natural Gas

NGL = Natural Gas Liquid

PW = Produced Water

CF = Completion Fluid

Quote Number:

Required QC Level

Bill Monthly

☐ Yes☐ No

Sampler's Signature

Shipping Method:

UPS / FedEx / NOW

DHL / Element / Hand / Mail

Which Regulations Apply:

☐ RCRA☐ Drinking Water☐ POTW☐ Distribution☐ NPDES☐ Special☐ USDA/FDA☐ State☐ RECAP/RISC☐ Other

Turn Time

☐ Standard

RUSH

☐ 1 Day☐ 2 Day☐ Other(Rush turn times
will incur a
surcharge and
must be pre-
approved by
lab.)

Container

Pres.

Requested Tests

Comments

Sample ID/Description

Collection Information

Date

Time

Grab /
Composite

Matrix

Quantity

Type

P=Plastic,
G=Glass, V=VialHCl, HNO₃, H₂SO₄,
NaOH, Na₂S₂O₃

300: Fluoride

6010: 6020

6020: 6020

Hg 7470

CCR-10

12/18/19 1425

AQ

3

P

HNO₃

X

X

X

X

CCR-11

12/18/19 1300

CCR-12

12/18/19 1130

CCR-13

12/18/19 1000

CCR-14

12/18/19 0840

MS/MSD (CON-8)

12/18/19 1800

6

FIELD BLANK

12/18/19 1700

DUPLICATE

12/18/19

Relinquished by

Date/Time

Received by

Date/Time

Field Notes:

1

12/19 1600

John Hebert

12/20/19 1100

2

3

12/20/19 1316

John Hebert

12-20-19 1316

Received at lab on ice?

☒ Yes ☐ No Temp: 2.4

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. IR 10

Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31
Columbus, IN
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P 812-375-0531
F 812-375-0731

328 Ley Road, Suite 100
Fort Wayne, IN
46825 USA
P 260-471-7000
F 260-471-7777

909 Executive Dr
Warsaw, IN
46580 USA
P 574-267-3305
F 574-269-6569

3371 Cleveland Road, Suite 100A
South Bend, IN
46628 USA
P 574-277-0707
F 574-273-6599

2417 W. Pinhook Rd
Lafayette, LA
70508 USA
P 337-235-0483
F 337-233-6540

APPENDIX C
ALTERNATE SOURCE DEMONSTRATION



Alternate Source Demonstration

2nd Half 2018 Sampling Event

**Entergy Roy S. Nelson Plant
Coal Ash Disposal Landfill
Westlake, Calcasieu Parish, Louisiana**

June 2019

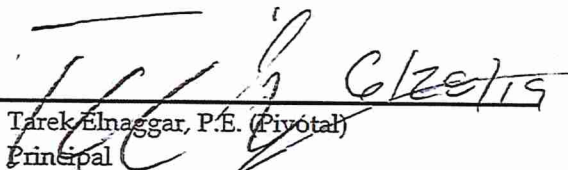


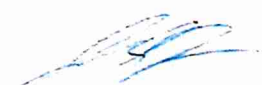
Alternate Source Demonstration

**Entergy Roy S. Nelson Plant
Coal Ash Disposal Landfill
Westlake, Calcasieu Parish, Louisiana**

June 2019

*Prepared For
Entergy Louisiana, L.L.C.
Roy S. Nelson Plant
3500 Houston River Road
Westlake, Louisiana 70669*


Tarek Elnaggar, P.E. (Principal)
Principal


Jason S. House (TRC)
Project Manager

TRC Environmental Corporation | Entergy Louisiana, L.L.C.
Alternate Source Demonstration – Entergy Roy S. Nelson Plant

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P:\15-1XX\15-125(U) ENTERGY NELSON COAL ASH LANDFILL CCR COMPLIANCE\ALTERNATE SOURCE DEMONSTRATION (ASD)\2H2015 ASD AT CADL CA\2H2015 ASD
TRC\R233579000\PH4-001.DOCX

Table of Contents

Executive Summary.....	ii
Section 1 Introduction	1-1
1.1 Background.....	1-1
1.2 Purpose.....	1-1
1.3 Site Hydrogeology	1-2
Section 2 Alternate Source Demonstration.....	2-1
2.1 Calcium SSI at CCR-7	2-1
Section 3 Conclusions	3-1
Section 4 Certification.....	4-1
Section 5 References.....	5-1

List of Figures

Figure 1	Site Location Map
Figure 2	Roy S. Nelson Generating Plant Facility Map
Figure 3	Monitoring Well Locations for CCR Groundwater Monitoring Network
Figure 4	Lower Sand Unit Potentiometric Map (December 2018)
Figure 5	Calcium Time-Trend Plot
Figure 6	Boron Time-Trend Plot
Figure 7	Sulfate Time Trend Plot
Figure 8	Piper Plot

List of Appendices

Appendix A	LDEQ Calcium Groundwater Monitoring Data and Well Location Map
Appendix B	Non-Parametric ANOVA Results
Appendix C	Prediction Limits

Executive Summary

Entergy Louisiana, L.L.C (Entergy) operates the Roy S. Nelson Plant (Plant), a coal fired power plant, to generate electricity. The Plant is located near Westlake, Calcasieu Parish, Louisiana, as shown in Figure 1.

Coal combustion residuals (CCR) are produced as part of the electrical generation operations which began for the Plant in 1960. Disposal of CCR has occurred since then in the on-site coal ash disposal landfill (landfill) that is approximately 31 acres in size (see Figure 2).

Entergy operates a Type I landfill under Louisiana Department of Environmental Quality (LDEQ) Solid Waste Permit No. P-0018-R1-M5. Entergy also manages CCR at the landfill as provided in the federal Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule (CCR Rule), effective October 17, 2015.

Pursuant to the CCR Rule, Entergy has installed a groundwater monitoring network and has implemented groundwater monitoring at the landfill. The CCR certified groundwater monitoring network consists of 14 wells screened in the first continuous water bearing unit beneath the landfill (see Figure 3). A potentiometric map with water levels measured in December 2018 is shown in Figure 4.

Pursuant to the CCR Rule, Entergy performed nine background monitoring events between 2015 and 2017. The samples were analyzed for the Appendix III to Part 257 – Constituents for Detection Monitoring and the Appendix IV to Part 257 – Constituents for Assessment Monitoring parameters. The 2nd Half 2018 semiannual detection monitoring event for the Appendix III constituents was performed in December 2018.

Statistical analysis of the 2nd half 2018 semiannual detection monitoring event results for the Appendix III constituents relative to the background results was performed pursuant to 40 CFR 257.93(f) and the Statistical Analysis Plan. Based on the results of the Statistical analysis, SSIs were identified as follows:

- Calcium Statistically Significant Increase (SSI) in the groundwater at CCR-5
- Calcium Statistically Significant Increase (SSI) in the groundwater at CCR-7

The SSIs for Calcium in CCR-5 and CCR-7 are a result of exceedance of the interwell prediction limit (Appendix C).

Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR management unit caused the SSI or that it resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. 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 demonstrates that the SSI determined based on the 2nd half 2018 semiannual detection monitoring event is not due to leakage from the base of the landfill, but due to the following:

- The source of the calcium SSI in groundwater at CCR-5 is natural variation in the groundwater quality. This conclusion is based on the following primary lines of evidence:
 - Boron concentrations in the groundwater at CCR-5 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the boron concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-5; and
 - Sulfate concentrations in the groundwater at CCR-5 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the sulfate concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-5; and
 - Calcium concentrations in the groundwater at CCR-5 have been stable since quarterly detection monitoring began in November 2015; and
 - Prior to the CCR Rule, LDEQ monitoring wells in the area of CCR-5 were sampled on a semiannual basis, and indicated calcium concentrations in the groundwater ranging from 19 milligrams per liter (mg/L) to 119 mg/L. The SSI concentration for calcium in CCR-5 is 33.4 mg/L, within the range of historical calcium concentration trends at the site; and
 - Soil tests from samples collected at the site showed high levels of leachable calcium in the soil (25.3 mg/kg to 1,250 mg/kg) at depths where the lower sand unit water bearing unit is present; and
 - The presence of a low hydraulic conductivity confining unit above the lower sand unit, hydraulically isolates the unit from overlying sources of water. Therefore, changes in groundwater constituent concentrations are likely derived from natural conditions within the aquifer unrelated to the presence of the landfill; and
 - An analysis of the major ion chemistry of the groundwater shows that groundwater at CCR-5 is not different from the groundwater at the other monitoring wells. The piper plot in Figure 8 demonstrates this point. The concentrations of calcium measured at CCR-5 is naturally occurring and the SSI is a result of the statistical analysis chosen.

- The source of the calcium SSI in groundwater at CCR-7 is natural variation in the groundwater quality. This conclusion is based on the following primary lines of evidence:
 - Boron concentrations in the groundwater at CCR-7 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the boron concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-7; and
 - Sulfate concentrations in the groundwater at CCR-7 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the sulfate concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-7; and
 - Calcium concentrations in the groundwater at CCR-7 have been stable since quarterly detection monitoring began in November 2015; and
 - Prior to the CCR Rule, LDEQ monitoring wells in the area of CCR-7 were sampled on a semiannual basis, and indicated calcium concentrations in the groundwater ranging from 19 milligrams per liter (mg/L) to 119 mg/L. The SSI concentration for calcium in CCR-7 is 46.8 mg/L, within the range of historical calcium concentration trends at the site; and
 - Soil tests from samples collected at the site showed high levels of leachable calcium in the soil (25.3 mg/kg to 1,250 mg/kg) at depths where the lower sand unit water bearing unit is present; and
 - The presence of a low hydraulic conductivity confining unit above the lower sand unit, hydraulically isolates the unit from overlying sources of water. Therefore, changes in groundwater constituent concentrations are likely derived from natural conditions within the aquifer unrelated to the presence of the landfill; and
 - An analysis of the major ion chemistry of the groundwater shows that groundwater at CCR-7 is not different from the groundwater at the other monitoring wells. The piper plot in Figure 8 demonstrates this point. The increase in calcium at CCR-7 is naturally occurring and the SSI is a result of the statistical analysis chosen.

Section 1

Introduction

1.1 Background

The Entergy Louisiana, L.L.C (Entergy) Roy S. Nelson Plant operates an on-site coal ash disposal landfill (landfill) located at 3500 Houston River Road in Westlake, Louisiana (Figure 1). The facility has been generating and disposing of coal combustion residuals (CCR) since it began operations in 1960.

Entergy operates a Type I landfill under Louisiana Department of Environmental Quality (LDEQ) Solid Waste Permit No. P-0018-R1-M5. Entergy also manages CCR at the landfill as provided in the federal Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule (CCR Rule), effective October 17, 2015. Currently, four active disposal cells exist in the landfill and are regulated under the CCR rule. The areal extent of the landfill is shown in Figure 2.

The certified groundwater monitoring network at the landfill consists of 14 monitoring wells (CCR-1 through CCR-14), installed in accordance with the CCR Rule in the first continuous water bearing zone beneath the landfill, the Lower Sand unit. Pursuant to the CCR Rule, Entergy obtained certification by a qualified professional engineer stating that the groundwater monitoring system has been designed and constructed to meet the requirements of 40 CFR 257.91 of the CCR Rule (Pivotal 2017a). Also, pursuant to CFR 257.93(f)(6) of the CCR Rule, statistical analysis of the monitoring results is performed in accordance with the Statistical Analysis Plan and Entergy obtained certification by a qualified professional engineer stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area (Pivotal 2017b).

Pursuant to the CCR Rule, Entergy performed nine background monitoring events between 2015 and 2017. The samples were analyzed for the Appendix III to Part 257 – Constituents for Detection Monitoring and the Appendix IV to Part 257 – Constituents for Assessment Monitoring parameters. The 2nd Half 2018 semiannual detection monitoring event for the Appendix III constituents was performed in December 2018.

Statistical analysis of the 2nd half 2018 semiannual detection monitoring event results for the Appendix III constituents relative to the background results was performed pursuant to 40 CFR 257.93(f) and the Statistical Analysis Plan. Based on the results of the Statistical analysis, SSIs were identified as follows:

- Calcium Statistically Significant Increase (SSI) in the groundwater at CCR-5
- Calcium Statistically Significant Increase (SSI) in the groundwater at CCR-7

TRC Environmental Corporation | Entergy Louisiana, L.L.C.

Alternate Source Demonstration – Entergy Roy S. Nelson Plant

1-1

P:\15-1XX\15-125(1) ENTERGY NELSON COAL ASH LANDFILL CCR COMPLIANCE\ALTERNATE SOURCE DEMONSTRATION (ASD)\2H2018 ASD AT CADL CA\2H2018 ASD TRC\R253579000PH4-001.DOCX 6/28/19

June 2019

The SSIs for Calcium in CCR-5 and CCR-7 are a result of exceedance of the interwell prediction limit (Appendix C).

1.2 Purpose

Pursuant to 40 CFR 257.93(h), an SSI was determined for Appendix III constituent (calcium) at a monitoring well screened in the geologic unit referred to as the Lower Sand. Pursuant to 40 CFR 257.94(e)(2), Entergy may demonstrate that a source other than the CCR management unit caused the SSI or that the SSI resulted from error in sampling analysis, statistical evaluation, or natural variation in groundwater quality. As per 40 CFR 257.94(e)(2), Entergy must complete the demonstration within 90 days of determination of the SSI.

The objective of this report is to provide written documentation of the alternate source demonstration (ASD) for the SSI determined in the 2nd half 2018 semiannual detection monitoring event, as provided for in 40 CFR 257.94(e)(2) of the CCR Rule. Also, pursuant to 40 CFR(e)(2), this ASD report has been certified by a qualified Louisiana professional engineer verifying the accuracy of the information provided in this report.

1.3 Site Hydrogeology

Site investigations have identified two subsurface strata relevant to the CCR monitoring program, beneath the landfill:

- **Upper Clay** unit is the confining unit for the Lower Sand unit. The Upper Clay unit is composed of silty and sandy clays ranging in consistency from stiff to very stiff with low to medium plasticities. In-situ hydraulic conductivities in the Upper Clay unit ranged from 1.5×10^{-5} centimeters per second (cm/s) to 6.9×10^{-7} cm/s, with a general trend of decreasing hydraulic conductivity with depth. The base elevations of the Upper Clay are between -10 and -22 feet (TRC 2015).
- **Lower Sand** unit consists of clays, silts, and dense sands. The sand portion is generally clean and very fine sands that tend to be thinly laminated and graded. Lenses of silt, clay, and organics occur intermittently with organics increasing toward the base as sand grains become coarser. The base of the unit is characterized by a concentration of wood fragments. The Lower Sand unit ranges in thickness from 14.5 feet to 63 feet, with bottom elevations ranging from -27 feet to -86.5 feet. Calculated in-situ hydraulic conductivities in the Lower Sand unit range from 1.3×10^{-4} cm/s to 3.2×10^{-6} cm/s. All CCR Rule groundwater monitoring wells are screened in the Lower Sand unit because it is the first continuous water bearing unit beneath the landfill. A potentiometric map, with water levels measured in September 2017, of the Lower Sand unit is shown in Figure 4.

Section 2

Alternate Source Demonstration

Collection of the 2nd half 2018 semiannual detection monitoring event was completed in November 2018. Eight background quarterly detection monitoring events were previously collected per 40 CFR 257.93(d) and 257.94(b). Statistical analysis of the second semiannual detection monitoring data was performed pursuant to 40 CFR 257.93(f) and (g), in accordance with the Statistical Methods Certification (Pivotal, 2017b). Based on interwell statistical analysis, the following SSI was determined:

- Calcium SSI (CCR-5)
- Calcium SSI (CCR-7)

All other Appendix III constituents were within their interwell prediction limits in all the CCR Rule groundwater monitoring system wells (Appendix C).

2.1 Calcium SSI at CCR-5

The SSI of calcium at CCR-5 is a result of natural variation in the groundwater quality. It is not a result of leachate leaking from the base of the landfill and subsequent migration of CCR constituents in the groundwater. The primary lines of evidence for this demonstration are as follows:

- **Primary Lines of Evidence:**
 - **Boron Time-Trend Analysis** – Boron is another Appendix III constituent monitored in the groundwater at the landfill. Both boron and calcium are found in CCR leachate. Boron is a conservative constituent, meaning it would more readily migrate through the Upper Clay unit than calcium, if leachate leaked from the base of the landfill. If CCR leachate was the source of the calcium SSI, an increase in boron concentration at CCR-5 would be expected to precede, or coincide with the increase in calcium concentration. As shown in Figures 5 and 6, the boron and calcium concentrations have both been stable since the beginning of the background quarterly detection monitoring in November 2015. Boron did not trigger an SSI at the semiannual detection monitoring event in November 2018, and it has consistently been within the range of boron concentrations measured in the groundwater at the sites nine background monitoring wells, upgradient of the landfill. This line of evidence indicates that the source of the calcium SSI at CCR-5 is not CCR leachate leaking from the base of the landfill.
 - **Sulfate Time-Trend Analysis** – Sulfate is another Appendix III constituent monitored in the groundwater at the landfill. Both sulfate and calcium are found in

CCR leachate. Sulfate is a conservative constituent, meaning it would more readily migrate through the Upper Clay unit than calcium, if leachate leaked from the base of the landfill. If CCR leachate was the source of the calcium SSI, an increase in sulfate concentration at CCR-5 would be expected to precede, or coincide with the increase in calcium concentration. As shown in Figures 5 and 7, the sulfate and calcium concentrations have both been stable since the beginning of the background quarterly detection monitoring in November 2015. Sulfate did not trigger an SSI at the semiannual detection monitoring event in November 2018, and it has consistently been within the range of sulfate concentrations measured in the groundwater at the sites nine background monitoring wells, upgradient of the landfill. This line of evidence indicates that the source of the calcium SSI at CCR-7 is not CCR leachate leaking from the base of the landfill.

- **Stable Calcium Concentration Trends** – The calcium concentration in CCR-5 has exhibited a stable trend since the first sample was collected in November 2015. The nine background quarterly detection monitoring samples collected at CCR-5 have been above the interwell prediction limit. The calcium concentrations did not start below the interwell prediction limit and then increase as a result of some calcium source (see Figure 5). This indicates that calcium is not affecting the groundwater.
- **Natural Variation in Groundwater Quality** – Pre-CCR rule monitoring wells, compliant to LDEQ standards for monitoring the landfill have since been abandoned, but sampling data from previous groundwater reports are available. These data from wells NEAL-3, NEAL-4, and NEAL-5 (well locations and data shown in Appendix A) provide evidence of natural variation in calcium concentrations ranging from 20 mg/L to 119 mg/L. The above noted was confirmed with calcium Non-Parametric Analysis of Variance (ANOVA) testing completed in the up-gradient back ground wells CCR-1 – CCR-3 and CCR-9 – CCR-14 located at the site and confirm the existence of natural variation/spatial variation. Therefore, natural variation can also occur in down gradient wells as evidenced by the detection of SSIs. Supporting documentation is attached in Appendix B.
- **Soil Tests** – Five investigative soil borings were advanced in locations downgradient of the landfill to determine the leachable calcium present in the natural soils. This study shows high concentrations (25.3 mg/kg to 1,250 mg/kg) of leachable calcium exist in the soil between 37.5 feet below ground surface (bgs) and 62.5 feet bgs. This depth range is within the lower sand aquifer, where the CCR certified monitoring well network is screened.
- **Lower Sand Unit Hydraulic Isolation** – An upper sand unit is present beneath the landfill discontinuously across the site. The upper sand unit, where present, is located above the upper clay unit. As previously described the upper clay unit is present continuously above the lower sand unit across the site. Pumping tests demonstrated that the upper clay unit has sufficiently low hydraulic conductivity to

confine the lower sand unit from the upper sand unit. Measurements taken in the pumping tests showed no draw down occurring in the upper sand when the lower sand was pumped (TRC, 2015). This hydraulic isolation of the lower sand unit, which is the upper most continuous water bearing unit at the site, provides evidence that changes in groundwater constituent concentrations are likely derived from natural conditions within the aquifer unrelated to the presence of the CCR unit.

- **Major Ion Groundwater Composition** – The major ion chemistry of the groundwater at all monitoring well locations is similar. The piper plot shown in Figure 9 provides evidence that CCR-5 groundwater has the same geochemical fingerprint as the other wells in the approved CCR certified monitoring network. The increase in calcium at CCR-5 is naturally occurring and does not make the groundwater at CCR-7 unique or different from the groundwater at the other monitoring wells. The SSI triggered as a result of the calcium increase is an artifact of the statistical method chosen for the analysis.

2.2 Calcium SSI at CCR-7

The SSI of calcium at CCR-7 is a result of natural variation in the groundwater quality. It is not a result of leachate leaking from the base of the landfill and subsequent migration of CCR constituents in the groundwater. The primary lines of evidence for this demonstration are as follows:

■ Primary Lines of Evidence:

- **Boron Time-Trend Analysis** – Boron is another Appendix III constituent monitored in the groundwater at the landfill. Both boron and calcium are found in CCR leachate. Boron is a conservative constituent, meaning it would more readily migrate through the Upper Clay unit than calcium, if leachate leaked from the base of the landfill. If CCR leachate was the source of the calcium SSI, an increase in boron concentration at CCR-7 would be expected to precede, or coincide with the increase in calcium concentration. As shown in Figures 5 and 6, the boron and calcium concentrations have both been stable since the beginning of the background quarterly detection monitoring in November 2015. Boron did not trigger an SSI at the semiannual detection monitoring event in December 2018, and it has consistently been within the range of boron concentrations measured in the groundwater at the sites nine background monitoring wells, upgradient of the landfill. This line of evidence indicates that the source of the calcium SSI at CCR-7 is not CCR leachate leaking from the base of the landfill.
- **Sulfate Time-Trend Analysis** – Sulfate is another Appendix III constituent monitored in the groundwater at the landfill. Both sulfate and calcium are found in CCR leachate. Sulfate is a conservative constituent, meaning it would more readily migrate through the Upper Clay unit than calcium, if leachate leaked from the base of the landfill. If CCR leachate was the source of the calcium SSI, an increase in sulfate

concentration at CCR-7 would be expected to precede, or coincide with the increase in calcium concentration. As shown in Figures 5 and 7, the sulfate and calcium concentrations have both been stable since the beginning of the background quarterly detection monitoring in November 2015. Sulfate did not trigger an SSI at the semiannual detection monitoring event in December 2018, and it has consistently been within the range of sulfate concentrations measured in the groundwater at the sites nine background monitoring wells, upgradient of the landfill. This line of evidence indicates that the source of the calcium SSI at CCR-7 is not CCR leachate leaking from the base of the landfill.

- **Stable Calcium Concentration Trends** – The calcium concentration in CCR-7 has exhibited a stable trend since the first sample was collected in November 2015. The nine background quarterly detection monitoring samples collected at CCR-7 have been above the interwell prediction limit. The calcium concentrations did not start below the interwell prediction limit and then increase as a result of some calcium source (see Figure 5). This indicates that calcium is not affecting the groundwater.
- **Natural Variation in Groundwater Quality** – Pre-CCR rule monitoring wells, compliant to LDEQ standards for monitoring the landfill have since been abandoned, but sampling data from previous groundwater reports are available. These data from wells NEAL-3, NEAL-4, and NEAL-5 (well locations and data shown in Appendix A) provide evidence of natural variation in calcium concentrations ranging from 20 mg/L to 119 mg/L. The above noted was confirmed with calcium Non-Parametric Analysis of Variance (ANOVA) testing completed in the up-gradient back ground wells CCR-1 – CCR-3 and CCR-9 – CCR-14 located at the site and confirm the existence of natural variation/spatial variation. Therefore, natural variation can also occur in down gradient wells as evidenced by the detection of SSIs. Supporting documentation is attached in Appendix B.
- **Soil Tests** – Five investigative soil borings were advanced in locations downgradient of the landfill to determine the leachable calcium present in the natural soils. This study shows high concentrations (25.3 mg/kg to 1,250 mg/kg) of leachable calcium exist in the soil between 37.5 feet below ground surface (bgs) and 62.5 feet bgs. This depth range is within the lower sand aquifer, where the CCR certified monitoring well network is screened.
- **Lower Sand Unit Hydraulic Isolation** – An upper sand unit is present beneath the landfill discontinuously across the site. The upper sand unit, where present, is located above the upper clay unit. As previously described the upper clay unit is present continuously above the lower sand unit across the site. Pumping tests demonstrated that the upper clay unit has sufficiently low hydraulic conductivity to confine the lower sand unit from the upper sand unit. Measurements taken in the pumping tests showed no draw down occurring in the upper sand when the lower sand was pumped (TRC, 2015). This hydraulic isolation of the lower sand unit, which

is the upper most continuous water bearing unit at the site, provides evidence that changes in groundwater constituent concentrations are likely derived from natural conditions within the aquifer unrelated to the presence of the CCR unit.

- **Major Ion Groundwater Composition** – The major ion chemistry of the groundwater at all monitoring well locations is similar. The piper plot shown in Figure 8 provides evidence that CCR-7 groundwater has the same geochemical fingerprint as the other wells in the approved CCR certified monitoring network. The increase in calcium at CCR-7 is naturally occurring and does not make the groundwater at CCR-7 unique or different from the groundwater at the other monitoring wells. The SSI triggered as a result of the calcium increase is an artifact of the statistical method chosen for the analysis.

Section 3

Conclusions

The information provided in this report serves as the alternate source demonstration prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and demonstrates that the SSI determined based on the 2nd half 2018 semiannual detection monitoring event performed in December 2018 is not due to leakage from the base of the active landfill, but are due to the following:

- The source of the calcium SSIs in groundwater at CCR-5 and CCR-7 is natural variation in the groundwater quality. This conclusion is based on the following primary lines of evidence:
 - Boron concentrations in the groundwater at CCR-5 and CCR-7 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the boron concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-5 and CCR-7; and
 - Sulfate concentrations in the groundwater at CCR-5 and CCR-7 have been stable, and within the range of concentrations measured in the nine background monitoring wells, installed upgradient to the landfill. If the source of the calcium SSI was leachate leaking from the base of the landfill, the Sulfate concentrations in the groundwater would be increasing as it migrated downgradient along with calcium to CCR-5 and CCR-7; and
 - Calcium concentrations in the groundwater at CCR-5 and CCR-7 have been stable since quarterly detection monitoring began in November 2015; and
 - Prior to the CCR Rule, LDEQ monitoring wells in the area of CCR-5 and CCR-7 were sampled on a semiannual basis, and indicated calcium concentrations in the groundwater ranging from 19 mg/L to 119 mg/L. The SSI concentration for calcium in CCR-7 is 52 mg/L, within the range of historical calcium concentration trends at the site Non-Parametric ANOVA testing completed in the up-gradient back ground wells CCR-1 – CCR-3 and CCR-9 – CCR-14 located at the site and confirm the existence of natural variation/spatial variation. Therefore, natural variation can also occur in down gradient wells as evidenced by the detection of SSIs; and
 - Soil tests from samples collected at the site showed high levels of calcium in the soil (25.3 mg/kg to 1,250 mg/kg) at depths where the lower sand unit water bearing unit is present; and
 - The presence of a low hydraulic conductivity confining unit above the lower sand unit, hydraulically isolates the unit from overlying sources of water. Therefore,

changes in groundwater constituent concentrations are likely derived from natural conditions within the aquifer unrelated to the presence of the CCR unit; and

- An analysis of the major ion chemistry of the groundwater shows that groundwater at CCR-5 and CCR-7 is not different from the groundwater at the other monitoring wells. The piper plot in Figure 7 demonstrates this point. The calcium concentrations observed at CCR-5 and CCR-7 are naturally occurring and the SSI is a result of the statistical analysis chosen.

Therefore, based on the information provided in this *ASD* report, Entergy will continue to conduct detection monitoring as per 40 CFR 257.94 at the certified groundwater monitoring network. Based on the information provided, Entergy is not required to implement an assessment monitoring program pursuant to the CCR Rule during the first half 2019 semiannual detection monitoring event scheduled for June 2019.

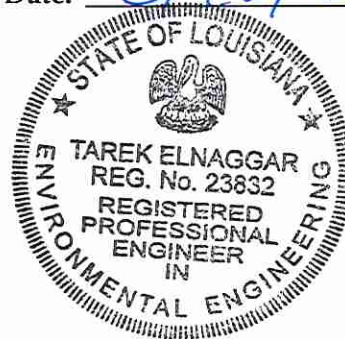
Section 4 Certification

I hereby certify that the alternate source demonstration presented within this document for the Roy S. Nelson Plant 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: _____

Date: _____

Company: Pivotal Engineering, LLC.



Section 5

References

Pivotal Engineering, LLC and TRC Environmental Corporation. 2017a. Groundwater Monitoring System Certification: Roy S. Nelson Generating Plant. Westlake, Louisiana. October 2017.

Pivotal Engineering, LLC and TRC Environmental Corporation. 2017b. Statistical Methods Certification: Roy S. Nelson Generating Plant. Westlake, Louisiana. October 2017.

TRC Environmental Corporation. 2015. Site Conceptual Model: Entergy Roy S. Nelson Coal Ash Landfill. Westlake, Calcasieu Parish, Louisiana. November 2015.

Table 1 Lower Sand Unit Groundwater Elevations (December 2018)

TRC Environmental Corporation | Entergy Louisiana, L.L.C.

Alternate Source Demonstration – Entergy Roy S. Nelson Plant

P:\15-1XX\15-125(1) ENTERGY NELSON COAL ASH LANDFILL CCR COMPLIANCE\ALTERNATE SOURCE DEMONSTRATION (ASD)\2H2018 ASD AT CADL CA\2H2018 ASD TRC\R2535790000PH4-

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June 2019

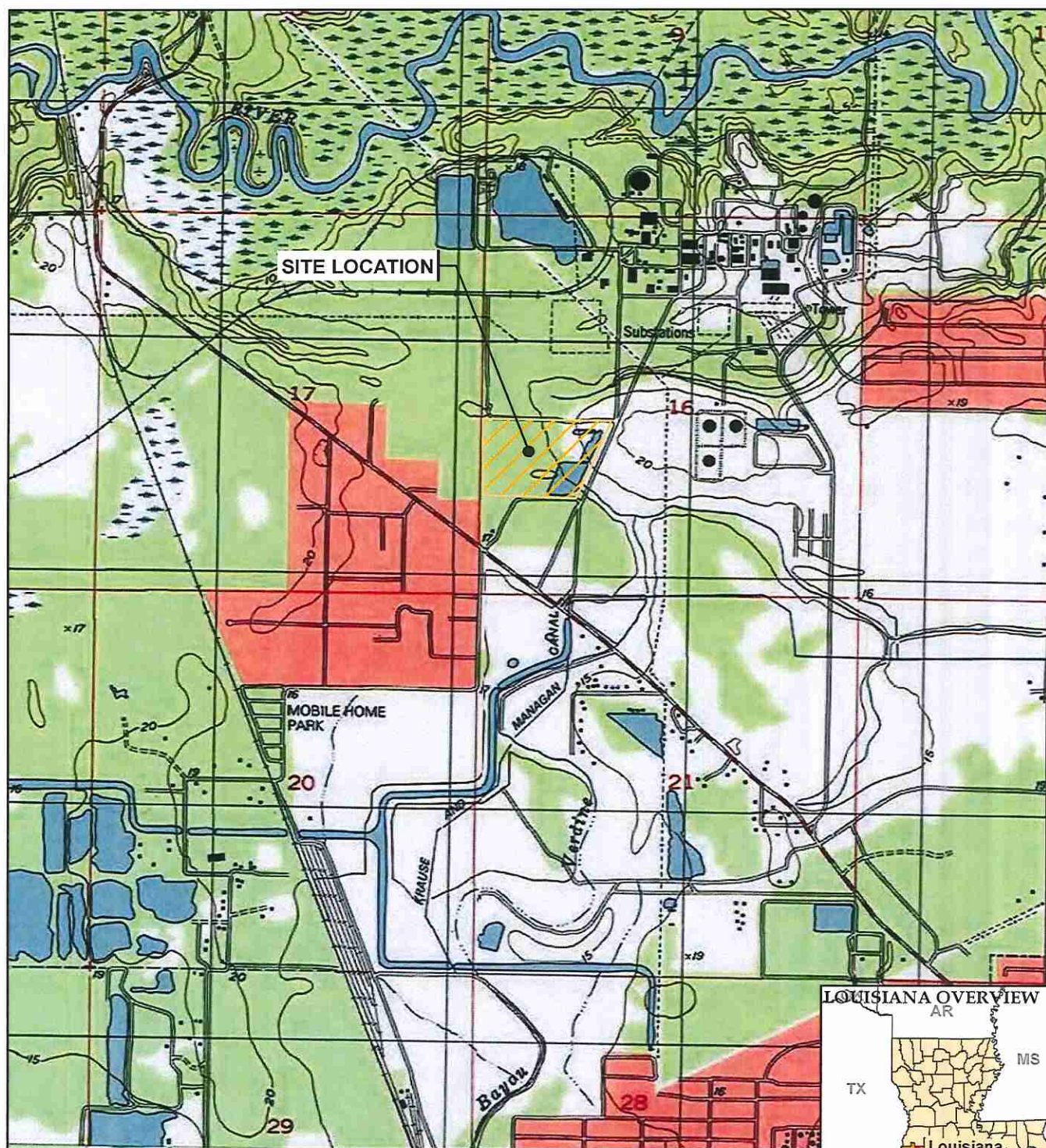
Table 1
Lower Sand Unit Groundwater Elevations (Dec 2018)

WELL ID	GROUNDWATER ELEVATION (ft amsl)
CCR-01	14.51
CCR-02	14.59
CCR-03	14.49
CCR-04	13.52
CCR-05	12.42
CCR-06	13.16
CCR-07	12.64
CCR-08	13.97
CCR-09	14.75
CCR-10	14.81
CCR-11	14.94
CCR-12	14.87
CCR-13	14.93
CCR-14	14.93

Prepared by: J.House (6/26/2019)

Checked by:

Figure 1	Site Location Map
Figure 2	Roy S. Nelson Generating Plant Facility Map
Figure 3	Monitoring Well Locations for CCR Groundwater Monitoring Network
Figure 4	Lower Sand Unit Potentiometric Map (December 2018)
Figure 5	Calcium Time-Trend Plot
Figure 6	Boron Time-Trend Plot
Figure 7	Sulfate Time Trend Plot
Figure 8	Piper Plot



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.



1" = 2,000'
1:24,000

0 2,000 4,000
FEET



708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

TRC - GIS

PROJECT:

**ENTERGY ROY S. NELSON PLANT
3500 HOUSTON RIVER RD
WESTLAKE, LA**

TITLE:

SITE LOCATION MAP

DRAWN BY:

S. MAJOR

CHECKED BY:

J. HOUSE

APPROVED BY:

J. HOUSE

DATE:

JUNE 2019

PROJ. NO.:

253579

FILE:

253579-007slm.mxd

FIGURE 1



LEGEND

 COAL ASH DISPOSAL LANDFILL

NOTES

1. BASE MAP IMAGERY FROM DIGIGLOBE, 2016.




0 700 1400
1" = 700'
19,400 FEET

PRODUCT
ENERGY ROY S. NELSON PLANT
3500 HOUSTON RIVER RD
WESTLAKE, LA

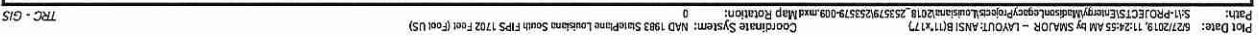
TITLE
ROY S. NELSON GENERATING
PLANT FACILITY MAP

DESIGNED BY	S. MAJOR	PROJECT NO.	253579
CHECKED BY	J. HOUSE		
APPROVED BY	J. HOUSE		
DATE	JUNE 2019		

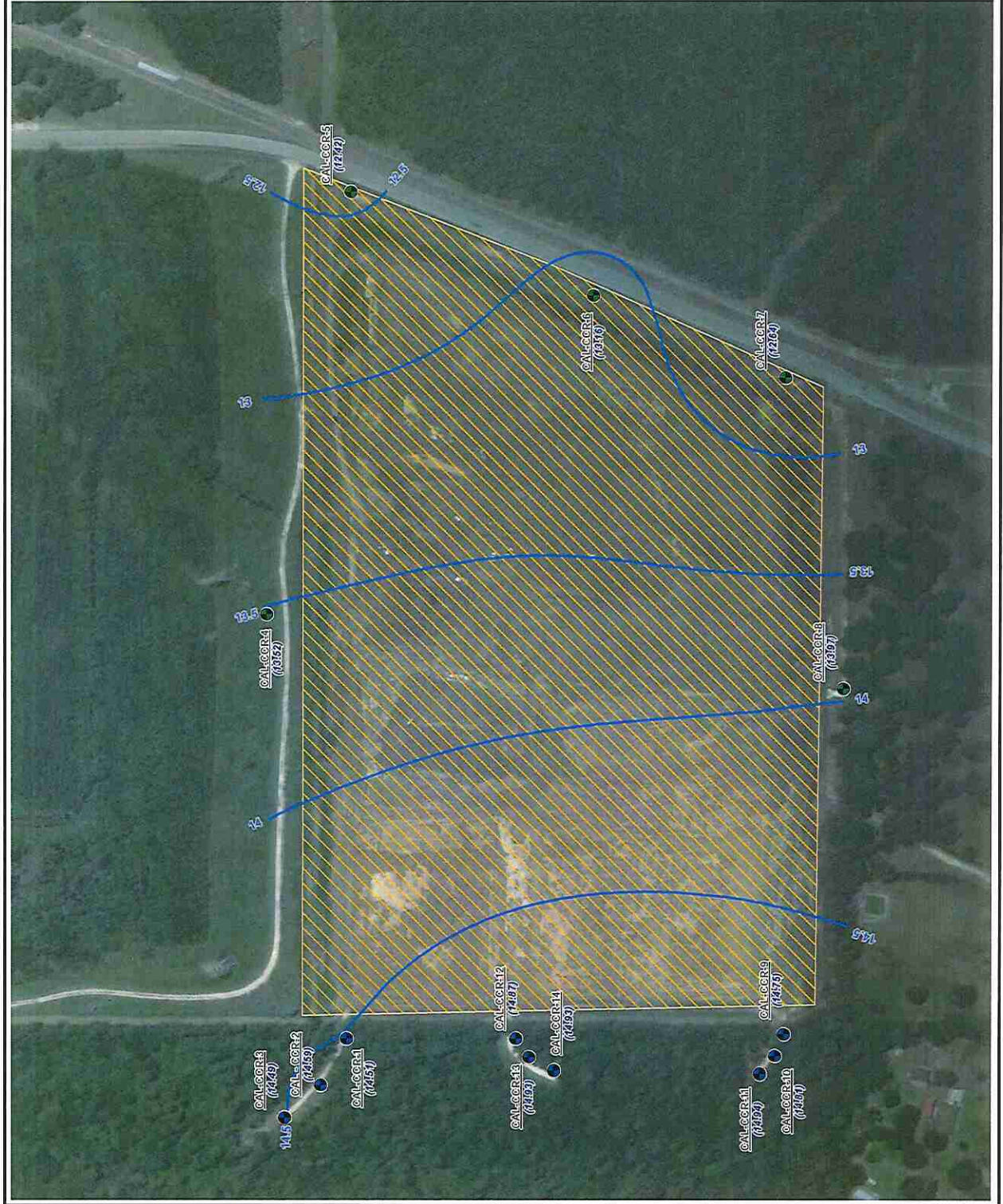
FIGURE 2


700 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.626.3600

FILE NO. 253579-008.mxd



FILE NO.: 253579-009.mxd



LEGEND

- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- GROUNDWATER CONTOURS (DECEMBER 2018)
- COAL ASH DISPOSAL LANDFILL
- (13.5) GROUNDWATER ELEVATION (FT AMSL)

NOTES

1. BASE MAP IMAGERY FROM DIGIGLOBE, 2016.
2. GROUNDWATER LEVELS MEASURED BY PIVOTAL ENGINEERING IN DECEMBER 2018.

ENTERGY ROY S. NELSON PLANT
3500 HOUSTON RIVER RD
WESTLAKE, LA

FIGURE 4

LOWER SAND UNIT POTENTIOMETRIC
MAP (DECEMBER 2018)

708 Highland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3500

TRC

253579-010.mxd

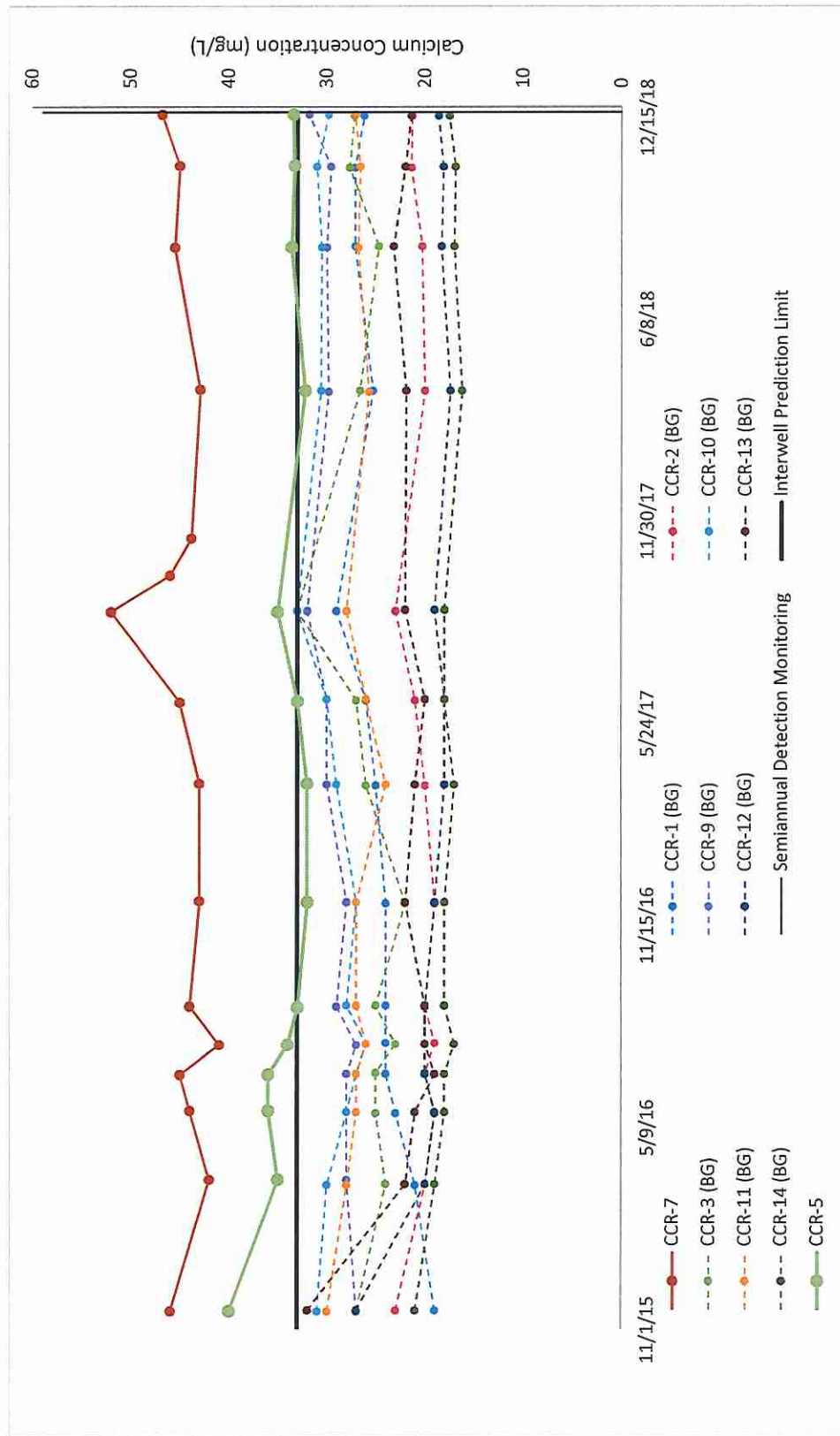
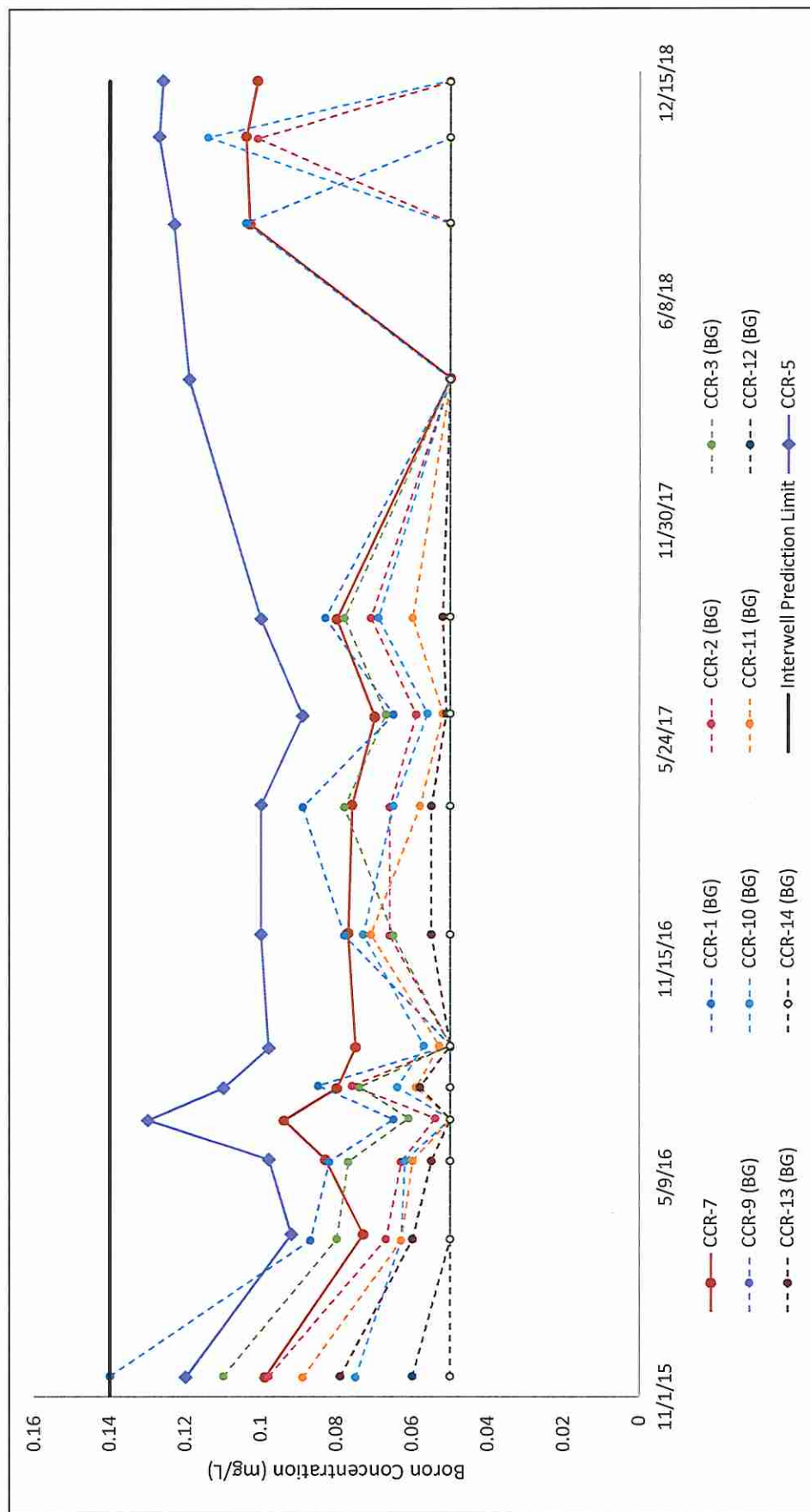


Figure 5: CCR background groundwater monitoring wells (dotted lines) and monitoring wells CCR-5 and CCR-7 (solid line) calcium concentration time trends.

Figure 5
Calcium Time-Trend Plot

Prepared by: J. House (6/26/2019)

Checked by:



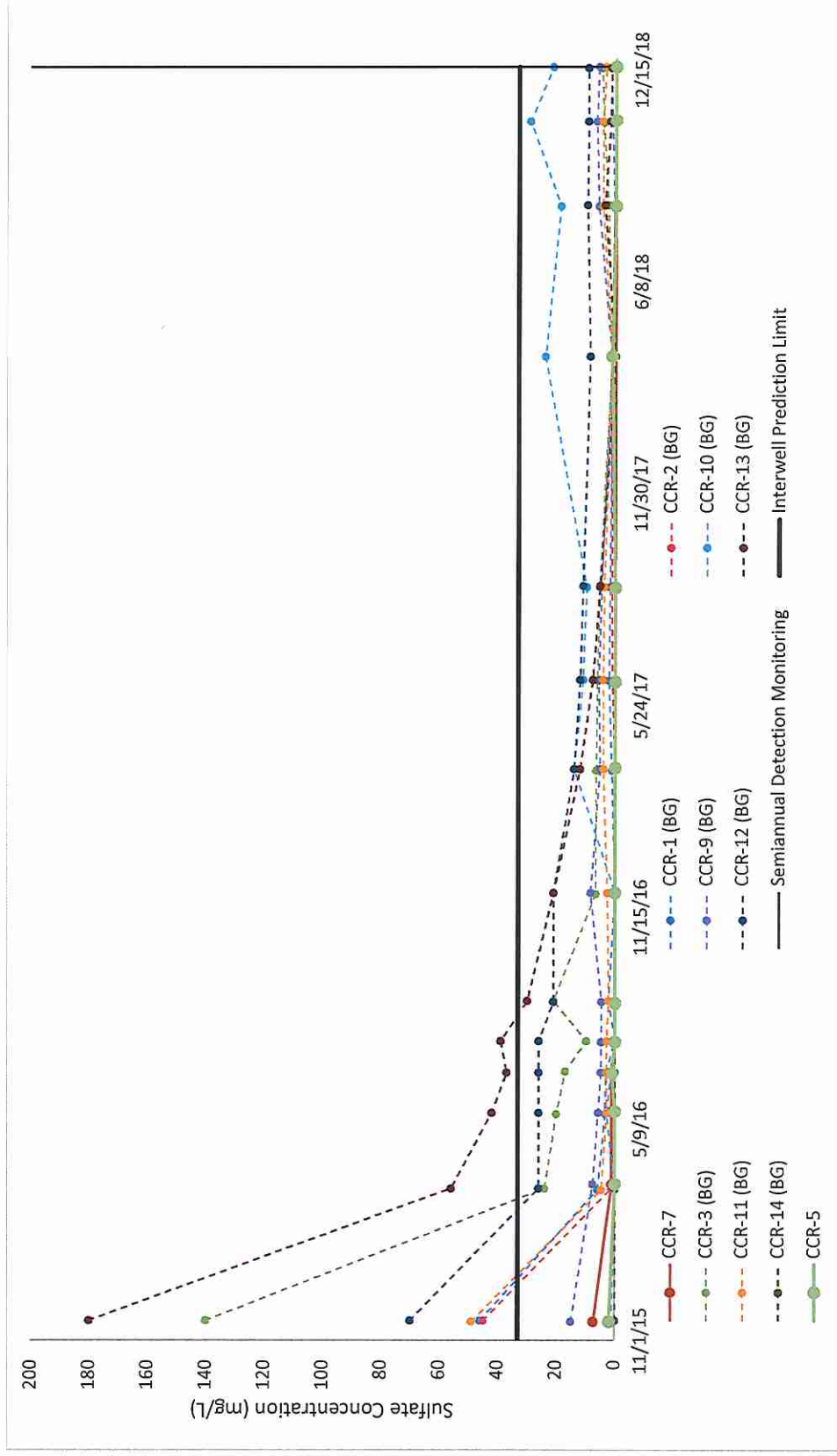


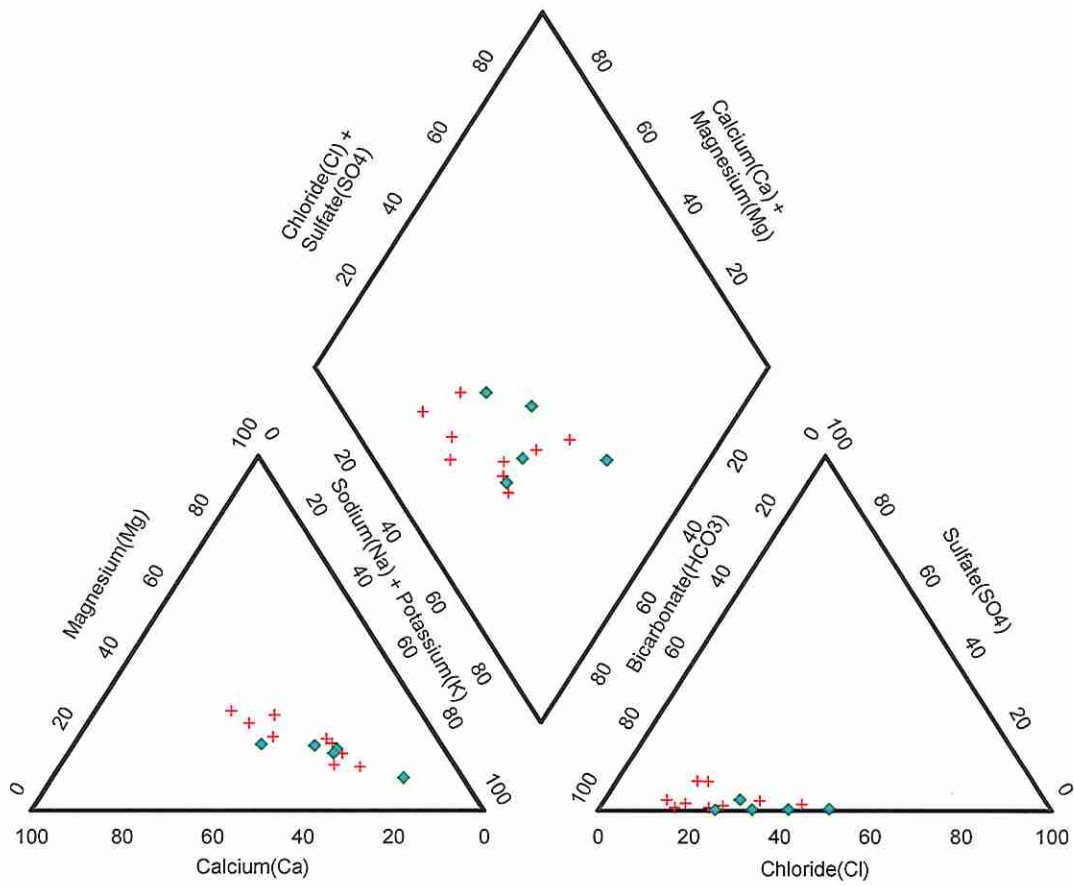
Figure 7: CCR background groundwater monitoring wells (dotted lines) and monitoring well CCR-7 (solid line) sulfate concentration time trends.

Figure 7 Sulfate Time-Trend Plot

Prepared by: J. House (6/26/2019)

Checked by:

Figure 8 - Piper Plot



Appendix A

LDEQ Calcium Groundwater Monitoring Data and Well Location Map

TRC Environmental Corporation | Entergy Louisiana, L.L.C.

Alternate Source Demonstration – Entergy Roy S. Nelson Plant

P:\15-1XX\15-125(1) ENTERGY NELSON COAL ASH LANDFILL CCR COMPLIANCE\ALTERNATE SOURCE DEMONSTRATION (ASD)\2H2018 ASD AT CADL CA\2H2018 ASD TRC\R2535790000PH4-

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June 2019



FIGURE A

Coal Ash Landfill
Site Plan

CA-1

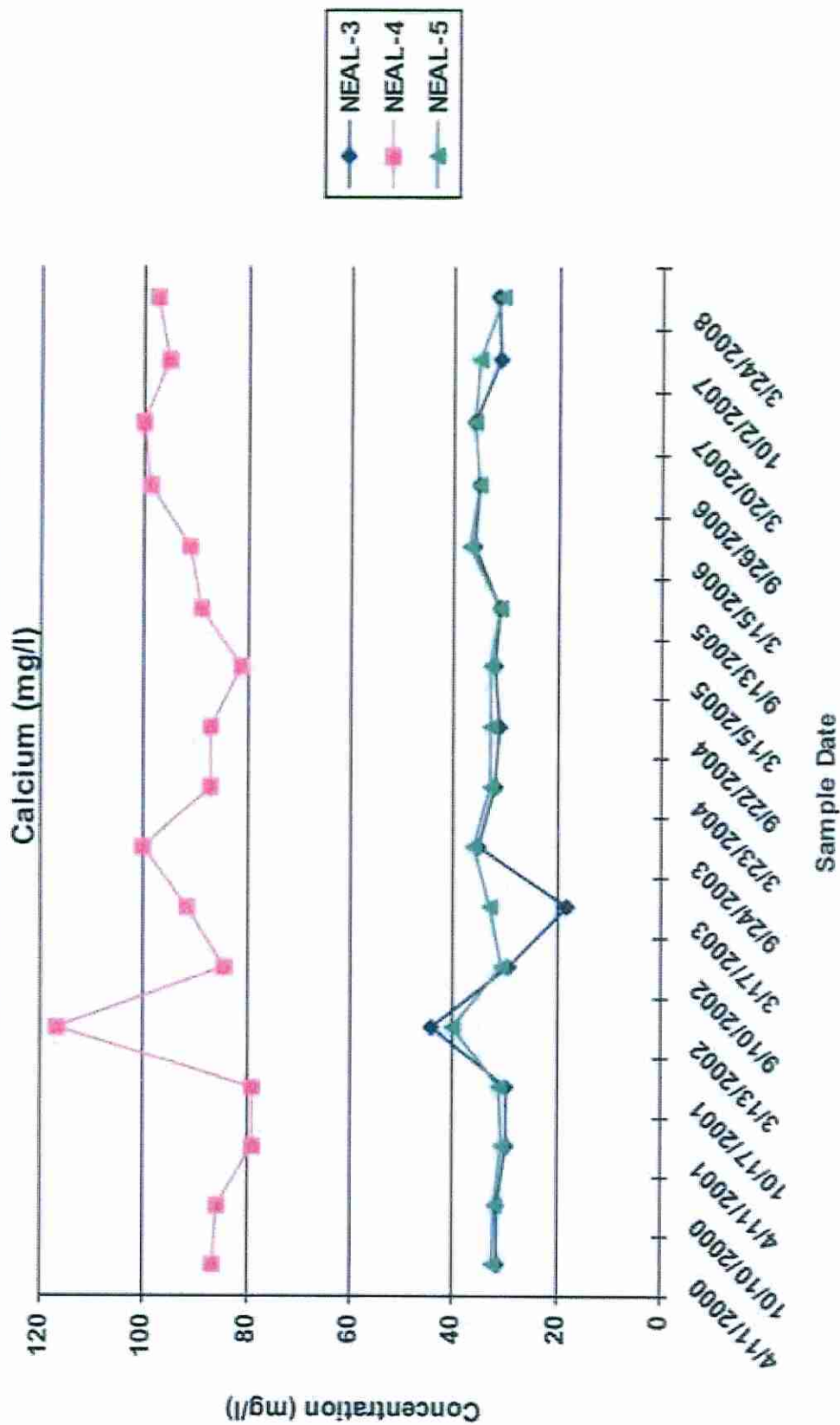
Figure No.

Roy S. Nelson Plant
Houston River Road
Westlake, Louisiana

Entergy Gulf States Louisiana, LLC

09/24/2004 Date	File No.
GVB	RCL 8/2008
Drawn By	Chg. by

Entergy Roy S. Nelson Plant
Coal Ash Landfill - Down Gradient Wells



Appendix B

Non-Parametric ANOVA Results

TRC Environmental Corporation | Entergy Louisiana, L.L.C.

Alternate Source Demonstration – Entergy Roy S. Nelson Plant

P:\15-1XX\15-125(1) ENTERGY NELSON COAL ASH LANDFILL CCR COMPLIANCE\ALTERNATE SOURCE DEMONSTRATION (ASD)\2H2018 ASD AT CADL CA\2H2018 ASD TRC\R2535790000PH4-

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June 2019

Non-Parametric ANOVA

Constituent: Calcium Analysis Run 6/26/2019 1:23 PM
Nelson - Coal Ash Landfill Client: Entergy Data: Entergy Nelson CCR 2H2018

For observations made between 11/18/2015 and 12/18/2018, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 100

Tabulated Chi-Squared value = 15.507 with 8 degrees of freedom at the 5% significance level.

There were 21 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 99.76

Adjusted Kruskal-Wallis statistic (H') = 100

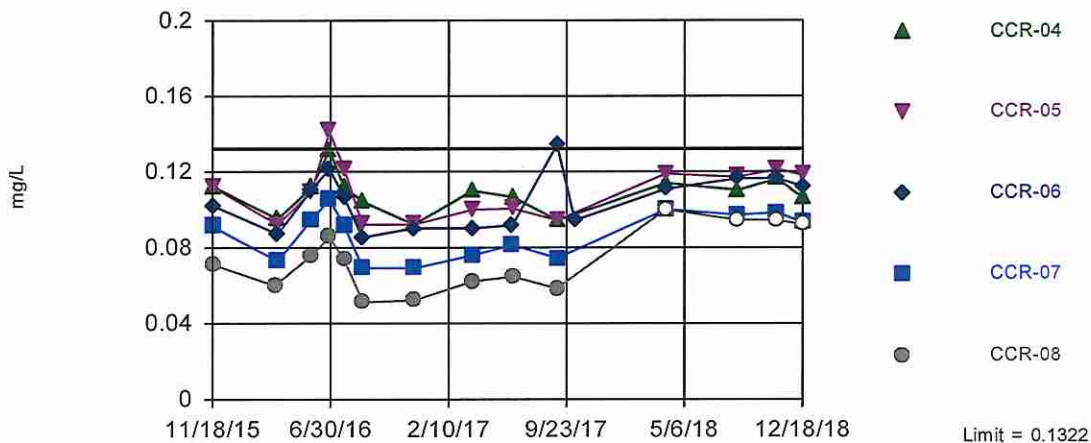
Appendix C

Interwell Prediction Limit Results

Parameter	2017 Interwell Limit		2017 SSI	12/18 Interwell Limit		12/18 SSI
	Non-parametric	0.14		Non-parametric	0.1322	
Boron (mg/l)	Non-parametric	33	CCR-7: 46	Non-parametric	33	CCR-5: 33.4 CCR-7: 46.8
Calcium (mg/l)	Non-parametric	110		Non-parametric	115	
Chloride (mg/l)	Non-parametric	0.93		Parametric	1.13	
Fluoride (mg/l)	Parametric	6.47		Parametric	6.41	
pH - Low (s.u.)	Parametric	7.7		Parametric	7.62	
pH - High (s.u.)	Non-parametric	42		Non-parametric	42	
Sulfate (mg/l)	Parametric	453.6		Parametric	438.5	
TDS (mg/l)						

Within Limit

Prediction Limit Interwell Non-parametric



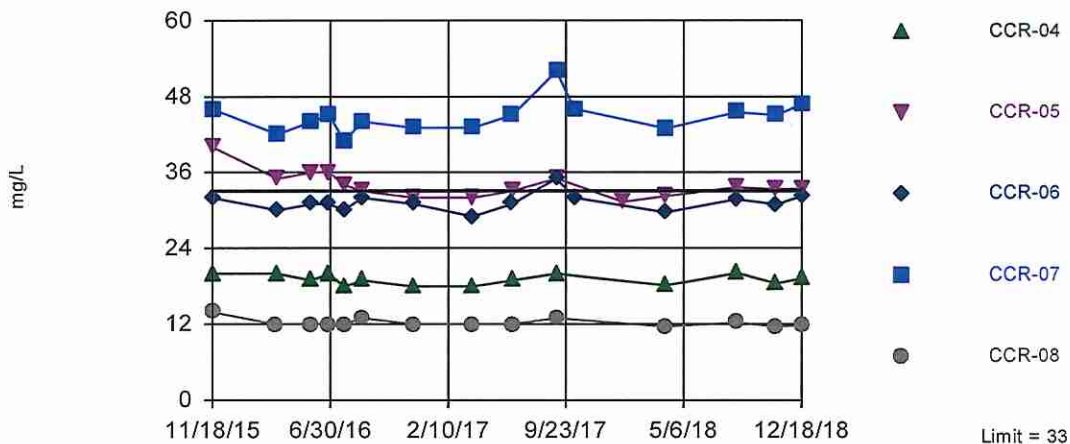
Non-parametric test used in lieu of parametric prediction limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 126 background values. 46.83% NDs. Annual per-constituent alpha = 0.001244. Individual comparison alpha = 0.0001245 (1 of 2). Comparing 5 points to limit. Data were deseasonalized.

Constituent: Boron Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Exceeds Limit: CCR-05, CCR-07

Prediction Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 126 background values. Annual per-constituent alpha = 0.001244. Individual comparison alpha = 0.0001245 (1 of 2). Comparing 5 points to limit. Seasonality was not detected with 95% confidence.

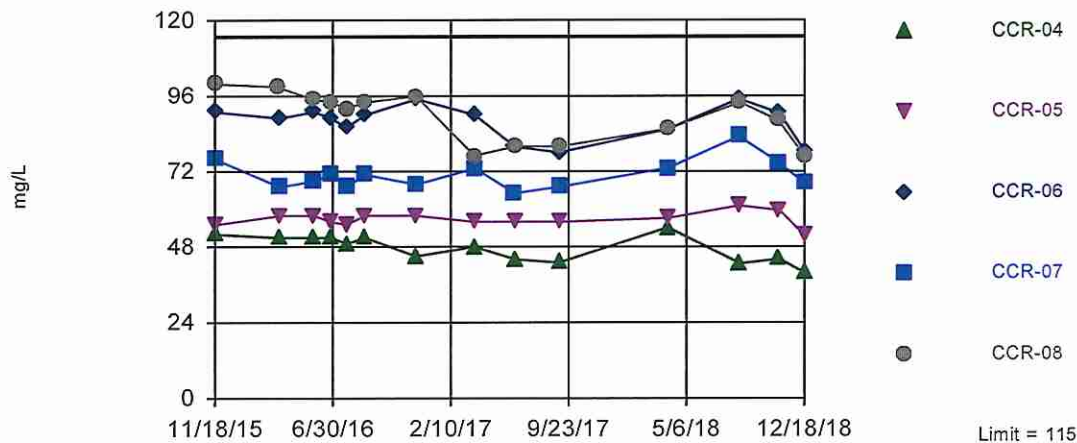
Constituent: Calcium Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 126 background values. Annual per-constituent alpha = 0.001244. Individual comparison alpha = 0.0001245 (1 of 2). Comparing 5 points to limit. Seasonality was not detected with 95% confidence.

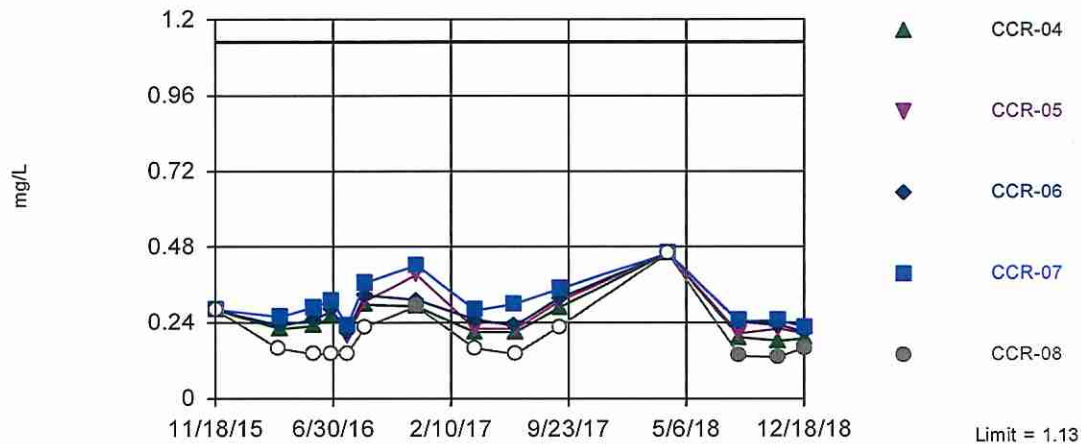
Constituent: Chloride Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Within Limit

Prediction Limit

Interwell Parametric



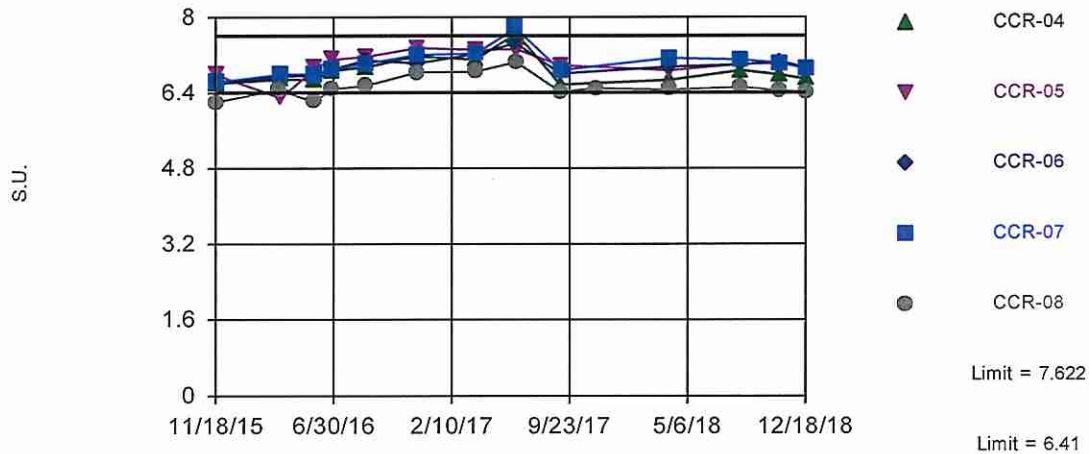
Background Data Summary (based on square root transformation) (after Aitchison's Adjustment): Mean=0.5391, Std. Dev.=0.2922, n=126, 17.46% NDs. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Chi Squared @alpha = 0.01, calculated = 12.89, critical = 14.07. Kappa = 1.794 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Comparing 5 points to limit.

Constituent: Fluoride Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Within Limits

Prediction Limit Interwell Parametric



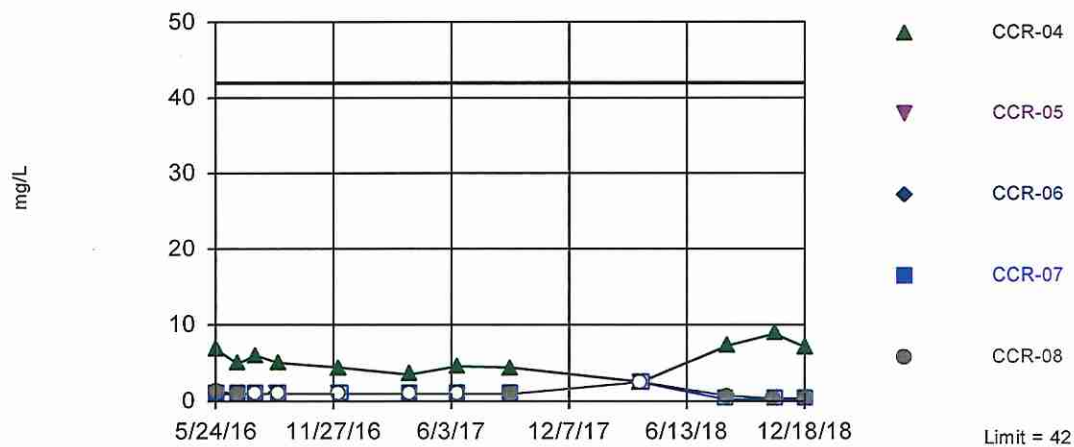
Background Data Summary: Mean=7.016, Std. Dev.=0.3371, n=117. Seasonality was not detected with 95% confidence. Normality test: Chi Squared @alpha = 0.01, calculated = 4.453, critical = 14.07. Kappa = 1.798 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000752. Comparing 5 points to limit.

Constituent: pH Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Within Limit

Prediction Limit Interwell Non-parametric



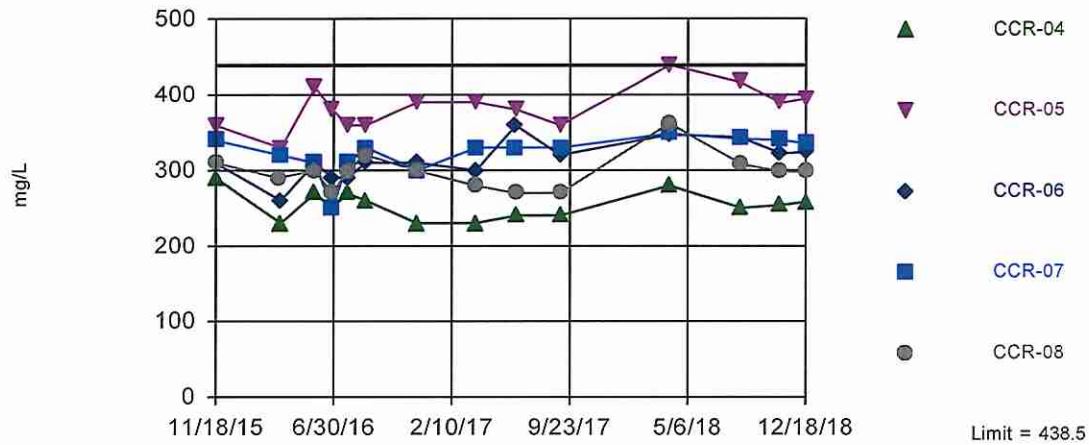
Non-parametric test used in lieu of parametric prediction limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 108 background values. 25.93% NDs. Annual per-constituent alpha = 0.001699. Individual comparison alpha = 0.0001701 (1 of 2). Comparing 5 points to limit. Seasonality was not detected with 95% confidence.

Constituent: Sulfate Analysis Run 1/15/2019 11:25

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR

Within Limit

Prediction Limit Interwell Parametric



Background Data Summary: Mean=275.6, Std. Dev.=90.81, n=126. Seasonality was not detected with 95% confidence. Normality test: Chi Squared @alpha = 0.01, calculated = 5.905, critical = 14.07. Kappa = 1.794 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Comparing 5 points to limit.

Constituent: Total Dissolved Solids Analysis Run 1/15/2019 11:24

Nelson - Coal Ash Landfill Client: Entergy Gulf States Louisiana, LLC Data: Entergy Nelson CCR