# **ROY S. NELSON PLANT**

# 2020 Annual Groundwater Monitoring and Corrective Action Report

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



January 2021

# CCR UNIT WESTLAKE, LA

## 2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

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

Prepared By:

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January 2021

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### 1.0 EXECUTIVE SUMMARY

The Coal Ash Landfill (CCR Unit) was in operation throughout 2020. For the duration of the current annual reporting period (January 2020 through December 2020), the groundwater quality was monitored under a detection monitoring program. In line with historical trends at the site, statistically significant increases of calcium were detected. Entergy Louisiana LLC (Entergy) had previously performed the alternate source demonstration (ASD) to justify that the origin of the SSIs are from areas other than the CCR Unit. For the duration of 2020, no corrective measures were initiated.

### 2.0 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 fourth annual groundwater monitoring report required under the CCR Rule and is the summary and analysis of results from the 2020 groundwater monitoring sampling events. The first groundwater monitoring report was completed in January 2018.

### 3.0 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.

## 4.0 Installed or Decommissioned Monitoring Wells During 2020

No monitoring wells were installed or decommissioned during 2020 at the CCR Unit.

### 5.0 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.

### 6.0 STATUS SUMMARY OF THE 2020 GROUNDWATER MONITORING PROGRAM

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

- In accordance with §257.94(b), detection monitoring sampling was performed during March, June, September, and December for analysis of Appendix III parameters.
- Appendix IV parameters were collected in March, June, September and December 2020 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 2020 Appendix IV data were collected for background purposes and are not required by the rule since the unit is in detection 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 2018, Entergy completed a successful alternate source demonstration (ASD) per §257.94 (e)(2) in response to statistically significant increases (SSIs) identified during the second half of 2017 detection monitoring event. The ASD was certified by a Louisiana-registered professional engineer and was placed into the facility's operating record. Based on the successful evaluation conducted and results presented in the ASD, Entergy continued with detection monitoring in accordance with §257.94.
- In 2018, Entergy completed a successful alternate source demonstration (ASD) per §257.94 (e)(2) in response to statistically significant increases (SSIs) identified during the first half of 2018 detection monitoring event. The ASD were certified by a Louisiana-registered professional engineer and were placed into the facility's operating record. Based on the successful evaluation conducted and results presented in the ASD, Entergy continued with detection monitoring in accordance with §257.94.
- In 2019, Entergy completed a successful alternate source demonstration (ASD) per §257.94 (e)(2) in response to statistically significant increases (SSIs) identified during the second half of 2018 detection monitoring event. The ASD were certified by a Louisiana-registered professional engineer and were placed into the facility's operating record. Based on the successful evaluation conducted and results presented in the ASD, Entergy continued with detection monitoring in accordance with §257.94.

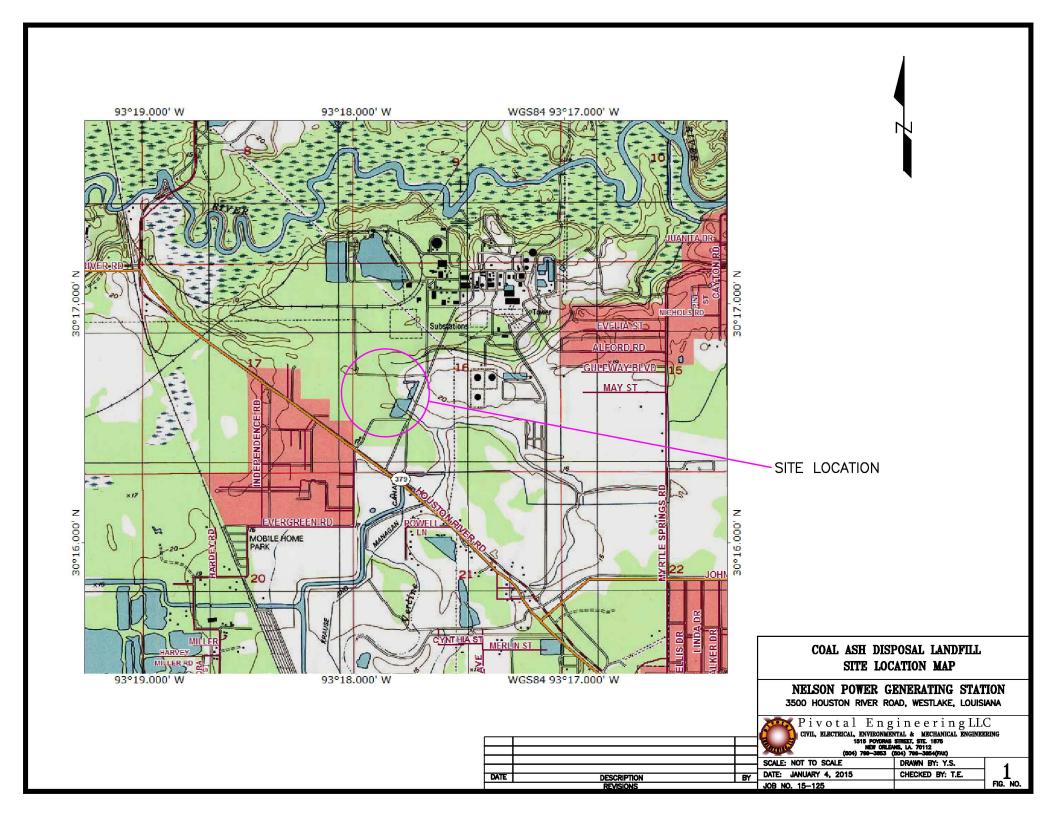
- The 2020 detection monitoring sampling was performed during March, June, September, and December 2020. Results confirmed SSIs for calcium in June and December 2020 in wells CCR-5 and CCR-7.
- No problems were encountered during 2020 with regard to the groundwater monitoring system. Therefore, no actions were required to modify the system.
- The facility remained in detection monitoring for the duration of 2020.

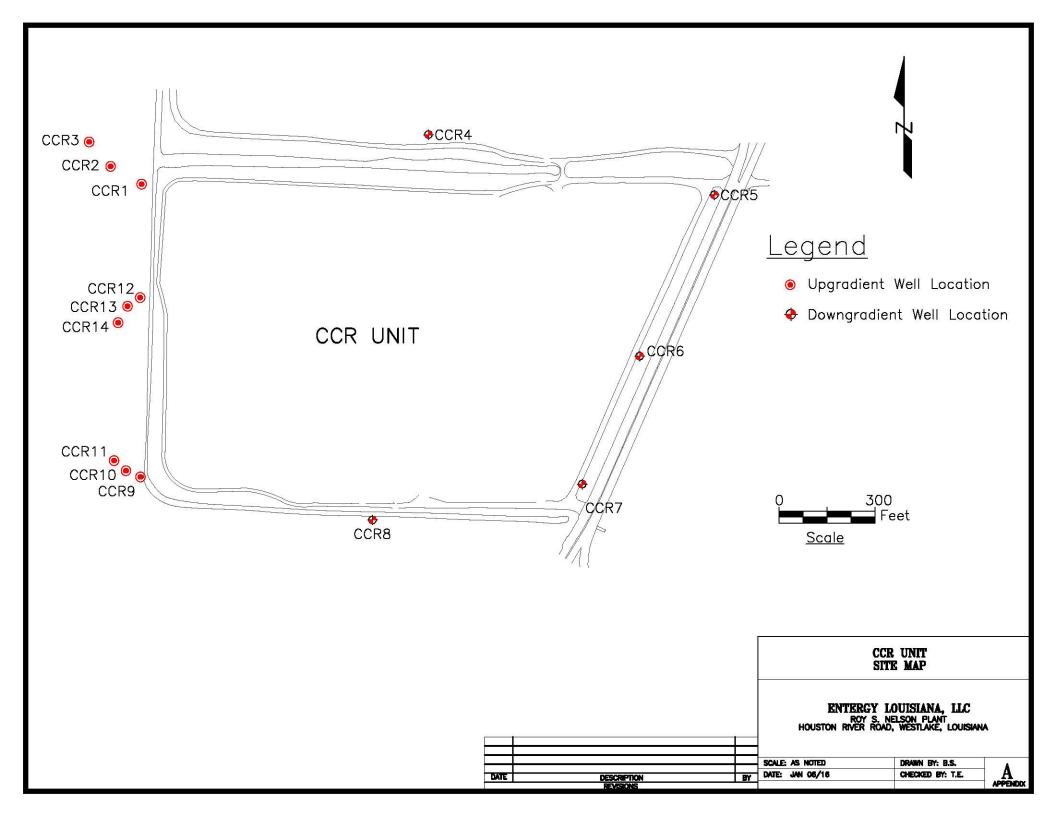
## 7.0 Projected Activities for 2021

Planned activities for the CCR Unit's groundwater monitoring program during 2021 are listed below:

• Semi-annual detection monitoring events are planned for June and December 2021

# APPENDIX A SITE MAP





# APPENDIX B SAMPLING SCHEDULE AND ANALYTICAL DATA



Well	CCR-1 (BG)	CCR-2 (8G)	CCR-3 (8G)	CCR-4	CCR-5	CCR-6	CCR-7	CCR-B	CCR-9 (8G)	CCR-10 (BG)	CCR-11 (8G)	CCR-12 (BG)	CCR-13 (8G)	CCR-14 (8G)
Date	3/3/20	3/3/20	3/3/20	3/4/20	3/5/20	3/5/20	3/5/20	3/4/20	3/2/20	3/2/20	3/2/20	3/3/20	3/3/20	3/3/20
40 CFR 257 Appendix III Parameters*	<b>*</b>	<b>*</b>	· /	4	· /	4	1	<b>*</b>	· /	4	· /	1	4	<b>*</b>
40 CFR 257 Appendix IV Parameters**	~	~	~	~	~	✓	¥	4	~	¥	~	¥	~	4
Date	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/4/20	6/4/20	6/4/20	6/4/20	6/4/20	6/4/20
40 CFR 257 Appendix III Parameters*	<b>*</b>	~	· /	4	4	4	4	4	· ·	4	4	· /	4	4
40 CFR 257 Appendix IV Parameters**	~	~	~	~	~	¥	¥	4	¥	<b>*</b>	¥	¥	~	4
Date	9/28/20	9/28/20	9/28/20	9/28/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/28/20	9/28/20	9/28/20
40 CFR 257 Appendix III Parameters*	<b>4</b>	<b>*</b>	<b>Y</b>	<b>Y</b>	4	4	1	4	4	4	4	4	4	4
40 CFR 257 Appendix IV Parameters**	~	~	~	~	~	✓	¥	<b>*</b>	✓	¥	~	¥	~	4
Date	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20
40 CFR 257 Appendix III Parameters*	4	~	~	4	<b>*</b>	~	1	4	4	1	4	4	~	4
40 CFR 257 Appendix IV Parameters**	4	<b>*</b>	~	4	¥	<b>4</b>	4	4	✓	~	4	~	1	4

<sup>\*40</sup> CFR 257 Appendix III Parameters collected on reference date and include Boron, Calcium, Chloride, Flouride, Sulfate, and Total Dissolved Solids. Laboratory reports to follow

Radium 226 and 228 combined were not analyzed in 2020 due to 100% non-detect in previous background analytical results

<sup>\*\*40</sup> CFR 257 Appendix IV Parameters collected on reference date and include Antimony, Arsenic, Barium, Beryillium, Cadmium, Chromium, Cobalt, Flouride, Lead, Uthium, Mercury, Molybdenum, Selenium and Thallium Note: Detection monitoring results for pH are located on the next table.



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	3/3/20	3/3/20	3/3/20	3/4/20	3/5/20	3/5/20	3/5/20	3/4/20	3/2/20	3/2/20	3/2/20	3/3/20	3/3/20	3/3/20
pH (s.u.)	7.43	7.33	7.37	7.29	7.50	7.63	7.51	7.00	7.64	7.60	7.60	6.90	7.39	7.08
Date	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/5/20	6/4/20	6/4/20	6/4/20	6/4/20	6/4/20	6/4/20
pH (s.u.)	7.48	7.24	7.19	7.28	7.48	7.39	7.47	6.93	7.84	7.65	7.72	6.93	7.34	7.21
Date	9/28/20	9/28/20	9/28/20	9/28/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/29/20	9/28/20	9/28/20	9/28/20
pH (s.u.)	6.99	6.80	6.88	6.72	7.05	7.04	7.32	6.53	7.29	7.25	7.33	6.46	6.93	6.74
Date	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20
pH (s.u.)	7.57	7.40	6.72	7.56	7.78	7.89	7.94	7.50	7.50	7.31	6.64	6.75	7.03	6.96
Date*					1/12/21	1/12/21	1/12/21	·		·		·		
pH (S.U.)					7.09	7.04	7.07							

#### S.U. - Standard Units

<sup>\*</sup> Resampling event for pH in wells CCR-5, CCR-6, and CCR-7



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

Website: www.element.com

March 18, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875

New Orleans, LA 70112 TEL: (504) 799-3653

FAX:

RE: CCR Detection Monitoring Order No.: 20030278

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 3/6/2020 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.

Where applicable, 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 2417 W. Pinhook Road Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540

Website: www.element.com

344 WO#:

**Case Narrative** 

20030278

Date: 3/18/2020

CLIENT: Pivotal Engineering LLC

Project: 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).



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

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/3/2020 4:50:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-001

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>	
Chloride	44.3	2.50	mg/L	10	3/10/2020 9:53:35 AM	
Fluoride	0.308	0.0500	mg/L	1	3/10/2020 4:18:18 PM	
Sulfate	2.93	0.250	mg/L	1	3/10/2020 4:18:18 PM	
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS	
Boron	< 0.100	0.100	mg/L	1	3/12/2020 2:21:26 PM	
Calcium	26.0	0.500	mg/L	1	3/12/2020 2:21:26 PM	
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	267	20.0	mg/L	1	3/6/2020 3:18:00 PM	

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278

Date Reported: 3/18/2020

**Collection Date:** 3/3/2020 3:45:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-002 Matrix: AQUEOUS

**Client Sample ID** CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	58.1	2.50	mg/L	10	3/10/2020 10:07:15 AM
Fluoride	0.360	0.0500	mg/L	1	3/10/2020 4:32:01 PM
Sulfate	1.42	0.250	mg/L	1	3/10/2020 4:32:01 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	3/12/2020 2:26:14 PM
Calcium	19.9	0.500	mg/L	1	3/12/2020 2:26:14 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	240	20.0	mg/L	1	3/6/2020 3:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected



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Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/3/2020 2:40:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: 20030278-003

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	111	5.00	mg/L	20	3/10/2020 10:20:59 AM
Fluoride	0.406	0.0500	mg/L	1	3/10/2020 4:45:45 PM
Sulfate	3.69	0.250	mg/L	1	3/10/2020 4:45:45 PM
METALS IN WATER BY ICP, TOTALS			SW60	Analyst: STS	
Boron	< 0.100	0.100	mg/L	1	3/12/2020 2:56:58 PM
Calcium	28.3	0.500	mg/L	1	3/12/2020 2:56:58 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	358	20.0	mg/L	1	3/6/2020 3:18:00 PM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



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## **Analytical Report**

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/4/2020 12:20:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: 20030278-004

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	48.4	2.50	mg/L	10	3/10/2020 10:34:43 AM
Fluoride	0.132	0.0500	mg/L	1	3/10/2020 4:59:28 PM
Sulfate	10.3	0.250	mg/L	1	3/10/2020 4:59:28 PM
METALS IN WATER BY ICP, TOTAL	s		SW60	Analyst: STS	
Boron	0.104	0.100	mg/L	1	3/12/2020 3:01:25 PM
Calcium	18.3	0.500	mg/L	1	3/12/2020 3:01:25 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	240	20.0	mg/L	1	3/6/2020 3:18:00 PM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278

Date Reported: 3/18/2020

**Collection Date:** 3/5/2020 12:00:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-005 Matrix: AQUEOUS

**Client Sample ID** CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	62.2	5.00	mg/L	20	3/10/2020 10:48:27 AM
Fluoride	0.185	0.0500	mg/L	1	3/10/2020 5:13:13 PM
Sulfate	< 0.250	0.250	mg/L	1	3/10/2020 5:13:13 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	)10B	Analyst: STS
Boron	0.115	0.100	mg/L	1	3/12/2020 3:05:53 PM
Calcium	33.3	0.500	mg/L	1	3/12/2020 3:05:53 PM
TOTAL DISSOLVED SOLIDS			SM25	540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	360	20.0	mg/L	1	3/6/2020 3:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference
R PD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
U Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278

Date Reported: 3/18/2020

Collection Date: 3/5/2020 10:30:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-006 Matrix: AQUEOUS

Client Sample ID CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	77.0	2.50	mg/L	10	3/10/2020 11:02:11 AM
Fluoride	0.227	0.0500	mg/L	1	3/10/2020 5:26:57 PM
Sulfate	< 0.250	0.250	mg/L	1	3/10/2020 5:26:57 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	0.104	0.100	mg/L	1	3/12/2020 3:10:21 PM
Calcium	30.6	0.500	mg/L	1	3/12/2020 3:10:21 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	301	20.0	mg/L	1	3/6/2020 3:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278

Date Reported: 3/18/2020

**Collection Date:** 3/5/2020 9:15:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-007 Matrix: AQUEOUS

**Client Sample ID** CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	77.2	2.50	mg/L	10	3/10/2020 11:43:25 AM
Fluoride	0.291	0.0500	mg/L	1	3/10/2020 5:40:40 PM
Sulfate	< 0.250	0.250	mg/L	1	3/10/2020 5:40:40 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	0.111	0.100	mg/L	1	3/12/2020 3:24:23 PM
Calcium	46.7	0.500	mg/L	1	3/12/2020 3:24:23 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	310	20.0	mg/L	1	3/6/2020 3:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference
R PD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
U Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278

Date Reported: 3/18/2020

**Collection Date:** 3/4/2020 10:45:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-008 Matrix: AQUEOUS

**Client Sample ID** CCR-8

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	84.6	2.50	mg/L	10	3/10/2020 11:57:09 AM
Fluoride	0.160	0.0500	mg/L	1	3/10/2020 5:54:24 PM
Sulfate	1.02	0.250	mg/L	1	3/10/2020 5:54:24 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	3/12/2020 3:29:09 PM
Calcium	11.4	0.500	mg/L	1	3/12/2020 3:29:09 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	244	20.0	mg/L	1	3/6/2020 3:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
U Analyte not detected



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

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/2/2020 6:00:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-009

Client Sample ID CCR-9

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	69.6	2.50	mg/L	10	3/10/2020 12:10:52 PM
Fluoride	0.587	0.0500	mg/L	1	3/10/2020 6:08:07 PM
Sulfate	6.54	0.250	mg/L	1	3/10/2020 6:08:07 PM
METALS IN WATER BY ICP, TOTA	METALS IN WATER BY ICP, TOTALS			10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	3/12/2020 3:33:33 PM
Calcium	30.4	0.500	mg/L	1	3/12/2020 3:33:33 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	327	20.0	mg/L	1	3/6/2020 3:18:00 PM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

Analyte not detected



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**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/2/2020 5:00:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-010

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	42.3	2.50	mg/L	10	3/10/2020 12:24:51 PM
Fluoride	0.653	0.0500	mg/L	1	3/10/2020 6:21:51 PM
Sulfate	11.3	0.250	mg/L	1	3/10/2020 6:21:51 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	3/12/2020 3:37:59 PM
Calcium	26.9	0.500	mg/L	1	3/12/2020 3:37:59 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	305	20.0	mg/L	1	3/6/2020 3:18:00 PM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278
Date Reported: 3/18/2020

**Collection Date:** 3/2/2020 2:40:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-011 Matrix: AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	25.4	2.50	mg/L	10	3/10/2020 1:06:03 PM
Fluoride	0.746	0.0500	mg/L	1	3/10/2020 7:03:05 PM
Sulfate	3.64	0.250	mg/L	1	3/10/2020 7:03:05 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	3/12/2020 3:55:49 PM
Calcium	27.9	0.500	mg/L	1	3/12/2020 3:55:49 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	211	20.0	mg/L	1	3/9/2020 7:54:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference
R PD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
U Analyte not detected



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

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/3/2020 12:45:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-012

Client Sample ID CCR-12

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	16.9	1.25	mg/L	5	3/10/2020 1:19:46 PM
Fluoride	0.153	0.0500	mg/L	1	3/10/2020 7:17:02 PM
Sulfate	10.3	0.250	mg/L	1	3/10/2020 7:17:02 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	)10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	3/12/2020 4:00:37 PM
Calcium	18.1	0.500	mg/L	1	3/12/2020 4:00:37 PM
TOTAL DISSOLVED SOLIDS			SM25	540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	154	20.0	mg/L	1	3/9/2020 7:54:00 AM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



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

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

Collection Date: 3/3/2020 11:30:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-013

Client Sample ID CCR-13

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	11.8	1.25	mg/L	5	3/10/2020 1:33:43 PM
Fluoride	0.169	0.0500	mg/L	1	3/10/2020 7:30:47 PM
Sulfate	0.564	0.250	mg/L	1	3/10/2020 7:30:47 PM
METALS IN WATER BY ICP, TOTAL	S		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	3/12/2020 4:05:22 PM
Calcium	21.0	0.500	mg/L	1	3/12/2020 4:05:22 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	143	20.0	mg/L	1	3/9/2020 7:54:00 AM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20030278
Date Reported: 3/18/2020

Collection Date: 3/3/2020 10:20:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Lab ID: 20030278-014 Matrix: AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	12.7	1.25	mg/L	5	3/10/2020 1:47:27 PM
Fluoride	0.242	0.0500	mg/L	1	3/10/2020 7:44:31 PM
Sulfate	2.33	0.250	mg/L	1	3/10/2020 7:44:31 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	3/12/2020 4:10:10 PM
Calcium	16.2	0.500	mg/L	1	3/12/2020 4:10:10 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	180	20.0	mg/L	1	3/9/2020 7:54:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference
R PD outside accepted recovery limits

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
U Analyte not detected



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

Collection Date: 3/4/2020

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-015

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	YIC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	43.8	2.50	mg/L	10	3/10/2020 2:01:11 PM
Fluoride	0.227	0.0500	mg/L	1	3/10/2020 7:58:15 PM
Sulfate	10.1	0.250	mg/L	1	3/10/2020 7:58:15 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	0.107	0.100	mg/L	1	3/12/2020 4:14:57 PM
Calcium	23.6	0.500	mg/L	1	3/12/2020 4:14:57 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: GMS
Total Dissolved Solids (Residue, Filterable)	256	20.0	mg/L	1	3/9/2020 7:54:00 AM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference

RPD outside accepted recovery limits R

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

Analyte not detected



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

**Analytical Report** 

(consolidated)

WO#: 20030278 Date Reported: 3/18/2020

**Collection Date:** 3/5/2020 12:15:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring

Lab ID: Matrix: AQUEOUS 20030278-016

Client Sample ID FB-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	< 0.250	0.250	mg/L	1	3/10/2020 2:14:55 PM
Fluoride	< 0.0500	0.0500	mg/L	1	3/10/2020 2:14:55 PM
Sulfate	< 0.250	0.250	mg/L	1	3/10/2020 2:14:55 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	3/12/2020 4:19:44 PM
Calcium	< 0.500	0.500	mg/L	1	3/12/2020 4:19:44 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0	mg/L	1	3/9/2020 7:54:00 AM

Analyte detected in the associated Method Blank Qualifiers:

> M Matrix Interference R

RPD outside accepted recovery limits

SDL

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit Analyte not detected



# **QC SUMMARY REPORT**

WO#: **20030278** 

18-Mar-20

**Client:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

SDL Sample detection limit

ection Monitoring BatchID: 33394

Sample ID:	MB-33394	SampType:	MBLK	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 868	304	
Client ID:	PBW	Batch ID:	33394	TestN	lo: <b>SW6010B</b>			Analysis Dat	te: <b>3/12/20</b>	20	SeqNo: <b>21</b> 7	73308	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium			< 0.100 < 0.500	0.100 0.500									
Sample ID:	LCS-33394	SampType:	LCS	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 868	304	
Client ID:	LCSW	Batch ID:	33394	Test	lo: <b>SW6010B</b>		Analysis Date: <b>3/12/2020</b>				SeqNo: 217	73309	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium			0.494 50.1	0.100 0.500	0.5000 50.00	0	98.8 100	80 80	120 120				
Sample ID:	LCSD-33394	SampType:	LCSD	TestCo	de: <b>6010_W</b>	Units: mg/L	Prep Date: 3/9/2020				RunNo: 868	304	
Client ID:	LCSS02	Batch ID:	33394	TestN	lo: <b>SW6010B</b>			Analysis Dat	te: <b>3/12/20</b>	20	SeqNo: <b>2173310</b>		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium			0.495 50.0	0.100 0.500	0.5000 50.00	0 0	99.1 99.9	80 80	120 120	0.4938 50.13	0.303 0.320	20 20	
Sample ID:	20030280-006BMS	SampType:	MS	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 868	304	
Client ID:	ZZZZZZ	Batch ID:	33394	Test	lo: <b>SW6010B</b>			Analysis Dat	te: <b>3/12/20</b>	20	SeqNo: 217	73322	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron			0.601	0.100	0.5000	0.1040	99.3	75	125				
Qualifiers:  B Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit					times for preparation or anal			M RL	Matrix Interference Reporting Limit				

Analyte not detected

Sample container temperature is out of limit as sı



# **QC SUMMARY REPORT**

WO#: 2

20030278

18-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: 33394

Sample ID: 20030280-006BMS	SampType: <b>MS</b>	TestCode	e: 6010_W	Units: mg/L		Prep Da	ate: <b>3/9/2020</b>		RunNo: <b>86804</b>		
Client ID: ZZZZZZ	Batch ID: 33394	TestNo	: SW6010B			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73322	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	80.6	0.500	50.00	30.63	100	75	125				

Sample ID: 20030280-006BMSD	SampType: MSD	TestCod	le: 6010_W	Units: mg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 868		
Client ID: ZZZZZZ	Batch ID: 33394	TestN	lo: <b>SW6010B</b>		Analysis Date: 3/12/2020 SeqNo: 217332				3323		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.616	0.100	0.5000	0.1040	102	75	125	0.6006	2.52	20	
Calcium	81.0	0.500	50.00	30.63	101	75	125	80.64	0.507	20	

Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

V Sample container temperature is out of limit as s<sub>1</sub>



# **QC SUMMARY REPORT**

WO#: 20030278

18-Mar-20

**Client:** Pivotal Engineering LLC

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Project:	CCR Detec	tion Monitoring						E	BatchID: 3	3394			
Sample ID: Client ID:	MB-33394 PBW	SampType: MBLI Batch ID: 33394		ode: 6010_W No: SW6010B	Units: mg/L		Prep Date Analysis Date			RunNo: 868 SeqNo: 217			
Analyte		Resu	ılt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron Calcium		< 0.10 < 0.50											
Sample ID:	LCS-33394	SampType: <b>LCS</b>	TestCo	ode: <b>6010_W</b>	Units: mg/L		Prep Date	3/9/202	20	RunNo: 868	803		
Client ID:	LCSW	Batch ID: 33394	4 Test	No: <b>SW6010B</b>			Analysis Date	3/12/20	)20	SeqNo: 21	73265		
Analyte		Resu	ılt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron		0.49	0.100	0.5000	0	98.8	80	120					
Calcium		50	.1 0.500	50.00	0	100	80	120					
Sample ID:	LCSD-33394	SampType: <b>LCS</b> I	) TestCo	ode: <b>6010_W</b>	Units: mg/L		Prep Date	3/9/202	20	RunNo: 868	803		
Client ID:	LCSS02	Batch ID: 33394	4 Test	No: <b>SW6010B</b>			Analysis Date	3/12/20	)20	SeqNo: 21	SeqNo: <b>2173266</b>		
Analyte		Resu	ılt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron		0.49	95 0.100	0.5000	0	99.1	80	120	0.4938	0.303	20		
Calcium		50	.0 0.500	50.00	0	99.9	80	120	50.13	0.320	20		
Sample ID:	20030278-006BMS	SampType: <b>MS</b>	TestCo	ode: <b>6010_W</b>	Units: mg/L		Prep Date	3/9/202	20	RunNo: 868	803		
Client ID:	CCR-6	Batch ID: 33394	4 Test	No: <b>SW6010B</b>			Analysis Date	3/12/20	)20	SeqNo: 217	73278		
Analyte		Resu	ult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron		0.60	0.100	0.5000	0.1040	99.3	75	125					
Oualifiers:	B Analyte detected i	n the associated Method Blan	k	H Holding	times for preparation or ana	lysis exceeded		M	Matrix Interference				

RPD outside accepted recovery limits

Analyte not detected

Reporting Limit

Sample container temperature is out of limit as s<sub>I</sub>



# **QC SUMMARY REPORT**

33394

WO#: 2

20030278

18-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID:

Sample ID: 20030278-006BMS	SampType: <b>MS</b>	TestCode	e: 6010_W	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 868	303	
Client ID: CCR-6	Batch ID: 33394	TestNo	SW6010B			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73278	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	80.6	0.500	50.00	30.63	100	75	125				

Sample ID: 20030278-006BMSD Client ID: CCR-6	SampType: MSD  Batch ID: 33394		e: <b>6010_W</b> o: <b>SW6010B</b>	Units: mg/L		Prep Dat	te: 3/9/202		RunNo: <b>868</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium	0.616 81.0	0.100 0.500	0.5000 50.00	0.1040 30.63	102 101	75 75	125 125	0.6006 80.64	2.52 0.507	20 20	

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

U Analyte not detected

RL Reporting Limit



# **QC SUMMARY REPORT**

Matrix Interference

Sample container temperature is out of limit as s<sub>1</sub>

Reporting Limit

WO#:

20030278

18-Mar-20

**Client:** Pivotal Engineering LLC

Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

Sample detection limit

Qualifiers:

Project: CCR Detec	etion Monitoring		BatchID: R8	36620		
Sample ID: 20030278-006ADUP Client ID: CCR-6	SampType: <b>DUP</b> Batch ID: <b>R86620</b>	TestCode: TDS_2540C Units: mg/L TestNo: SM2540C	Prep Date: Analysis Date: 3/6/2020	RunNo: <b>86620</b> SeqNo: <b>2170494</b>		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Total Dissolved Solids (Residue, Filterable)	289	20.0	301.0	4.07 10		
Sample ID: MB-R86620	SampType: <b>MBLK</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>86620</b>		
Client ID: PBW	Batch ID: <b>R86620</b>	TestNo: SM2540C	Analysis Date: 3/6/2020	SeqNo: <b>2170499</b>		
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-R86620 SampType: LCS				RunNo: <b>86620</b>		
Sample ID: LCS-R86620	SampType: <b>LCS</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>86620</b>		
Sample ID: LCS-R86620 Client ID: LCSW	SampType: LCS Batch ID: R86620	TestCode: TDS_2540C Units: mg/L TestNo: SM2540C	Prep Date: Analysis Date: 3/6/2020	RunNo: <b>86620</b> SeqNo: <b>2170500</b>		
•		_	•			
Client ID: LCSW	Batch ID: <b>R86620</b>	TestNo: SM2540C	Analysis Date: 3/6/2020	SeqNo: <b>2170500</b>		
Client ID: LCSW  Analyte  Total Dissolved Solids (Residue,	Batch ID: R86620	TestNo: SM2540C  PQL SPK value SPK Ref Val	Analysis Date: 3/6/2020  %REC LowLimit HighLimit RPD Ref Val	SeqNo: <b>2170500</b>		
Client ID: LCSW  Analyte  Total Dissolved Solids (Residue, Filterable)	Batch ID: R86620 Result	TestNo: <b>SM2540C</b> PQL SPK value SPK Ref Val  20.0 1,000 0	Analysis Date: 3/6/2020  %REC LowLimit HighLimit RPD Ref Val  98.5 85 115	SeqNo: <b>2170500</b> %RPD RPDLimit Qual		
Client ID: LCSW  Analyte  Total Dissolved Solids (Residue, Filterable)  Sample ID: LCSD-R86620	Batch ID: R86620  Result  985  SampType: LCSD	TestNo: SM2540C           PQL         SPK value         SPK Ref Val           20.0         1,000         0           TestCode: TDS_2540C         Units: mg/L	Analysis Date: 3/6/2020  %REC LowLimit HighLimit RPD Ref Val  98.5 85 115  Prep Date:	SeqNo: 2170500  %RPD RPDLimit Qual  RunNo: 86620		

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Analyte not detected



#### **QC SUMMARY REPORT**

WO#:

20030278

18-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R86620

Website: www.element.com

Sample ID: LCSD-R86620 SampType: LCSD TestCode: TDS\_2540C Units: mg/L Prep Date: RunNo: 86620

Client ID: LCSS02 Batch ID: R86620 TestNo: SM2540C Analysis Date: 3/6/2020 SeqNo: 2170501

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: 20030012-001BDUP Client ID: ZZZZZZ	SampType: <b>DUP</b> Batch ID: <b>R86620</b>		de: TDS_2540 lo: SM2540C	e: TDS_2540C Units: mg/L Prep Date:  o: SM2540C Analysis Date:				0	RunNo: <b>866</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	18,100	2,000						10,500	53.1	10	R

#### NOTES:

R - High RPD due to suspected sample non-homogeneity. The method is in control as indicated by the LCS/LCSD.

Sample ID: 20030171-001BDUP Client ID: ZZZZZZ				TestCode: TDS_2540C Units: mg/L TestNo: SM2540C			Prep Date: Analysis Date: 3/6/2020				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	203	20.0						201.0	0.990	10	

RPD outside accepted recovery limits

U Analyte not detected

RL Reporting Limit

W Sample container temperature is out of limit as s<sub>1</sub>



20.0

Website: www.element.com

**QC SUMMARY REPORT** 

R86655

WO#: 20

20030278

18-Mar-20

**Client:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

Sample ID: MB-R86655 SampType: MBLK TestCode: TDS 2540C Units: mg/L Prep Date: RunNo: 86655 Analysis Date: 3/9/2020 Client ID: PBW Batch ID: R86655 TestNo: SM2540C SeqNo: 2171410 SPK value SPK Ref Val Analyte Result PQL LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids (Residue, < 20.0

Filterable)

Sample ID: LCS-R86655 Client ID: LCSW	SampType: LCS Batch ID: R86655		de: TDS_25400 lo: SM2540C	C Units: mg/L	Prep Date: Analysis Date: 3/9/2020			0	RunNo: 866 SeqNo: 217		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	998	20.0	1,000	0	99.8	85	115				

Sample ID: LCSD-R86655 Client ID: LCSS02	SampType: LCSD Batch ID: R86655		de: TDS_2540 lo: SM2540C	· ·	ng/L Prep Date: Analysis Date: 3/9/2020			0	RunNo: <b>866</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	991	20.0	1,000	0	99.1	85	115	998.0	0.704	10	

Sample ID: 20030278-011ADUP Client ID: CCR-11	SampType: <b>DUP</b> Batch ID: <b>R86655</b>		le: TDS_2540 lo: SM2540C	· •	Prep Date: Analysis Date: 3/9/2020			0	RunNo: <b>866</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	209	20.0						211.0	0.952	10	

Qualifiers:

Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

U Analyte not detected

Matrix Interference

RL Reporting Limit

**BatchID:** 

W Sample container temperature is out of limit as sı



**QC SUMMARY REPORT** 

WO#:

20030278

18-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R86655

Sample ID: 20030278-011ADUP SampType: DUP TestCode: TDS\_2540C Units: mg/L Prep Date: RunNo: 86655

Client ID: CCR-11 Batch ID: R86655 TestNo: SM2540C Analysis Date: 3/9/2020 SeqNo: 2171419

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: 20030238-001BDUP Client ID: ZZZZZZ	SampType: DUP TestCode: TDS_2  Batch ID: R86655 TestNo: SM254			C Units: mg/L	Prep Date: Analysis Date: 3/9/2020				RunNo: <b>866</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue,	23,600	2,000						23,400	0.851	10	

Filterable)

Qualifiers:

Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

Analyte not detected

I Matrix Interference

RL Reporting Limit

V Sample container temperature is out of limit as s<sub>1</sub>



# **QC SUMMARY REPORT**

WO#: **20030278** 

18-Mar-20

**Client:** Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

BatchID: R86686

Sample ID: MBLK	SampType: <b>MBLK</b>	TestCode: 300.0		Units: mg/L	Prep Date:				RunNo: 866	86	
Client ID: PBW	Batch ID: <b>R86686</b>	TestNo:	E 300.0		Analysis Date: 3/10/2020				SeqNo: <b>217</b>	1686	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Va			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: <b>LCS</b>	TestCo	TestCode: 300.0 Units: mg/L		•				RunNo: 866	886	
Client ID: LCSW	Batch ID: <b>R86686</b>	Test	No: <b>E 300.0</b>		Analysis Date: 3/10/2020			20	SeqNo: <b>217</b>	71687	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	90	110				
Fluoride	2.05	0.0500	2.000	0	103	90	110				
Sulfate	10.2	0.250	10.00	0	102	90	110				

Sample ID: LCSD	SampType: <b>LCSD</b>	TestCod	le: <b>300.0</b>	Units: mg/L	mg/L Prep Date:			RunNo: <b>86686</b>			
Client ID: LCSS02	Batch ID: <b>R86686</b>	TestN	lo: <b>E 300.0</b>		Analysis Date: 3/10/2020			20	SeqNo: <b>217</b>	1688	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	90	110	10.06	0.561	15	
Fluoride	2.02	0.0500	2.000	0	101	90	110	2.051	1.30	15	
Sulfate	10.1	0.250	10.00	0	101	90	110	10.19	0.679	15	

Qualifiers:

Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

W Sample container temperature is out of limit as s<sub>1</sub>



# **QC SUMMARY REPORT**

WO#:

20030278

18-Mar-20

**Client:** Pivotal Engineering LLC **Project:** 

**CCR Detection Monitoring BatchID:** R86686

										20000		
Sample ID:	20030278-006AMS	SampType: <b>MS</b>	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ite:		RunNo: 866	686	
Client ID:	CCR-6	Batch ID: <b>R86686</b>	Testi	No: <b>E 300.0</b>			Analysis Da	ate: 3/10/20	20	SeqNo: 217	71695	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qu
Chloride		127	2.50	50.00	76.97	99.2	80	120				
Fluoride		10.3	0.500	10.00	0.1167	102	80	120				
Sulfate		48.7	2.50	50.00	0	97.3	80	120				
Sample ID:	20030278-006AMSD	SampType: <b>MSD</b>	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ite:		RunNo: 866	686	
Client ID:	CCR-6	Batch ID: <b>R86686</b>	Testi	No: <b>E 300.0</b>			Analysis Da	ate: 3/10/20	20	SeqNo: 217	71696	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qı
Chloride		128	2.50	50.00	76.97	101	80	120	126.6	0.826	15	
Fluoride		10.6	0.500	10.00	0.1167	105	80	120	10.33	2.63	15	
Sulfate		49.4	2.50	50.00	0	98.9	80	120	48.67	1.55	15	
Sample ID:	20030278-016AMS	SampType: <b>MS</b>	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ite:		RunNo: 866	686	
Client ID:	FB-1	Batch ID: <b>R86686</b>	Testi	No: <b>E 300.0</b>			Analysis Da	ate: 3/10/20	20	SeqNo: 217	71709	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qı
Chloride		5.19	0.250	5.000	0	104	80	120				
Fluoride		1.04	0.0500	1.000	0	104	80	120				
Sulfate		5.06	0.250	5.000	0	101	80	120				

Qualifiers:

Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

Sample detection limit

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Analyte not detected

Matrix Interference

RLReporting Limit

Sample container temperature is out of limit as  $s_{\boldsymbol{l}}$ 



# **QC SUMMARY REPORT**

WO#:

20030278

18-Mar-20

**Client:** Pivotal Engineering LLC

**Project: CCR** Detection Monitoring **BatchID:** R86686

Sample ID: <b>20030</b>	0278-016AMSD	SampType: MSD	TestCod	TestCode: 300.0 Units: mg/L			•				RunNo: <b>86686</b>		
Client ID: FB-1		Batch ID: <b>R86686</b>	TestN	lo: <b>E 300.0</b>		Analysis Date: 3/10/2020			20	SeqNo: <b>217</b>	1710		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride		5.26	0.250	5.000	0	105	80	120	5.190	1.31	15	•	
Fluoride		1.05	0.0500	1.000	0	105	80	120	1.042	1.12	15		
Sulfate		5.07	0.250	5.000	0	101	80	120	5.057	0.254	15		

RPD outside accepted recovery limits

Analyte not detected

Reporting Limit



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

### Sample Log-In Check List

Client Na	ame:	PIVOTAL_EN	NGINEERIN	Work Order Num	nber: 20030	278		RcptNo:	1
Logged b	by:	Tammy Thibe	odeaux	3/6/2020 12:48:00	) PM		Janas	& Thooleans & Thooleans	
Complete	ed By:	Tammy Thibe	odeaux	3/6/2020 1:59:49	PM		January	& Thodeaux	
Reviewed	d By:	Caitlin Dupla	ntis	3/10/2020 10:06:3	31 AM		Catlin Dupl	tuli	
Chain c	of Cus	stody							
1. ls C	hain of	Custody comple	ete?		Yes	✓	No $\square$	Not Present	
2. How	was the	e sample delive	ered?		Eler	<u>nent</u>			
Log In									
_	lers are	present?			Yes	✓	No 🗌	NA 🗌	
4. Ship	ping co	ntainer/cooler ir	n good condition?		Yes	<b>✓</b>	No 🗌		
Cus	tody sea	als intact on shi	pping container/c	ooler?	Yes		No 🗌	Not Present ✓	
No.			Seal Date:		Sign	ed By:	:		
5. Was	s an atte	empt made to co	ool the samples?		Yes	✓	No 📙	NA L	
6. Wer	re all sar	mples received	at a temperature	of >0° C to 6.0°C	Yes	<b>✓</b>	No 🗌	NA 🗆	
7. Sam	nple(s) ii	n proper contair	ner(s)?		Yes	<b>✓</b>	No 🗌		
	,		or indicated test(s	s)?	Yes	<b>✓</b>	No 🗌		
_			and ONG) proper		Yes	<b>✓</b>	No 🗌		
		vative added to			Yes		No 🗸	NA 🗌	
						_	_	_	
11. Is th	ne heads	space in the VC	A vials less than	1/4 inch or 6 mm?	Yes		No 📙	No VOA Vials 🗹	
12. Wer	re any s	ample containe	rs received broke	n?	Yes		No 🗸		
-		work match bot			Yes	✓	No 🗌		
•		epancies on cha s correctly iden	tified on Chain of	Custody?	Yes	<b>✓</b>	No 🗌		
		hat analyses we		Custody:	Yes		No $\square$		
_		lding times able				<b>✓</b>	No 🗌		
		customer for a			100				
Special	l Hand	dling (if app	olicable)						
17. Was	s client r	notified of all dis	screpancies with	this order?	Yes	<b>✓</b>	No 🗌	NA 🗌	
	Persor	n Notified:	Courtland Parr	Da	ate:		3/11/2020		
	By Wh		Caitlin Duplantis	Via		ail 🗍	Phone Fax	☐ In Person	
	Regar			uplicate collected?					
			3/4/2020.						
18 Add									

#### **Cooler Information**

Cooler No	Temp ⁰C	Condition	<b>Seal Intact</b>	Seal No	Seal Date	Signed By
1	3.7	Good	Not Present			



	) e.	le	r	n	IE	er	11			shington 2-375-0531			olumbus	, IN 47	201					'-233- erida		sa, OK 74	4145	1
										dustrial R 9-471-7000		The state of the s	N 46825							3-9977 3-828-	7/80032 7756	24-5757		
	1 of								Chain					d				Nu	bora ımbe	r	al	030	208	3
Client Na	me: Pivota	al Eng	gineer	ing	LLC		Proj	ect: (	CCR Detection	n Monitorii	ng	Preserv.	_ ~	- 63	-			Test R	Leque	sted				
Contact N	lame: Ten	y Eln	aggar	8				te #: 5.				O <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Number / Type Container	Code		804	*.							
200000000000000000000000000000000000000	x; (504) 7	99-36					San	pler's S	Signature:	LB. &	-£	1 100	nber / Typ Container	Matrix		Cl, Fl,	metals*						Comm	
Colle Date	Time	Grab	Comp			San	nple	ldenti	fication D	escription	n	нсі н NaOH	Nun	Σ	TDS	300:	6010			Ш			Rema	ırks
33 20	1650	X		С	С	R	-	1				None/ HNC	3 2 Dlastic	Aq	Х	Х	Х							
3/3/20	1545	X		С	С	R	-	2				None/ HNC	3 2 Plastic	Aq	Х	Х	Х					*60	010 Metal	s: B, Ca
33/20	1440	X		С	С	R	-	3		A - 17/4 M - 17/4 M - 17		None/ HNC	3 2 Plastic	Aq	X	Х	Х							
3/4/20	1220	X		С	С	R	-	4				Jone/ HNC	2 Plastic	Aq	X	Х	X							
35 20	1206	X		С	С	R	_	5				None/ HNC	3 2 Plastic	Aq	X	X	X							
3/5/20	1030	X		С	С	R		6				None/ HNC	3 2 Plastic	Aq	X	Х	X							
3/5/20	69 15	Х		С	С	R	-	7				None/ HNC	3 2 Plastic	Aq	X	X	Х				T p			
3/4/20	1045	X		С	С	R	_	8			100	None/ HNC	3 2 Plastic	Aq	X	Х	Х							
3/2/20	1800	X		С	С	R	-	9				None/ HNC	3 2 Plastic	Aq	X	X	X							
3/2/20	1	X		С	С	R	-	10				None/ HNC	3 2 Plastic	Aq	X	X	Х					7 (20)	/	Airborne and / Mail
All sample	es submitt	ed to	Elem the s	ent	Mate	rials Elem	Techr	ology f	for analysis a s Technology	re accepted	d on a cust he right to	dial basi return uni	s only. O	wnersh	ip of	the r	nateria	al rema	ins	P.O. Nun				
Relinquishe	ed by: (Signa	THE OWNER OF THE OWNER,	1		Rec	eived b	by:(Sig	ASSESSMENT OF PERSONS		Date 3 6 20	Time		ned by: (Sign		-		Receiv	ed by:(S	ignatu	re)			Date	Time
Relinquishe	d by; (Signa	ture)					by:(Sig			Date	Time		hed by: (Sign			(	Kerdi	dd by L	aborate	ty:(Si	gnature)	C/ 2	Date Octoo	Time 1248
Matrix Codes     Container Types     Shipping Condition       DW = Drinking Water AQ = Aqueous LIQ = Liquid     G = Glass     ✓ Iced       GW = Ground Water O = Oil SLD = Solid WW = Waste Water SO = Soil SL = Sludge     V = Vial Ambient →						np. 3.7	Requested TAT  24-Hr. 72-Hr. Thank-you for using Element Material 48-Hr. Standard Technology					erials												

TEIB

2203 S. Madison St., Muncie, IN 47302

765-747-9000/800-874-3563 Fax 765-747-0228

2417 W. Pinhook Rd, Lafayette, LA 70508

337-235-0483/800-737-2378

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2203 S. Madison St., Muncie, IN 47302 765-747-9000/800-874-3563 Fax 765-747-0228	2417 W. Pinhook Rd, Lafayette, LA 70508 337-235-0483/800-737-2378
629 Washington St., Suite 300, Columbus, IN 47201 812-375-0531 Fax 812-375-0531	Fax 337-233-6540 3445 S Sheridan, Tulsa, OK 74145
5738 Industrial Rd., Fort Wayne, IN 46825	918-828-9977/800324-5757

219-471-7000 Fax 219-471-7777

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

Page	2 of		2					(	Chair	1 0	f Cı	usto	ly	R	ecor	d					Lab Nun			200	30	275	3
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2000	Name: Terr x: (504) 79	104011 (1024)		r				e #: 5 pler's	346 Signature:	B	1#		HNO, H,SO,	H Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	nber / Type Container	Matrix Code		CI, FI, SO4	metals*							Comm	ents /
Colle Date	Time	Grab	Comp			San	ple I	denti	fication /		ription	1	HCI	NaOH	Number Cont	M	TDS	300: 0	6010							Rem	arks
3/2/20	1440	Х		С	С	R	-	1	1				None/	HNO	2 Diastic	Aq	X	X	Х								,
3/3/21	1245	X		С	С	R	21	1	2				None/	HNO	2 Plastic	Aq	X	X	х						*601	) Meta	ls: B, Ca
3/3/20	1130	Х		С	С	R	-	1	3				None/	HNO	2 Plastic	Aq	X	X	Х								
3/3/20	1020	X		С	С	R	-	1	4				None/	HNO	2 Plastic	Aq	X	X	х								
3/5/2	1030	Х		М	s	-11720100	(CC	R	6				None/	HNO	2 Plastic	Aq	X	Х	X								
3/8/20	10 30	Х		M	S	D	(CC	R	6				None/	HNO	2 Plastic	Aq	X	Х	Х								
-	-	X		D	U	Р							None/	HNO	2 Plastic	Aq	X	Х	х								
3/5/2	1215	Х		F	В	1							None/	HNO	2 Plastic	Aq	X	Х	Х								
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All sampl	es submitt lient subm	ed to	Elem the s	ent N ampl	/later	ials T	ent Ma	ology aterial	or analysis s Technolo	are a	ccepted erves th	on a cust e right to	odial l	basis unu	only. Ov sed samp	vnersh le port	ip of ions.	the r	nateri	ial re	mair	150	P.O. Num	ber	-		
Relinquishe	d by: (Signa	aure/			(20)3330		y:(Sign			3	Date	Time	Relino	quishe	ed by: (Signa	iture)			Recei	ved b	y:(Sig	natur	e)		D	ate	Time
	ed by: (Signa	ture)					y:(Sign				Date	Time			d by: (Sign				Recei		Lip			nature)	3/6	ate	Time 1248
Matrix Codes       Container Types       Shipping Conditions         DW = Drinking Water AQ = Aqueous       LIQ = Liquid       G = Glass       ✓ Iced         GW = Ground Water O = Oil       SLD = Solid       P = Plastic       Temp. 3.7         WW = Waste Water SO = Soil       SL = Sludge       V = Vial       Ambient 94						p. <u>3.7</u>	Requested TAT  24-Hr. 72-Hr.  Thank-you for using Element Materials  Technology						erials														



Website: www.element.com

March 26, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875

New Orleans, LA 70112 TEL: (504) 799-3653

**FAX** 

RE: CCR Assessment Monitoring Order No.: 20030273

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 3/6/2020 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.

Where applicable, 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



0-0483 FAX: (337) 233-0540 Website: www.element.com

#### **Case Narrative**

WO#: **20030273**Date: **3/26/2020** 

CLIENT: Pivotal Engineering LLC

Project: 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 Method 6020 Lithium analysis was subcontracted to Pace Analytical. Their report is attached in its entirety.



Website: www.element.com

**Analytical Report** (consolidated)

WO#: 20030273 Date Reported 3/26/2020

**Collection Date:** 3/3/2020 4:50:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20030273-001

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:03:29 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.308	0.0500	mg/L	1	3/10/2020 4:18:18 PM
METALS IN WATER BY ICP	, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.188	0.0100	mg/L	1	3/12/2020 2:21:26 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 2:21:26 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 2:21:26 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 2:21:26 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 2:21:26 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 2:21:26 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 2:21:26 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 2:21:26 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: MRM
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 3:57:42 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 3:57:42 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 3:57:42 PM

Qualifiers: Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RLReporting Limit

Analyte not detected

Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL



Website: www.element.com

**Analytical Report** (consolidated)

**Collection Date:** 3/3/2020 3:45:00 PM

WO#: 20030273 Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20030273-002

Client Sample ID CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:05:49 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.360	0.0500	mg/L	1	3/10/2020 4:32:01 PM
METALS IN WATER BY ICP,	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.144	0.0100	mg/L	1	3/12/2020 2:26:14 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 2:26:14 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 2:26:14 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 2:26:14 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 2:26:14 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 2:26:14 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 2:26:14 PM
Selenium	0.0235	0.0200	mg/L	1	3/12/2020 2:26:14 PM
METALS IN WATER BY ICP-	MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:00:30 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:00:30 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:00:30 PM

Analyte detected in the associated Method Blank Qualifiers:

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RLReporting Limit

Analyte not detected

Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20030273**Date Reported **3/26/2020** 

**Collection Date:** 3/3/2020 2:40:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-003 Matrix: AQUEOUS

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:08:08 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.406	0.0500	mg/L	1	3/10/2020 4:45:45 PM
METALS IN WATER BY ICP	, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.251	0.0100	mg/L	1	3/12/2020 2:56:58 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 2:56:58 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 2:56:58 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 2:56:58 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 2:56:58 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 2:56:58 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 2:56:58 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 2:56:58 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:03:17 PM
Arsenic	6.10	0.250	μg/L	1	3/23/2020 4:03:17 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:03:17 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030273

Date Reported 3/26/2020

**Collection Date:** 3/4/2020 12:20:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20030273-004 **Matrix:** AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:10:26 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: SGP
Fluoride	0.132	0.0500	mg/L	1	3/10/2020 4:59:28 PM
METALS IN WATER BY ICP	, TOTALS		SW60	10B	Analyst: STS
Barium	0.100	0.0100	mg/L	1	3/12/2020 3:01:25 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:01:25 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:01:25 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:01:25 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:01:25 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:01:25 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:01:25 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:01:25 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:14:31 PM
Arsenic	0.313	0.250	μg/L	1	3/23/2020 4:14:31 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:14:31 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

Analytical Report (consolidated)

**Collection Date:** 3/5/2020 12:00:00 PM

WO#: 20030273
Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-005 Matrix: AQUEOUS

Client Sample ID CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:12:44 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.185	0.0500	mg/L	1	3/10/2020 5:13:13 PM
METALS IN WATER BY ICF	, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.217	0.0100	mg/L	1	3/12/2020 3:05:53 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:05:53 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:05:53 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:05:53 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:05:53 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:05:53 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:05:53 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:05:53 PM
METALS IN WATER BY ICF	P-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:17:20 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:17:20 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:17:20 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection limit



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030273

Date Reported 3/26/2020

**Collection Date:** 3/5/2020 10:30:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-006 Matrix: AQUEOUS

Client Sample ID CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	/ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:15:03 PM
INORGANIC ANIONS IN V	VATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.227	0.0500	mg/L	1	3/10/2020 5:26:57 PM
METALS IN WATER BY IC	CP, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.199	0.0100	mg/L	1	3/12/2020 3:10:21 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:10:21 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:10:21 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:10:21 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:10:21 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:10:21 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:10:21 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:10:21 PM
METALS IN WATER BY IC	CP-MS, TOTAL		SW60	20A	Analyst: MRM
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:20:08 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:20:08 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:20:08 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20030273**Date Reported **3/26/2020** 

**Collection Date:** 3/5/2020 9:15:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-007 Matrix: AQUEOUS

Client Sample ID CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	170A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:30:36 PM
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.291	0.0500	mg/L	1	3/10/2020 5:40:40 PM
METALS IN WATER BY ICP, To	OTALS		SW60	10B	Analyst: STS
Barium	0.224	0.0100	mg/L	1	3/12/2020 3:24:23 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:24:23 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:24:23 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:24:23 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:24:23 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:24:23 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:24:23 PM
Selenium	0.0202	0.0200	mg/L	1	3/12/2020 3:24:23 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	)20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:31:19 PM
Arsenic	0.383	0.250	μg/L	1	3/23/2020 4:31:19 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:31:19 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030273
Date Reported 3/26/2020

**Collection Date:** 3/4/2020 10:45:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-008 Matrix: AQUEOUS

Client Sample ID CCR-8

Analyses	Result	RL Qu	Qual Units		Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:32:54 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.160	0.0500	mg/L	1	3/10/2020 5:54:24 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.107	0.0100	mg/L	1	3/12/2020 3:29:09 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:29:09 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:29:09 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:29:09 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:29:09 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:29:09 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:29:09 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:29:09 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:34:07 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:34:07 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:34:07 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** (consolidated)

**Collection Date:** 3/2/2020 6:00:00 PM

WO#: 20030273 Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20030273-009

Client Sample ID CCR-9

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:35:12 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.587	0.0500	mg/L	1	3/10/2020 6:08:07 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.243	0.0100	mg/L	1	3/12/2020 3:33:33 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:33:33 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:33:33 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:33:33 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:33:33 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:33:33 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:33:33 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:33:33 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:36:54 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:36:54 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:36:54 PM

Analyte detected in the associated Method Blank Qualifiers:

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RLReporting Limit

Analyte not detected

Е Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL



Website: www.element.com

**Analytical Report** 

**Collection Date:** 3/2/2020 5:00:00 PM

(consolidated)

WO#: 20030273

Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-010 Matrix: AQUEOUS

Client Sample ID CCR-10

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:37:30 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.653	0.0500	mg/L	1	3/10/2020 6:21:51 PM
METALS IN WATER BY ICP	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.250	0.0100	mg/L	1	3/12/2020 3:37:59 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:37:59 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:37:59 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:37:59 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:37:59 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:37:59 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:37:59 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:37:59 PM
METALS IN WATER BY ICP	MS, TOTAL		SW60	20A	Analyst: MRM
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:39:42 PM
Arsenic	1.56	0.250	μg/L	1	3/23/2020 4:39:42 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:39:42 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

**Collection Date:** 3/2/2020 2:40:00 PM

(consolidated)

WO#: 20030273
Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-011 Matrix: AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	RL Qual Units		Date Analyzed	
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:39:48 PM	
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>	
Fluoride	0.746	0.0500	mg/L	1	3/10/2020 7:03:05 PM	
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS	
Barium	0.144	0.0100	mg/L	1	3/12/2020 3:55:49 PM	
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 3:55:49 PM	
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 3:55:49 PM	
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 3:55:49 PM	
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 3:55:49 PM	
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 3:55:49 PM	
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 3:55:49 PM	
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 3:55:49 PM	
METALS IN WATER BY ICF	P-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>	
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:50:56 PM	
Arsenic	1.22	0.250	μg/L	1	3/23/2020 4:50:56 PM	
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:50:56 PM	

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

**Collection Date:** 3/3/2020 12:45:00 PM

(consolidated)

WO#: 20030273
Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-012 Matrix: AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:42:07 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: SGP
Fluoride	0.153	0.0500	mg/L	1	3/10/2020 7:17:02 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS
Barium	0.163	0.0100	mg/L	1	3/12/2020 4:00:37 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 4:00:37 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 4:00:37 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:00:37 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 4:00:37 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 4:00:37 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 4:00:37 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 4:00:37 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:53:45 PM
Arsenic	0.589	0.250	μg/L	1	3/23/2020 4:53:45 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:53:45 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030273
Date Reported 3/26/2020

**Collection Date:** 3/3/2020 11:30:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-013 Matrix: AQUEOUS

Client Sample ID CCR-13

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND W	ATER,TOTAL	SW7470A			Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:44:24 PM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.169	0.0500	0.0500 mg/L 1		3/10/2020 7:30:47 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.0907	0.0100	mg/L	1	3/12/2020 4:05:22 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 4:05:22 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 4:05:22 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:05:22 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 4:05:22 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 4:05:22 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 4:05:22 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 4:05:22 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: MRM
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:56:33 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 4:56:33 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:56:33 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection limit



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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Website: www.element.com

#### **Analytical Report**

(consolidated)

WO#: 20030273

Date Reported 3/26/2020

CLIENT: Pivotal Engineering LLC Collection Date: 3/3/2020 10:20:00 AM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20030273-014 **Matrix:** AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:51:57 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.242	0.0500	mg/L	1	3/10/2020 7:44:31 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.0724	0.0100	mg/L	1	3/12/2020 4:10:10 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 4:10:10 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 4:10:10 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:10:10 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 4:10:10 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 4:10:10 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 4:10:10 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 4:10:10 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 4:59:20 PM
Arsenic	0.955	0.250	μg/L	1	3/23/2020 4:59:20 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 4:59:20 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Collection Date:** 3/4/2020

**Analytical Report** 

(consolidated)

WO#: 20030273
Date Reported 3/26/2020

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20030273-015 Matrix: AQUEOUS

Client Sample ID Dup

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL	SW7470A			Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:54:19 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.227	0.0500	mg/L	1	3/10/2020 7:58:15 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.104	0.0100	mg/L	1	3/12/2020 4:14:57 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 4:14:57 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 4:14:57 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:14:57 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 4:14:57 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 4:14:57 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 4:14:57 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 4:14:57 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 5:02:08 PM
Arsenic	0.307	0.250	μg/L	1	3/23/2020 5:02:08 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 5:02:08 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

U Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20030273

Date Reported 3/26/2020

**Collection Date:** 3/5/2020 12:15:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20030273-016 **Matrix:** AQUEOUS

Client Sample ID FB 1

Analyses	Result	RL Qu	RL Qual Units		Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	3/9/2020 12:56:37 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: SGP
Fluoride	< 0.0500	< 0.0500 0.0500 mg/L 1		3/10/2020 2:14:55 PM	
METALS IN WATER BY ICE	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:19:44 PM
Beryllium	< 0.00100	0.00100	mg/L	1	3/12/2020 4:19:44 PM
Cadmium	< 0.00500	0.00500	mg/L	1	3/12/2020 4:19:44 PM
Chromium	< 0.0100	0.0100	mg/L	1	3/12/2020 4:19:44 PM
Copper	< 0.0100	0.0100	mg/L	1	3/12/2020 4:19:44 PM
Lead	< 0.0100	0.0100	mg/L	1	3/12/2020 4:19:44 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	3/12/2020 4:19:44 PM
Selenium	< 0.0200	0.0200	mg/L	1	3/12/2020 4:19:44 PM
METALS IN WATER BY ICE	P-MS, TOTAL		SW60	20A	Analyst: <b>MRM</b>
Antimony	< 0.250	0.250	μg/L	1	3/23/2020 5:04:56 PM
Arsenic	< 0.250	0.250	μg/L	1	3/23/2020 5:04:56 PM
Thallium	< 0.250	0.250	μg/L	1	3/23/2020 5:04:56 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

J Analyte not detected

E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

SDL Sample detection lim



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: MB-33394	SampType: MBLK	TestCode: 6010_W		Units: mg/L	Prep Date: 3/9/2020			20	RunNo: <b>86804</b>		
Client ID: PBW	Batch ID: 33394	TestNo	stNo: SW6010B			Analysis Da	te: <b>3/12/20</b>	SeqNo: <b>2173308</b>			
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									
Copper	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID: LCS-33394	SampType: <b>LCS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 868	304	
Client ID: LCSW	Batch ID: 33394	TestN	lo: <b>SW6010B</b>	SW6010B		Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>2173309</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.499	0.0100	0.5000	0	99.9	80	120				
Beryllium	0.494	0.00100	0.5000	0	98.8	80	120				
Cadmium	0.481	0.00500	0.5000	0	96.3	80	120				
Chromium	0.495	0.0100	0.5000	0	99.1	80	120				
Copper	0.501	0.0100	0.5000	0	100	80	120				
Lead	0.493	0.0100	0.5000	0	98.6	80	120				
Molybdenum	0.492	0.0100	0.5000	0	98.4	80	120				
Selenium	0.478	0.0200	0.5000	0	95.6	80	120				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

ale detection limit

H Holding times for preparation or analysis exceed
R RPD outside accepted recovery limits



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: LCSD-33394	SampType: <b>LCSD</b>	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 868	304		
Client ID: LCSS02	Batch ID: 33394	TestN	TestNo: SW6010B			Analysis Date: 3/12/2020				SeqNo: 2173310		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Barium	0.496	0.0100	0.5000	0	99.3	80	120	0.4993	0.562	20		
Beryllium	0.488	0.00100	0.5000	0	97.5	80	120	0.4942	1.32	20		
Cadmium	0.480	0.00500	0.5000	0	95.9	80	120	0.4813	0.375	20		
Chromium	0.492	0.0100	0.5000	0	98.4	80	120	0.4954	0.689	20		
Copper	0.500	0.0100	0.5000	0	100	80	120	0.5014	0.260	20		
Lead	0.491	0.0100	0.5000	0	98.2	80	120	0.4928	0.366	20		
Molybdenum	0.487	0.0100	0.5000	0	97.4	80	120	0.4922	1.08	20		
Selenium	0.487	0.0200	0.5000	0	97.4	80	120	0.4779	1.89	20		

Sample ID: 20030280-006BMS	SampType: <b>MS</b>	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: <b>86804</b>		
Client ID: ZZZZZZ	Batch ID: 33394	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>3/12/2</b> 0	20	SeqNo: <b>217</b>	73322	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.694	0.0100	0.5000	0.1994	99.0	75	125				
Beryllium	0.490	0.00100	0.5000	0	97.9	75	125				
Cadmium	0.478	0.00500	0.5000	0	95.7	75	125				
Chromium	0.490	0.0100	0.5000	0	97.9	75	125				
Copper	0.503	0.0100	0.5000	0	101	75	125				
Lead	0.488	0.0100	0.5000	0	97.6	75	125				
Molybdenum	0.490	0.0100	0.5000	0.003100	97.4	75	125				
Selenium	0.488	0.0200	0.5000	0.005800	96.4	75	125				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

R RPD outside accepted recovery limits

Holding times for preparation or analysis exceed-



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: 20030280-006BMSD	SampType: MSD		de: 6010_W	Units: mg/L	g/L Prep Date: 3/9/2020  Analysis Date: 3/12/2020				RunNo: 868		
Client ID: ZZZZZZ	Batch ID: 33394	I estiv	lo: <b>SW6010B</b>			Analysis Da	ie: 3/12/20	20	SeqNo: 217	/3323	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.696	0.0100	0.5000	0.1994	99.4	75	125	0.6944	0.302	20	
Beryllium	0.494	0.00100	0.5000	0	98.8	75	125	0.4896	0.935	20	
Cadmium	0.484	0.00500	0.5000	0	96.9	75	125	0.4784	1.23	20	
Chromium	0.494	0.0100	0.5000	0	98.9	75	125	0.4897	0.975	20	
Copper	0.507	0.0100	0.5000	0	101	75	125	0.5028	0.871	20	
Lead	0.495	0.0100	0.5000	0	99.0	75	125	0.4878	1.49	20	
Molybdenum	0.500	0.0100	0.5000	0.003100	99.4	75	125	0.4899	2.02	20	
Selenium	0.491	0.0200	0.5000	0.005800	97.0	75	125	0.4878	0.572	20	

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

ple detection limit

H Holding times for preparation or analysis exceed

R RPD outside accepted recovery limits



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: MB-33394	SampType: MBLK	TestCode	e: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: <b>86803</b>		
Client ID: PBW	Batch ID: 33394	TestNo: SW6010B				Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73264	
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									
Copper	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID: LCS-33394	SampType: <b>LCS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: <b>86803</b>		
Client ID: LCSW	Batch ID: 33394	TestNo: SW6010B				Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73265	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.499	0.0100	0.5000	0	99.9	80	120				
Beryllium	0.494	0.00100	0.5000	0	98.8	80	120				
Cadmium	0.481	0.00500	0.5000	0	96.3	80	120				
Chromium	0.495	0.0100	0.5000	0	99.1	80	120				
Copper	0.501	0.0100	0.5000	0	100	80	120				
Lead	0.493	0.0100	0.5000	0	98.6	80	120				
Molybdenum	0.492	0.0100	0.5000	0	98.4	80	120				
Selenium	0.478	0.0200	0.5000	0	95.6	80	120				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

R RPD outside accepted recovery limits

Holding times for preparation or analysis exceed-



### **QC SUMMARY REPORT**

WO#: 20030273

26-Mar-20

Pivotal Engineering LLC **Client:** 

Project: **CCR** Assessment Monitoring **BatchID:** 33394

Sample ID: LCSD-33394	SampType: <b>LCSD</b>	TestCode: 6010_W		Units: mg/L	g/L Prep Date: 3/9/2020				RunNo: 868	303	
Client ID: LCSS02	Batch ID: 33394	TestN	TestNo: SW6010B			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73266	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.496	0.0100	0.5000	0	99.3	80	120	0.4993	0.562	20	
Beryllium	0.488	0.00100	0.5000	0	97.5	80	120	0.4942	1.32	20	
Cadmium	0.480	0.00500	0.5000	0	95.9	80	120	0.4813	0.375	20	
Chromium	0.492	0.0100	0.5000	0	98.4	80	120	0.4954	0.689	20	
Copper	0.500	0.0100	0.5000	0	100	80	120	0.5014	0.260	20	
Lead	0.491	0.0100	0.5000	0	98.2	80	120	0.4928	0.366	20	
Molybdenum	0.487	0.0100	0.5000	0	97.4	80	120	0.4922	1.08	20	
Selenium	0.487	0.0200	0.5000	0	97.4	80	120	0.4779	1.89	20	

Sample ID: 20030278-006BMS	SampType: MS	TestCode: 6010_W Units: mg/L			Prep Da	te: <b>3/9/202</b>	0	RunNo: <b>86803</b>			
Client ID: ZZZZZZ	Batch ID: 33394	Test	No: <b>SW6010B</b>			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: 217	73278	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.694	0.0100	0.5000	0.1994	99.0	75	125				
Beryllium	0.490	0.00100	0.5000	0	97.9	75	125				
Cadmium	0.478	0.00500	0.5000	0	95.7	75	125				
Chromium	0.490	0.0100	0.5000	0	97.9	75	125				
Copper	0.503	0.0100	0.5000	0	101	75	125				
Lead	0.488	0.0100	0.5000	0	97.6	75	125				
Molybdenum	0.490	0.0100	0.5000	0.003100	97.4	75	125				
Selenium	0.488	0.0200	0.5000	0.005800	96.4	75	125				

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

RPD outside accepted recovery limits Analyte not detected

Holding times for preparation or analysis exceed-



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: 20030278-006BMSD Client ID: ZZZZZZ	SampType: MSD  Batch ID: 33394	TestCode: 6010_W Units: mg/L TestNo: SW6010B				Prep Da Analysis Da	te: <b>3/9/202</b>		RunNo: <b>868</b> SegNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.696	0.0100	0.5000	0.1994	99.4	75	125	0.6944	0.302	20	
Beryllium	0.494	0.00100	0.5000	0	98.8	75	125	0.4896	0.935	20	
Cadmium	0.484	0.00500	0.5000	0	96.9	75	125	0.4784	1.23	20	
Chromium	0.494	0.0100	0.5000	0	98.9	75	125	0.4897	0.975	20	
Copper	0.507	0.0100	0.5000	0	101	75	125	0.5028	0.871	20	
Lead	0.495	0.0100	0.5000	0	99.0	75	125	0.4878	1.49	20	
Molybdenum	0.500	0.0100	0.5000	0.003100	99.4	75	125	0.4899	2.02	20	
Selenium	0.491	0.0200	0.5000	0.005800	97.0	75	125	0.4878	0.572	20	

Qualifiers: B Analyte detected in the associated Method Blank

Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

R RPD outside accepted recovery limits

Holding times for preparation or analysis exceed-

U Analyte not detected

Η



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: MB-33394	SampType: MBLK	TestCode	e: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 868	302	
Client ID: PBW	Batch ID: 33394	TestNo			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73220		
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									
Copper	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Molybdenum	< 0.0100	0.0100									
Selenium	< 0.0200	0.0200									

Sample ID: LCS-33394	SampType: <b>LCS</b>	TestCode: 6010_W Units: mg/L			Prep Da	te: <b>3/9/202</b>	0	RunNo: 868			
Client ID: LCSW	Batch ID: 33394	TestN	TestNo: SW6010B			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73221	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.499	0.0100	0.5000	0	99.9	80	120				
Beryllium	0.494	0.00100	0.5000	0	98.8	80	120				
Cadmium	0.481	0.00500	0.5000	0	96.3	80	120				
Chromium	0.495	0.0100	0.5000	0	99.1	80	120				
Copper	0.501	0.0100	0.5000	0	100	80	120				
Lead	0.493	0.0100	0.5000	0	98.6	80	120				
Molybdenum	0.492	0.0100	0.5000	0	98.4	80	120				
Selenium	0.478	0.0200	0.5000	0	95.6	80	120				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

R RPD outside accepted recovery limits

U Analyte not detected

Holding times for preparation or analysis exceed-



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33394

Sample ID: LCSD-33394	SampType: <b>LCSD</b>	TestCode: 6010_W		Units: mg/L	•				RunNo: 86802		
Client ID: LCSS02	Batch ID: 33394	TestN	TestNo: SW6010B			Analysis Da	te: <b>3/12/20</b>	20	SeqNo: <b>217</b>	73222	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.496	0.0100	0.5000	0	99.3	80	120	0.4993	0.562	20	
Beryllium	0.488	0.00100	0.5000	0	97.5	80	120	0.4942	1.32	20	
Cadmium	0.480	0.00500	0.5000	0	95.9	80	120	0.4813	0.375	20	
Chromium	0.492	0.0100	0.5000	0	98.4	80	120	0.4954	0.689	20	
Copper	0.500	0.0100	0.5000	0	100	80	120	0.5014	0.260	20	
Lead	0.491	0.0100	0.5000	0	98.2	80	120	0.4928	0.366	20	
Molybdenum	0.487	0.0100	0.5000	0	97.4	80	120	0.4922	1.08	20	
Selenium	0.487	0.0200	0.5000	0	97.4	80	120	0.4779	1.89	20	

Sample ID: 20030273-006BMS	SampType: <b>MS</b>	TestCode: 6010_W Units: mg/L		Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: <b>86802</b>		
Client ID: CCR-6	Batch ID: 33394	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>3/12/2</b> 0	20	SeqNo: 217	73234	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.694	0.0100	0.5000	0.1994	99.0	75	125				
Beryllium	0.490	0.00100	0.5000	0	97.9	75	125				
Cadmium	0.478	0.00500	0.5000	0	95.7	75	125				
Chromium	0.490	0.0100	0.5000	0	97.9	75	125				
Copper	0.503	0.0100	0.5000	0	101	75	125				
Lead	0.488	0.0100	0.5000	0	97.6	75	125				
Molybdenum	0.490	0.0100	0.5000	0.003100	97.4	75	125				
Selenium	0.488	0.0200	0.5000	0.005800	96.4	75	125				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

H Holding times for preparation or analysis exceed

R RPD outside accepted recovery limits



### **QC SUMMARY REPORT**

WO#:

20030273

26-Mar-20

Pivotal Engineering LLC **Client:** 

Project: **CCR** Assessment Monitoring **BatchID:** 33394

Sample ID: 20030273-006BMSD	SampType: <b>MSD</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L	•				RunNo: 868	302	
Client ID: CCR-6	Batch ID: 33394	TestNo: SW6010B				Analysis Dat	te: <b>3/12/20</b>	20	SeqNo: 217	73235	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.696	0.0100	0.5000	0.1994	99.4	75	125	0.6944	0.302	20	
Beryllium	0.494	0.00100	0.5000	0	98.8	75	125	0.4896	0.935	20	
Cadmium	0.484	0.00500	0.5000	0	96.9	75	125	0.4784	1.23	20	
Chromium	0.494	0.0100	0.5000	0	98.9	75	125	0.4897	0.975	20	
Copper	0.507	0.0100	0.5000	0	101	75	125	0.5028	0.871	20	
Lead	0.495	0.0100	0.5000	0	99.0	75	125	0.4878	1.49	20	
Molybdenum	0.500	0.0100	0.5000	0.003100	99.4	75	125	0.4899	2.02	20	
Selenium	0.491	0.0200	0.5000	0.005800	97.0	75	125	0.4878	0.572	20	

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

Holding times for preparation or analysis exceed-RPD outside accepted recovery limits

Analyte not detected

Η



### **QC SUMMARY REPORT**

WO#: 20030273

26-Mar-20

Pivotal Engineering LLC **Client:** 

Droject. CCR Assessment Monitoring RatchID. 22205

<b>Project:</b> CCR	Assessment Monitoring		BatchID: 33395
Sample ID: MB-33395 Client ID: PBW	SampType: MBLK Batch ID: 33395	TestCode: 6020A_W Units: μg/L TestNo: SW6020A	Prep Date:       3/9/2020       RunNo:       87126         Analysis Date:       3/23/2020       SeqNo:       2180584
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250	
Sample ID: LCS-33395	SampType: <b>LCS</b>	TestCode: 6020A_W Units: μg/L	Prep Date: 3/9/2020 RunNo: 87126
Client ID: LCSW	Batch ID: 33395	TestNo: SW6020A	Analysis Date: 3/23/2020 SeqNo: 2180585
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	501	5.00 500.0 0	100 80 120
Sample ID: LCSD-33395	SampType: <b>LCSD</b>	TestCode: 6020A_W Units: μg/L	Prep Date: 3/9/2020 RunNo: 87126
Client ID: LCSS02	Batch ID: 33395	TestNo: SW6020A	Analysis Date: 3/23/2020 SeqNo: 2180586
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	502	5.00 500.0 0	100 80 120 500.8 0.280 20
Sample ID: 20030273-006	BMS SampType: MS	TestCode: 6020A_W Units: μg/L	Prep Date: 3/9/2020 RunNo: 87126
Client ID: CCR-6	Batch ID: 33395	TestNo: SW6020A	Analysis Date: 3/23/2020 SeqNo: 2180597
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	505	5.00 500.0 0.03889	101 75 125

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

RPD outside accepted recovery limits

Holding times for preparation or analysis exceed-

Н



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540 **QC SUMMARY REPORT** 

WO#:

20030273

26-Mar-20

Pivotal Engineering LLC **Client:** 

Project: **CCR** Assessment Monitoring **BatchID:** 33395

Website: www.element.com

Sample ID: 20030273-006BMSD Client ID: CCR-6	SampType: MSD  Batch ID: 33395		le: 6020A_W	Units: µg/L		Prep Da Analysis Da	te: <b>3/9/202</b>		RunNo: <b>871</b> SeqNo: <b>218</b>	-	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	515	5.00	500.0	0.03889	103	75	125	505.0	1 92	20	

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

Е Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

Holding times for preparation or analysis exceed-RPD outside accepted recovery limits

Η



### **QC SUMMARY REPORT**

33395

**BatchID:** 

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Sample ID: MB-33395 Client ID: PBW	SampType: MBLK Batch ID: 33395	TestCode: 6020A_W TestNo: SW6020A			Prep Da Analysis Da	te: <b>3/9/202</b> te: <b>3/23/20</b>		RunNo: 870 SeqNo: 217		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony Thallium	< 0.250 < 0.250	0.250 0.250								

Sample ID: LCS-33395 Client ID: LCSW	SampType: LCS Batch ID: 33395		e: <b>6020A_W</b> o: <b>SW6020A</b>	Units: µg/L		Prep Da Analysis Da	te: <b>3/9/202</b> te: <b>3/23/20</b>		RunNo: <b>870</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony Thallium	497 526	5.00 5.00	500.0 500.0	0 0	99.4 105	80 80	120 120				

Sample ID: LCSD-33395 Client ID: LCSS02	SampType: LCSD Batch ID: 33395		de: <b>6020A_W</b> do: <b>SW6020A</b>	Units: µg/L		Prep Dat Analysis Dat	te: <b>3/9/202</b>		RunNo: <b>870</b> SeqNo: <b>217</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony Thallium	507 526	5.00 5.00	500.0 500.0	0 0	101 105	80 80	120 120	496.8 525.9	1.99 0.00413	20 20	

Sample ID: 20030273-006BMS	SampType: <b>MS</b>	TestCoo	de: <b>6020A_W</b>	Units: µg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 870	)58	
Client ID: CCR-6	Batch ID: 33395	TestN	lo: <b>SW6020A</b>			Analysis Da	te: <b>3/23/20</b>	20	SeqNo: <b>217</b>	8774	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	504	5.00	500.0	0	101	75	125				

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

detection limit

R RPD outside accepted recovery limits
 U Analyte not detected

Holding times for preparation or analysis exceed-

Page 30 of 55



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

Client: Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33395

Sample ID: 20030273-006BMS	SampType: <b>MS</b>	TestCod	le: 6020A_W	Units: µg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 870	58	
Client ID: CCR-6	Batch ID: <b>33395</b>	TestN	lo: <b>SW6020A</b>			Analysis Da	te: <b>3/23/20</b>	20	SeqNo: <b>217</b>	8774	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	501	5.00	500.0	0	100	75	125				

Sample ID: 20030273-006BMSD	SampType: MSD	TestCoo	le: 6020A_W	Units: µg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 870	)58	
Client ID: CCR-6	Batch ID: <b>33395</b>	TestN	lo: <b>SW6020A</b>		Analysis Date: 3/23/2020			20	SeqNo: <b>2178775</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	500	5.00	500.0	0	100	75	125	504.3	0.864	20	
Thallium	509	5.00	500.0	0	102	75	125	500.7	1.57	20	

Qualifiers: B Analyte detected in the associated Method Blank

Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

H Holding times for preparation or analysis exceed

R RPD outside accepted recovery limits



### **QC SUMMARY REPORT**

WO#: 20030273

26-Mar-20

Pivotal Engineering LLC **Client:** 

Project:	CCR Assess	sment Monitoring						В	satchID: 3	3397		
Sample ID: Client ID:	MB-33397 PBW	SampType: MBLK Batch ID: 33397		de: <b>HG_W_74</b> No: <b>SW7470A</b>	70A Units: mg/L		Prep Dat Analysis Dat	te: <b>3/9/202</b>		RunNo: 866 SeqNo: 217		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200	0.000200									
	LCS-33397	SampType: <b>LCS</b>			70A Units: mg/L			te: <b>3/9/202</b>		RunNo: 866		
Client ID:	LCSW	Batch ID: <b>33397</b>	TestN	lo: <b>SW7470A</b>			Analysis Dat	te: <b>3/9/202</b>	0	SeqNo: <b>21</b> 7	70717	
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				
Sample ID:	LCSD-33397	SampType: <b>LCSD</b>	TestCoc	de: <b>HG_W_74</b>	70A Units: mg/L		Prep Dat	te: <b>3/9/202</b>	0	RunNo: 866	687	
Client ID:	LCSS02	Batch ID: 33397	TestN	lo: <b>SW7470A</b>			Analysis Dat	te: <b>3/9/202</b>	0	SeqNo: <b>21</b> 7	70718	
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	80	120	0.01035	1.04	20	
Sample ID:	20030273-006BMS	SampType: MS	TestCoo	de: <b>HG_W_74</b>	70A Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 866	687	
Client ID:	CCR-6	Batch ID: <b>33397</b>	TestN	lo: <b>SW7470A</b>			Analysis Dat	te: <b>3/9/202</b>	0	SeqNo: 217	70728	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00972	0.000200	0.01000			75				· · · · · · · · · · · · · · · · · · ·	

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

Н Holding times for preparation or analysis exceed-

RPD outside accepted recovery limits



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540 **QC SUMMARY REPORT** 

WO#:

20030273

26-Mar-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 33397

Website: www.element.com

Sample ID: 20030273-006BMSI	D SampType: MSD	TestCo	de: <b>HG_W_74</b>	70A Units: mg/L		Prep Da	te: <b>3/9/202</b>	0	RunNo: 866	87	
Client ID: CCR-6	Batch ID: 33397	TestN	No: <b>SW7470A</b>			Analysis Da	te: <b>3/9/202</b>	0	SeqNo: <b>217</b>	70729	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0 00978	0.000200	0.01000	0	97.8	75	125	0.009721	0 649	20	

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

R PD outside accepted recovery limits

Holding times for preparation or analysis exceed-

U Analyte not detected

Η



# **QC SUMMARY REPORT**

WO#: 20030273

26-Mar-20

**Client:** Pivotal Engineering LLC

Project:	CCR Assessment Moni	itoring						В	SatchID: F	R86735		
Sample ID: MBLK Client ID: PBW	SampType Batch ID:	: MBLK : R86735		le: <b>300.0</b>	Units: mg/L		Prep Dat Analysis Dat		20	RunNo: 867 SeqNo: 217		
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	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 86	735	
Client ID: LCSW	Batch ID:	R86735	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>3/10/20</b>	20	SeqNo: 217	71841	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.05	0.0500	2.000	0	103	90	110				
Sample ID: LCSD	SampType	LCSD	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 867	735	
Client ID: LCSS02	2 Batch ID:	R86735	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>3/10/20</b>	20	SeqNo: 217	71842	
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	2.051	1.30	15	
Sample ID: <b>200302</b>	<b>73-006AMS</b> SampType	: MS	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 86	735	
Client ID: CCR-6	Batch ID:	R86735	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>3/10/20</b>	20	SeqNo: 21	71849	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		10.3	0.500	10.00	0.1167	102	80	120				

Analyte detected in the associated Method Blank Qualifiers:

Matrix Interference

Reporting Limit

Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

RPD outside accepted recovery limits

Holding times for preparation or analysis exceed-

Analyte not detected

Н



### **QC SUMMARY REPORT**

WO#: **20030273** 

26-Mar-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID:

Project:	CCR Assess	sment Monitoring						Е	BatchID: I	R86735		
Sample ID: Client ID:	20030273-006AMSD CCR-6	SampType: MSD Batch ID: R86735		de: <b>300.0</b> No: <b>E 300.0</b>	Units: mg/L		Prep Dat Analysis Dat		20	RunNo: 867 SeqNo: 217		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		10.6	0.500	10.00	0.1167	105	80	120	10.33	2.63	15	
Sample ID:	20030273-016AMS	SampType: MS	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date	te:		RunNo: 867	735	
Client ID:	FB 1	Batch ID: <b>R86735</b>	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>3/10/2</b> 0	20	SeqNo: 217	71863	
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:	20030273-016AMSD	SampType: MSD	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 867	735	
Client ID:	FB 1	Batch ID: <b>R86735</b>	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>3/10/2</b> 0	20	SeqNo: 217	71864	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.05	0.0500	1.000	0	105	80	120	1.042	1.12	15	

Qualifiers: B Analyte detected in the associated Method Blank

Matrix Interference

L Reporting Limit

W Sample container temperature is out of limit as specified at testcode

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

H Holding times for preparation or analysis exceed

R RPD outside accepted recovery limits



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

### Sample Log-In Check List

Clie	nt Name:	PIVOTAL_ENGINE	ERIN Work Order Num	nber: <b>20030273</b>		RcptNo: 1	
Log	ged by:	Tammy Thibodeau	x 3/6/2020 12:48:00	PM	Janeyo	& Throdeaux & Throdeaux	
Con	npleted By:	Tammy Thibodeau	x 3/6/2020 1:46:47	PM	James	& Thoodeaux	
Rev	iewed By:	Caitlin Duplantis	3/10/2020 10:02:5	51 AM	Cartle Dupt	tuti	
Cha	in of Cus	stody					
1.	Is Chain of	Custody complete?		Yes 🗸	No 🗌	Not Present	
2.	How was th	e sample delivered?		<u>Element</u>			
Log	<u>In</u>						
_	Coolers are	e present?		Yes 🗸	No 🗌	NA $\square$	
4.	Shipping co	ontainer/cooler in goo	od condition?	Yes 🗹	No 🗌		
	Custody se	als intact on shipping	g container/cooler?	Yes	No 🗌	Not Present 🗸	
	No.	Se	al Date:	Signed By	<b>/</b> :		
5.	Was an att	empt made to cool th	e samples?	Yes 🗸	No 🗌	NA $\square$	
6.	Were all sa	mples received at a	temperature of >0° C to 6.0°C	Yes 🗸	No 🗌	NA 🗆	
7.	Sample(s)	in proper container(s	)?	Yes 🗹	No 🗌		
8.	Sufficient s	ample volume for ind	licated test(s)?	Yes 🗸	No 🗌		
			DNG) properly preserved?	Yes 🗸	No 🗌		
_		rvative added to bottl		Yes	No 🗸	NA 🗆	
11.	Is the head	space in the VOA via	als less than 1/4 inch or 6 mm?	Yes 🗌	No 🗌	No VOA Vials <b>✓</b>	
		sample containers red		Yes	No 🗸		
		rwork match bottle la		Yes 🗸	No 🗌		
	(Note discre	epancies on chain of	custody)				
14.	Are matrice	es correctly identified	on Chain of Custody?	Yes 🗹	No 📙		
		hat analyses were re		Yes 🔽	No 📙		
16.		olding times able to be		Yes 🗸	No 🗀		
Cma		customer for author	·				
		dling (if applicat	<del></del>		Ni. 🗆	NA 🗆	
17.	was client	notified of all discrep	ancies with this order?	Yes 🗸	No 📙	NA 📙	
	Perso	n Notified: Court	and Parr Da	ite:	3/11/2020		
	By WI	nom: Caitlir	n Duplantis Via	a: 🗸 eMail 🗌	Phone  Fax	☐ In Person	
	Regar	ding: When	was the duplicate collected?				
	Client	Instructions: 3/4/20	)20				
10	Additional r	emarks:					

#### **Cooler Information**

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



# **ANALYTICAL RESULTS**

#### **PERFORMED BY**

**Pace Analytical Gulf Coast** 

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

**Report Date** 03/17/2020



**Project** 20030273

Deliver To

**Annie Reedy** 

**Element Materials Technology** 

2417 W Pinhook Rd Lafayette, LA 70508 800-737-2378

**Additional Recipients** 

Caitlin Duplantis, Element Materials

**Technology** 

Cristina Thibeaux, Element Materials

**Technology** 

Rhonda David, Element Materials Technology

Buffy Bryant, Element Materials Technology









Project ID: 20030273 Report Date: 03/17/2020

### 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
 Organics - The result is estimated because it exceeded the instrument calibration range

E Metals - % diference for the serial dilution is > 10%

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 220031036



**Project ID:** 20030273 **Report Date:** 03/17/2020

# 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



**Project ID:** 20030273 **Report Date:** 03/17/2020

### **Case Narrative**

Client: Element Materials Technology Report: 220031036

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).



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
22003103601	CCR-1	Water	03/03/2020 16:50	03/10/2020 12:15
22003103602	CCR-2	Water	03/03/2020 15:45	03/10/2020 12:15
22003103603	CCR-3	Water	03/03/2020 14:40	03/10/2020 12:15
22003103604	CCR-4	Water	03/04/2020 12:20	03/10/2020 12:15
22003103605	CCR-5	Water	03/05/2020 12:00	03/10/2020 12:15
22003103606	CCR-6	Water	03/05/2020 10:30	03/10/2020 12:15
22003103607	CCR-6 MS	Water	03/05/2020 10:30	03/10/2020 12:15
22003103608	CCR-6 MSD	Water	03/05/2020 10:30	03/10/2020 12:15
22003103609	CCR-7	Water	03/05/2020 09:15	03/10/2020 12:15
22003103610	CCR-8	Water	03/04/2020 10:45	03/10/2020 12:15
22003103611	CCR-9	Water	03/02/2020 18:00	03/10/2020 12:15
22003103612	CCR-10	Water	03/02/2020 17:00	03/10/2020 12:15
22003103613	CCR-11	Water	03/02/2020 14:40	03/10/2020 12:15
22003103614	CCR-12	Water	03/03/2020 12:45	03/10/2020 12:15
22003103615	CCR-13	Water	03/03/2020 11:30	03/10/2020 12:15
22003103616	CCR-14	Water	03/03/2020 10:20	03/10/2020 12:15
22003103617	Dup	Water	03/03/2020 00:01	03/10/2020 12:15
22003103618	FB 1	Water	03/05/2020 12:15	03/10/2020 12:15



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 CCR-1
 Collect Date
 03/03/2020 16:50
 LAB ID
 22003103601

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 15:37	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			23.0	5.00	ug/L	

CCR-2 Collect Date 03/03/2020 15:45 LAB ID 22003103602

Receive Date 03/10/2020 12:15 Matrix Water

#### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 15:41	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			22.1	5.00	ug/L	

CCR-3

Collect Date 03/03/2020 14:40

LAB ID 22003103603

Receive Date 03/10/2020 12:15

Matrix Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	<b>Analysis Date</b> 03/16/2020 15:46	<b>By</b>	Analytical Batch
03/11/2020 07:45	679371	EPA 3010A	1		LWZ	679794
CAS# 7439-93-2	Parameter Lithium			Result 28.5	LOQ 5.00	Units ug/L

 CCR-4
 Collect Date
 03/04/2020 12:20
 LAB ID
 22003103604

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 15:50	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	<u>_</u>
7439-93-2	Lithium			19.1	5.00	ug/L	



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 CCR-5
 Collect Date
 03/05/2020 12:00
 LAB ID
 22003103605

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

### **EPA 6020B**

<b>Prep Date</b> 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 15:55	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 21.4	LOQ 5.00	Units ug/L	

CCR-6

Collect Date 03/05/2020 10:30 LAB ID 22003103606

Receive Date 03/10/2020 12:15 Matrix Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:12	LWZ	679794
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			14.4	5.00	ug/L

CCD 6 M6	Collect Date	03/05/2020 10:30	LAB ID	22003103607
CCR-6 MS	Receive Date	03/10/2020 12:15	Matrix	Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:16	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 CCR-6 MSD
 Collect Date
 03/05/2020 10:30
 LAB ID
 22003103608

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

<b>Prep Date</b> 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 16:21	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 254	LOQ 5.00	Units ug/L	

CCR-7

Collect Date 03/05/2020 09:15

Receive Date 03/10/2020 12:15

Matrix Water

#### **EPA 6020B**

Prep Date	Date Prep Batch F		Prep Method Dilution		Ву	<b>Analytical Batch</b>	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:34	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			12.0	5.00	ug/L	

 CCR-8
 Collect Date
 03/04/2020 10:45
 LAB ID
 22003103610

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:39	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			37.8	5.00	ug/L	



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 CCR-9
 Collect Date
 03/02/2020 18:00
 LAB ID
 22003103611

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

<b>Prep Date</b> 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 16:44	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 10.9	LOQ 5.00	Units ug/L	

 CCR-10
 Collect Date
 03/02/2020 17:00
 LAB ID
 22003103612

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

Prep Date	Date Prep Batch F		Prep Method Dilution		Ву	<b>Analytical Batch</b>	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:48	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			7.35	5.00	ug/L	

 CCR-11
 Collect Date
 03/02/2020 14:40
 LAB ID
 22003103613

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 16:53	LWZ	679794
CAS#	Parameter			Result	LOQ	Units



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 CCR-12
 Collect Date
 03/03/2020 12:45
 LAB ID
 22003103614

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

Prep Date 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 17:06	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 28.4	LOQ 5.00	Units ug/L	

 CCR-13
 Collect Date
 03/03/2020 11:30
 LAB ID
 22003103615

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

#### **EPA 6020B**

Prep Date 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 17:11	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 13.9	LOQ 5.00	Units ug/L	

CCR-14 Collect Date 03/03/2020 10:20 LAB ID 22003103616

Receive Date 03/10/2020 12:15 Matrix Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 17:15	LWZ	679794
CAS#	Parameter			Result	LOQ	Units
O7 1011	i aramotor			Result	LOQ	Units



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Sample Results

 Dup
 Collect Date
 03/03/2020 00:01
 LAB ID
 22003103617

 Receive Date
 03/10/2020 12:15
 Matrix
 Water

### **EPA 6020B**

<b>Prep Date</b> 03/11/2020 07:45	Prep Batch 679371	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 03/16/2020 17:20	<b>By</b> LWZ	Analytical Batch 679794	
CAS# 7439-93-2	Parameter Lithium			Result 18.8	LOQ 5.00	Units ug/L	

FB 1 Collect Date 03/05/2020 12:15 LAB ID 22003103618

Receive Date 03/10/2020 12:15 Matrix Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
03/11/2020 07:45	679371	EPA 3010A	1	03/16/2020 17:24	LWZ	679794	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			ND	5.00	ug/L	



**Project ID:** 20030273 **Report Date:** 03/17/2020

# Inorganics QC Summary

Analytical Batch	Client ID	Client ID MB679371 LC		LCS679371			
679794	LAB ID	2020040	2020041				
Prep Batch	Sample Type	MB	LCS				
679371	Prep Date	03/11/2020 07:4	03/11/2020 07:45				
Prep Method	Method Analysis Date 03/16/2020 15:28		03/16/2020 15:32				
EPA 3010A	Matrix	Water		Water			
EDA 602	ΛD	Units	ug/L	Spike	Result	0/ D	Control
EPA 6020B		Result	LOQ	Added	Result	70 K	Limits%R
Lithium	7439-93-2	ND	5.00	250	246	99	80 - 120

Analytical Batch	Client ID	CCR-6		CCR-6 N	1S	CCR-6 N	CCR-6 MSD					
679794	LAB ID	22003103606		2200310	3607	22003103608						
Prep Batch	Sample Type	SAMPLE	MS MSD									
679371	Prep Date	03/11/2020 07:4	03/11/20	20 07:45			03/11/2020 07:45					
Prep Method	Analysis Date	03/16/2020 16:1	03/16/20	20 16:16	03/16/2020 16:21							
EPA 3010A	Matrix	Water		Water			Water					
EPA 602	ΛD	Units	ug/L	Spike	Result	0/ D	Control	Spike	Result	0/ D	DDD	RPD
EPA 002	UB	Result	LÓQ	Added	Nesult	/0 K	Limits%R	Added Result		/0 K	KPD	Limit
Lithium	thium 7439-93-2 14.4 5.0		5.00	250 281 107			80 - 120	250 254		96	10	20



### CHAIN OF CUSTODY RECORD

Omega COCID 9087

Client ID: 4462 - Element Materials Technology

SDG: 220031036

PM: JLM

PA



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR	ATOR: GCAL		COMPANY:	Pace Analyti	cal (FKA G	CAL)	SPECIAL INSTRUCTIONS	COMMENTS:		7
ADDRESS:	7979 GSRI A	Avenue					ELA 031261PO			1
CITY, STATE	Baton Rouge	e, LA 7082	:0				Lithium O	nly		1
PHONE: (2	25) 769-4900 FAX	X: (225) 76	7-5717 EM	UL:						ı
ACCOUNT#	4									1
гтем #	SAMPLE ID	CI	JENT SAMPLE ID	BOTTLE TYPE	MATRIX		DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.	1
	20030273-001C	CCR	₹-1	250HDPEHNO3	Aqueous		3/3/2020 4:50:00 PM	1		
1	6020_W_SUB (SW6020A)					•				
2	20030273-002C CCR-2 250HDPEHNO3 Aqueous						3/3/2020 3:45:00 PM	1		7
2	6020_W_SUB (SW6020A)									7
-	20030273-003C	CCR	₹-3	250HDPEHNO3	Aqueous		3/3/2020 2:40:00 PM	1		7-3
3	6020_W_SUB (SW	6020A)								7
	20030273-004C	CCR	₹-4	250HDPEHNO3	Aqueous		3/4/2020 12:20:00 PM	1		1-1
4	6020_W_SUB (SW	6020A)							M	7
-	20030273-005C	CCR	₹-5	250HDPEHNO3	Aqueous	1	3/5/2020 12:00:00 PM	1		-
5	6020_W_SUB (SW	6020A)								7
	20030273-006C	CCR	₹-6	250HDPEHNO3	Aqueous	- 3	3/5/2020 10:30:00 AM	3	MS/MSD REQUIRED!	71
6	6020_W_SUB (SW	6020A)								7
-	20030273-007C	CCR	₹-7	250HDPEHNO3	Aqueous		3/5/2020 9:15:00 AM	1		7-0
7	6020_W_SUB (SW	6020A)							/	ĭ
	20030273-008C	CCR	R-8	250HDPEHNO3	Aqueous	3	3/4/2020 10:45:00 AM	1		711
8	6020_W_SUB (SW	6020A)								7
0	20030273-009C	CCR	k-9	250HDPEHNO3	Aqueous		3/2/2020 6:00:00 PM	1		7-1
9	6020_W_SUB (SW	6020A)								1
Relinquished	Brang of Thordeaux	Date: 3/6/2020	Time:	Received By:		Date:	Time;		REPORT TRANSMITTAL DESIRED:	1
Relinquished		Date:	Time:	Received By:		Date;	Time:	☐ HARDCO	DPY (extra cost) FAX EMAIL ONLINE	1
Relinquished	By:	Date:	Time:	Received By:		Date:	Time:		FOR LAB USE ONLY	
	TAT: Stand	dard 🗆	RUSH	Next BD	2nd BD	3rd	BD 🗆	Temp of sam	* Revised COCs emailed to PM	
				Note: RUSH re	equests will incur sur	rcharges!		from	10 0 1 000	1
								Sign	Page 49 61 55 TPS 3/1920	1
									Page 49 01 55	-



### CHAIN OF CUSTODY RECORD Omega COCID 9087

Client ID: 4462 - Element Materials Technology

SDG: 220031036

PM: JLM

PAG



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR	RATOR: GCAL	COMPANY:	Pace Analyt	ical (FKA GCAL)	SPECIAL INSTRUCTIONS /	COMMENTS:		
ADDRESS:	7979 GSRI Aven	ue			ELA 030333 PO			
CITY, STATI	Baton Rouge, LA	70820						
PHONE: (2	25) 769-4900 FAX: (2:	25) 767-5717 EMA	IL:		1			
ACCOUNT #	te .							
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	20030273-010C	CCR-10	250HDPEHNO3	Aqueous	3/2/2020 5:00:00 PM	1		-12
10	6020_W_SUB (SW6020/	A)						
11	20030273-011C	CCR-11	250HDPEHNO3	Aqueous	3/2/2020 2:40:00 PM	1		F13
11	6020_W_SUB (SW6020)	A)						
12	20030273-012C	CCR-12	250HDPEHNO3	Aqueous	3/3/2020 12:45:00 PM	1		110
12	6020_W_SUB (SW6020/	A)						
13	20030273-013C	CCR-13	250HDPEHNO3	Aqueous	3/3/2020 11:30:00 AM	1		-15
13	6020_W_SUB (SW6020A	A)						
14	20030273-014C	CCR-14	250HDPEHNO3	Aqueous	3/3/2020 10:20:00 AM	1		-16
14	6020_W_SUB (SW6020/	A)						
15	20030273-015C	Dup	250HDPEHNO3	Aqueous		1		+17
15	6020_W_SUB (SW6020A	A)		170				
16	20030273-016C	FB 1	250HDPEHNO3	Aqueous	3/5/2020 12:15:00 PM	1		18
10	6020_W_SUB (SW6020A	4)						

Relinquished By Mary of Abride	الماد: Date: 3/6/2020	Time:	Received By:	Date:	Time;	REPOR	T TRANSMITT	AL DESIRED:				
Relinquished By:	Date:	Time:	Received By;	Date:	Time;	HARDCOPY (extra cost)	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLI					
Relinquished By:	Date: Time:		Received By:	Date:	Time:	FOR LAB USE ONLY						
TAT:	Standard	RU	SH Next BD 2nd BD Note: RUSH requests will incur s	5	rd BD 🗀	Comments & Onarra COCS attached With Signatures & Opoler temp, into Jin						
						Page 50 of	55					

Pace Gulf Coast Report#: 220031036



### CHAIN OF CUSTODY RECORD

Omega COCID 9087

Client ID: 4462 - Element Materials Technology

SDG: 220031036

PM: JLM

PAGI



FAX: (337) 233-6540 Website: www.element.com

UB CONTRA	ATOR:						
	GCAL	COMPANY:	Pace Analyti	ical (FKA GCAL)	SPECIAL INSTRUCTIONS /	COMMENTS:	
DDRESS:	7979 GSRI Avenue	e			ELA 030333 PO		
TY, STATE,	Baton Rouge, LA	70820					
HONE: (22	25) 769-4900 FAX: (225	5) 767-5717 EMA	ILa		1		
CCOUNT #:							
пем #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	20030273-001C	CCR-1	250HDPEHNO3	Aqueous	3/3/2020 4:50:00 PM	1	
1	6020_W_SUB (SW6020A)		-		•		S4 (Sa)
2	20030273-002C	CCR-2	250HDPEHNO3	Aqueous	3/3/2020 3:45:00 PM	1	
2	6020_W_SUB (SW6020A)						
2	20030273-003C	CCR-3	250HDPEHNO3	Aqueous	3/3/2020 2:40:00 PM	1	
3	6020_W_SUB (SW6020A)				1		
_	20030273-004C	CCR-4	250HDPEHNO3	Aqueous	3/4/2020 12:20:00 PM	1	
4	6020_W_SUB (SW6020A)						
-	20030273-005C	CCR-5	250HDPEHNO3	Aqueous	3/5/2020 12:00:00 PM	1	
5	6020_W_SUB (SW6020A)				-	-	
	20030273-006C	CCR-6	250HDPEHNO3	Aqueous	3/5/2020 10:30:00 AM	3	
6	6020_W_SUB (SW6020A)						
,	20030273-007C	CCR-7	250HDPEHNO3	Aqueous	3/5/2020 9:15:00 AM	1	
7	6020_W_SUB (SW6020A)		1				
	20030273-008C	CCR-8	250HDPEHNO3	Aqueous	3/4/2020 10:45:00 AM	1	
8	6020_W_SUB (SW6020A)						
,	20030273-009C	CCR-9	250HDPEHNO3	Aqueous	3/2/2020 6:00:00 PM	1	
9	6020_W_SUB (SW6020A)						
		RB					
nquished By	army of Thorseaux Date: 3-5	7-20 Time: 1306	Received By	Ben 7 Date: 3-9-	20 Time: 300		REPORT TRANSMITTAL DESIRED:
nquished By			Received By:	Date:	Time:	☐ HARDCOPY	(extra cost)
nquished By	Aller 3-10-	20 Time: 15 R	Received By	Date: 3-70-	20 Time: 7215		FOR LAB USE ONLY  C Attempt to Cool?
ec.	TAT: Standard	RUSH	Next BD □ ()	2nd BD	3rd BD 🔲	Temp of sample	F34 39120
			Note: RUSH rea	quests will incur surcharges!	· · · · · · · · · · · · · · · · · · ·	Comments:	Tog orlan
			Total Rosh Fee	questo din meni ameningea.		_	

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### CHAIN OF CUSTODY RECORD

Omega COCID 9087

Client ID: 4462 - Element Materials Technology

SDG: 220031036

PM: JLM



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR.	ATOR: GCAL	COMPANY:	Pace Analyti	cal (FKA GCAL)	SPECIAL INSTRUCTIONS /	COMMENTS:	
ADDRESS:	7979 GSRI Ave	nue			ELA 030333 PO		
CITY, STATE	Baton Rouge, L	A 70820					
PHONE: (2	25) 769-4900 FAX: (2	225) 767-5717 EMAI	L:				
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,
502	20030273-010C	CCR-10	250HDPEHNO3	Aqueous	3/2/2020 5:00:00 PM	1 '	
10	6020_W_SUB (SW602	0A)					A CONTRACTOR OF THE CONTRACTOR
	20030273-011C	CCR-11	250HDPEHNO3	Aqueous	3/2/2020 2:40:00 PM	15	
11	6020_W_SUB (SW602	0A)	1				
	20030273-012C	CCR-12	250HDPEHNO3	Aqueous	3/3/2020 12:45:00 PM	1	
12	6020_W_SUB (SW602	0A)	•				
	20030273-013C	CCR-13	250HDPEHNO3	Aqueous	3/3/2020 11:30:00 AM	1.	
13	6020_W_SUB (SW602	0A)					
30	20030273-014C	CCR-14	250HDPEHNO3	Aqueous	3/3/2020 10:20:00 AM	1	
14	6020_W_SUB (SW602	0A)					
	20030273-015C	Dup	250HDPEHNO3	Aqueous		1	
15	6020_W_SUB (SW602	0A)					- Yadin is
1212	20030273-016C	FB 1	250HDPEHNO3	Aqueous	3/5/2020 12:15:00 PM	1	
16	6020_W_SUB (SW602	0A)					

	RB				
Therman a market	Date: 3-9-20 Time: 1300	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED:    HARDCOPY (extra cost)
Murmen	Date: 3'10-20 Time: 13-15	Received By 1	Date: 10 2 i	Time: // Z/S	Temp of samples  1.2 °C Attempt to Cool? 1.2  Comments: E34 39 CP.W

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### **SAMPLE RECEIVING CHECKLIST**



SAMPLE DELIVERY GROU	JP 2200310	36	CHECKLIST		YES	NO				
Client PM JLM 4462 - Bement Materials	Transport M	lethod	Samples received with proper thermal preservation	?	~					
Technology			Radioactivity is <1600 cpm? If no, record cpm value	e in notes section.	~					
Profile Number 271810	Received By Savage, Tiffa		COC relinquished and complete (including sample	~						
271010	oavage, mra	ily ix	All containers received in good condition and within	~						
Line Item(s)	Receive Date	e(s)	All sample labels and containers received match the	ne chain of custody?	~					
1 - Water	03/10/20		Preservative added to any containers?			~				
			If received, was headspace for VOC water contained	ers < 6mm?	~					
			Samples collected in containers provided by Pace	Gulf Coast?		~				
COOLERS	•		DISCREPANCIES	LAB PRESERVATIONS						
Airbill Thermomet	ter ID: E34	Temp °C	None	None						
		1.2								
NOTES										
NOTES			_							

Revision 1.6 Page 1 of 1



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

5738 Industrial Rd.,	Fort	Wayne,	IN	46825
219-471-7000 Fa	x 219	471-7777	7	

1	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

Pag	e	1 of		2					Chain	of C	usto	ly R	ecor	d					Labor Numb		4	300	302	13
		me: Pivota	l Eng	ginee	ring	LLC		Proje	ect: CCR Assessme	ent Monitor	ring	Preserv.	of		L	1 0		Tes	t Requ	ested	1		-	
		Iame: Terr x: (504) 79	3		ur.			Quote #: 5346  Sampler's Signature:				HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	aber / Type Container	Matrix Code	Fluoride	*6010/**6020 metals	Sub	7470 Mercury				717		
	KONTACT TRANS	rmosaros, su							Brejan	6. Lt		ICI HIN	Number	lath	문	0/**	**6020	M					525500	nents /
I	Colle Date	Time	Grab	Comp			Sam	mple Identification / Description				Na(	Nar	2	300:	+601	9***	747(					Ken	narks
3/3	200	1650	X		С	С	R	-	1			None/ HNO3	3 Plastic	Aq	X	Х	Х	X					*6010 Met	
3/3	120	1545	Х		С	С	R	15.51	- 2				3 Plastic	Aq	Х	Х	X	X					Be, Cd, Cr Mo, Se	, Co, Pb,
	1/20	1440	Х		С	С	R	_	3			None/ HNO3	3 Plastic	Aq	X	Х	x	x					**6020 Me	tals: As,
V	6,	1220	X		С	С	R	-	4			None/ HNO3	3 Plastic	Aq	X	Х	Х	х					Sb,Ti	
3/4	5/20	1200	X		C	С	R	853	5			None/ HNO3	3 Plastic	Aq	X	Х	Х	х					***6020 St	ub Metal:Li
3/9	1	1030	X		С	С	R	-	6			None/ HNO	3 Plastic	Aq	X	Х	х	X						
3/5	10	6915	X		C	С	R	-	7			None/ HNOS	3 Plastic	Aq	X	Х	Х	X						
3/	1/20	1045	X		С	С	R	11	8			None/ HNO	3 Plastic	Aq	X	Х	Х	X						
3/	1/20	1800	X		c	С	R	-	9			None/ HNOS	3 Plastic	Aq	X	X	Х	X						500000
3/	2/20	1700	×		C	С	R	-	10			None/ HNO	3 Plastic	Aq	×	X	Х	X						Airborne Hand / Mail
All	sample	es submitt	ed to	Elen	nent samp	Mate	rials 1 Elem	ent Ma	ology for analysis ar aterials Technology	e accepted reserves th	on a cust ne right to	odial basis return unu:	only. Ov sed samp	vnersh le port	ip of ions.	the r	mater	ial re	mains	P.O Nu	O. umber			
	nquishe	d by: (Signa	L'H	1	o alles			y:(Sign		Date 3 6 20	Time 1005	Relinquisho	d by: (Sign:	ature)	y2				:(Signa		7		Date	Time
Reli									Relinquishe	d by: (Sign			-	Date Time					Time					
Matrix Codes           DW = Drinking Water AQ = Aqueous LIQ = Liq           GW = Ground Water O = Oil SLD = So           WW = Waste Water SO = Soil SL = Sluce				lid	Container Types G = Glass P = Plastic V = Vial	☑ Iced Tem	Conditions  p. 3.1  pient 9#	Requested TAT  24-Hr. 72-Hr.  48-Hr. Standard			Thank-you for using Element Mater Technology				20/10									



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

629 Washington St., Suite 300, Columbus, IN 4720 812-375-0531 Fax 812-375-0531

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

J	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 C	usto	dy	R	ecor	d					Labo Nun		-	d	063	027	3
	ame: Pivota		gineer	ring	LLC		Proje	ect: (	CCR Assessm	ent Monito	ring	-	serv.	Jo			1 10		Te	st Re	ques	ted				
Contact Name: Terry Elnaggar			Quot	Quote #: 5346			H2SO4	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Number / Type Container	Container Matrix Code	Je Je	*6010/**6020 metals	q	, fur												
Phone/Fa	nx: (504) 79	99-36	53				Sampler's Signature:			HNO,	Har .	aber / Typ Container	ber/onta	300: Fluoride	/**602	*6020 Sub	Mercury						Comn	nents /		
Coll Date	ection Time	Grab	Comp			San	nple I		fication / D		n	HC	NaOH	Num	M	300:	*6010	709***	7470						Ren	arks
3/2/20	1440	Х		С	С	R	-	1	1			None	/ HNO:	3 Plastic	Aq	X	X	Х	Х						*6010 Meta	
3/3/20	1245	Х		С	С	R	121	1	2			None	/ HNO:	3 Plastic	Aq	X	X	X	X						Be, Cd, Cr Mo, Se	Co, Pb,
3320	1130	X		С	С	R	-	1	3			None	/ HNO:	3 Plastic	Aq	X	X	Х	Х						**6020 Me	als: As.
3/3/20	1020	X		С	С	R	-	1	4			None	/ HNO:	3 Plastic	Aq	X	X	Х	Х						Sb,Tl	
3/5/20		X		М			(CC	R-	6)			-		3 Plastic		X			Х						***6020 Su	b Metal:Li
3/5/20		X		M	S	D		R-				-		3 Plastic		X	Х	Х	Х							
101		X		D	U	Р							-	3 Plastic		X			Х							
3/5/20	120	X		F	В	1	Į.					-	_	3 Plastic	-	Х			Х							
																-									UPS / FedE	Airborne
All samp	les submitt	ed to	Elem	ent amp	Mate	rials 1	Fechno	ology aterial	for analysis ar s Technology	e accepted	on a cust ne right to	odial returi	basis n unu	only. Ov sed samp	vnersh le port	ip of	the r	nater	ial re	main	9	P.O. Num	ber		1	
Relinquished by: (Signature)  Brue B. L.H. Received by: (Signature)  Town He		v:(Sign	ature)		Date 3/6/20	Time			d by: (Signa				Received by:(Signature)				Date	Time								
		by (Signature) Date Time			Relinquished by (Signature)			(	Received by Laboratory (Signature)			P	Date 3/6/20	Time 1248												
Matrix Codes           DW = Drinking Water AQ = Aqueous LIQ = Liqu           GW = Ground Water O = Oil SLD = Soil           WW = Waste Water SO = Soil SL = Sludge		lid		ntainer Types G = Glass P = Plastic V = Vial	✓ Iced	conditions  ap. 3.7  pient 9#	NAME AND ADDRESS OF THE OWNER, WHEN PERSON NAMED AND ADDRESS OF TH			Thank-you for using Element Mater Technology			erials													



June 19, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875

New Orleans, LA 70112 TEL: (504) 799-3653

FAX:

RE: Entergy: CCR & CADL Constituents Order No.: 20060249

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 6/6/2020 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.

Where applicable, 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 2417 W. Pinhook Road Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540

Website: www.element.com

**Case Narrative** 

WO#: **20060249**Date: **6/19/2020** 

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

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).



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/5/2020 9:20:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-001 **Matrix:** AQUEOUS

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	42.9	2.50	mg/L	10	6/10/2020 11:43:39 AM
Fluoride	0.272	0.0500	mg/L	1	6/10/2020 7:45:07 PM
Sulfate	2.59	0.250	mg/L	1	6/10/2020 7:45:07 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 10:26:58 PM
Calcium	26.0	0.500	mg/L	1	6/15/2020 10:26:58 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	281	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



Lajayette, LA 70308-3544
TEL: (337) 235-0483 FAX: (337) 233-6540
Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20060249

Date Reported: 6/19/2020

**Collection Date:** 6/5/2020 8:25:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-002 **Matrix:** AQUEOUS

**Client Sample ID** CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	YIC		E 30	0.0	Analyst: SGP
Chloride	53.8	2.50	mg/L	10	6/10/2020 11:57:23 AM
Fluoride	0.314	0.0500	mg/L	1	6/10/2020 7:58:50 PM
Sulfate	1.28	0.250	mg/L	1	6/10/2020 7:58:50 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 10:31:26 PM
Calcium	21.5	0.500	mg/L	1	6/15/2020 10:31:26 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	259	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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

### **Analytical Report**

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/5/2020 7:35:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-003

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	YIC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	110	5.00	mg/L	20	6/10/2020 1:06:02 PM
Fluoride	0.355	0.0500	mg/L	1	6/10/2020 8:12:47 PM
Sulfate	3.12	0.250	mg/L	1	6/10/2020 8:12:47 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 10:54:10 PM
Calcium	28.4	0.500	mg/L	1	6/15/2020 10:54:10 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: GMS
Total Dissolved Solids (Residue, Filterable)	387	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limi

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/5/2020 10:10:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-004 **Matrix:** AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	43.6	2.50	mg/L	10	6/10/2020 1:19:47 PM
Fluoride	0.214	0.0500	mg/L	1	6/10/2020 8:26:30 PM
Sulfate	9.17	0.250	mg/L	1	6/10/2020 8:26:30 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	0.118	0.100	mg/L	1	6/15/2020 10:58:39 PM
Calcium	19.2	0.500	mg/L	1	6/15/2020 10:58:39 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	264	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

Collection Date: 6/5/2020 11:00:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-005

Client Sample ID CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	58.4	5.00	mg/L	20	6/10/2020 1:33:32 PM
Fluoride	0.214	0.0500	mg/L	1	6/10/2020 8:40:14 PM
Sulfate	< 0.250	0.250	mg/L	1	6/10/2020 8:40:14 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	0.123	0.100	mg/L	1	6/15/2020 11:03:05 PM
Calcium	35.0	0.500	mg/L	1	6/15/2020 11:03:05 PM
TOTAL DISSOLVED SOLIDS		SM25	40C	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	394	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limi

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

Collection Date: 6/5/2020 11:45:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-006

Client Sample ID CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	/ IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	82.2	2.50	mg/L	10	6/10/2020 1:47:16 PM
Fluoride	0.232	0.0500	mg/L	1	6/10/2020 8:53:58 PM
Sulfate	< 0.250	0.250	mg/L	1	6/10/2020 8:53:58 PM
METALS IN WATER BY ICP, TOTAL	LS		SW60	10B	Analyst: STS
Boron	0.110	0.100	mg/L	1	6/15/2020 11:07:32 PM
Calcium	30.6	0.500	mg/L	1	6/15/2020 11:07:32 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	321	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limi

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20060249
Date Reported: 6/19/2020

**Collection Date:** 6/5/2020 12:30:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-007 **Matrix:** AQUEOUS

**Client Sample ID** CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	78.4	2.50	mg/L	10	6/10/2020 2:00:58 PM
Fluoride	0.257	0.0500	mg/L	1	6/10/2020 9:07:41 PM
Sulfate	< 0.250	0.250	mg/L	1	6/10/2020 9:07:41 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	0.102	0.100	mg/L	1	6/15/2020 11:11:59 PM
Calcium	46.5	0.500	mg/L	1	6/15/2020 11:11:59 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	326	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/5/2020 1:15:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-008

Client Sample ID CCR-8

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	' IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	81.6	2.50	mg/L	10	6/10/2020 2:14:42 PM
Fluoride	0.140	0.0500	mg/L	1	6/10/2020 9:21:25 PM
Sulfate	0.395	0.250	mg/L	1	6/10/2020 9:21:25 PM
METALS IN WATER BY ICP, TOTAL	_S		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:16:27 PM
Calcium	11.8	0.500	mg/L	1	6/15/2020 11:16:27 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	284	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/4/2020 11:50:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-009 **Matrix:** AQUEOUS

Client Sample ID CCR-9

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	/ IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	68.4	2.50	mg/L	10	6/10/2020 2:28:27 PM
Fluoride	0.536	0.0500	mg/L	1	6/10/2020 9:35:07 PM
Sulfate	6.19	0.250	mg/L	1	6/10/2020 9:35:07 PM
METALS IN WATER BY ICP, TOTAL	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:20:53 PM
Calcium	31.8	0.500	mg/L	1	6/15/2020 11:20:53 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	338	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/4/2020 10:50:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-010

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	42.3	2.50	mg/L	10	6/10/2020 2:42:11 PM
Fluoride	0.601	0.0500	mg/L	1	6/10/2020 9:48:52 PM
Sulfate	10.2	0.250	mg/L	1	6/10/2020 9:48:52 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:25:21 PM
Calcium	27.7	0.500	mg/L	1	6/15/2020 11:25:21 PM
TOTAL DISSOLVED SOLIDS			SM25	340C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	317	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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

#### **Analytical Report**

(consolidated)

WO#: 20060249

Date Reported: 6/19/2020

**Collection Date:** 6/4/2020 9:55:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-011 **Matrix:** AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	YIC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	25.7	2.50	mg/L	10	6/10/2020 2:55:54 PM
Fluoride	0.701	0.0500	mg/L	1	6/10/2020 10:30:17 PM
Sulfate	3.19	0.250	mg/L	1	6/10/2020 10:30:17 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:29:50 PM
Calcium	28.3	0.500	mg/L	1	6/15/2020 11:29:50 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	226	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limi

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/4/2020 4:00:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-012

Client Sample ID CCR-12

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	YIC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	16.0	1.25	mg/L	5	6/10/2020 3:09:39 PM
Fluoride	0.128	0.0500	mg/L	1	6/10/2020 10:44:00 PM
Sulfate	10.4	0.250	mg/L	1	6/10/2020 10:44:00 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:34:17 PM
Calcium	19.0	0.500	mg/L	1	6/15/2020 11:34:17 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	162	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit
W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/4/2020 3:10:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-013

Client Sample ID CCR-13

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	'IC		E 30	0.0	Analyst: SGP
Chloride	12.0	1.25	mg/L	5	6/10/2020 4:32:12 PM
Fluoride	0.219	0.0500	mg/L	1	6/10/2020 10:57:44 PM
Sulfate	1.12	0.250	mg/L	1	6/10/2020 10:57:44 PM
METALS IN WATER BY ICP, TOTAL	.s		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:47:45 PM
Calcium	21.8	0.500	mg/L	1	6/15/2020 11:47:45 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	182	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/4/2020 1:10:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-014

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
INORGANIC ANIONS IN WATER BY IC	:		E 30	0.0	Analyst: <b>SGP</b>	
Chloride	11.3	1.25	mg/L	5	6/10/2020 4:45:56 PM	
Fluoride	0.147	0.0500	mg/L	1	6/10/2020 11:11:29 PM	
Sulfate	0.489	0.250	mg/L	1	6/10/2020 11:11:29 PM	
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS	
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:52:13 PM	
Calcium	16.9	0.500	mg/L	1	6/15/2020 11:52:13 PM	
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	140	20.0	mg/L	1	6/8/2020 10:16:00 AM	

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-015 **Matrix:** AQUEOUS

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	YIC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	109	5.00	mg/L	20	6/10/2020 4:59:40 PM
Fluoride	0.366	0.0500	mg/L	1	6/10/2020 11:25:13 PM
Sulfate	3.11	0.250	mg/L	1	6/10/2020 11:25:13 PM
METALS IN WATER BY ICP, TOTA	LS		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	6/15/2020 11:56:40 PM
Calcium	29.5	0.500	mg/L	1	6/15/2020 11:56:40 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	381	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060249**Date Reported: **6/19/2020** 

**Collection Date:** 6/5/2020 7:05:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR & CADL Constituents

**Lab ID:** 20060249-016 **Matrix:** AQUEOUS

Client Sample ID FB

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: SGP
Chloride	< 0.250	0.250	mg/L	1	6/10/2020 5:13:24 PM
Fluoride	< 0.0500	0.0500	mg/L	1	6/10/2020 5:13:24 PM
Sulfate	< 0.250	0.250	mg/L	1	6/10/2020 5:13:24 PM
METALS IN WATER BY ICP, TOTA	ALS		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	6/16/2020 12:01:08 AM
Calcium	< 0.500	0.500	mg/L	1	6/16/2020 12:01:08 AM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0	mg/L	1	6/8/2020 10:16:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



# **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: 34223

Sample ID: <b>20060250-002BMS</b>	SampType: <b>MS</b>	TestCod	e: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>6/8/202</b>	0	RunNo: <b>901</b>	43	
Client ID: ZZZZZZ	Batch ID: <b>34223</b>	TestN	o: <b>SW6010B</b>			Analysis Da	te: <b>6/15/20</b>	20	SeqNo: <b>222</b>	29287	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.587	0.100	0.5000	0	117	75	125				
Calcium	71.4	0.500	50.00	21.50	99.8	75	125				
Sample ID: <b>20060250-002BMSD</b>	SampType: <b>MSD</b>	TestCod	e: <b>6010_W</b>	Units: mg/L	Prep Date: 6/8/2020			0	RunNo: 90143		
Client ID: ZZZZZZ	Batch ID: 34223	TestN	o: <b>SW6010B</b>			Analysis Da	te: <b>6/15/20</b>	20	SeqNo: <b>222</b>	29288	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.598	0.100	0.5000	0	120	75	125	0.5872	1.91	20	

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



# **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: 34223

Sample ID: 20060249-002BMS	SampType: <b>MS</b>	TestCode:	6010_W	Units: mg/L		Prep Da	te: <b>6/8/202</b>	0	RunNo: <b>901</b>	40	
Client ID: CCR-2	Batch ID: 34223	TestNo:	SW6010B		Analysis Date: 6/15/2020				SeqNo: <b>2229052</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.587	0.100	0.5000	0	117	75	125				
Calcium	71.4	0.500	50.00	21.50	99.8	75	125				
Sample ID: <b>20060249-002BMSD</b>	CompTime: MCD	TestCode: 6010_W Units: mg/L		Prep Date: <b>6/8/2020</b>			RunNo: <b>90140</b>				
	SampType: <b>MSD</b>	i estedue.	6010_W	Units: mg/L		Prep Da	ie: 6/8/202	U	Runno. 901	40	
Client ID: CCR-2	Batch ID: 34223		SW6010B	Units: mg/L		Analysis Da			SeqNo: 222	_	
Client ID: CCR-2 Analyte		TestNo:	_	SPK Ref Val	%REC	•	te: <b>6/15/20</b>			_	Qual
	Batch ID: <b>34223</b>	TestNo:	SW6010B	· ·		Analysis Da	te: <b>6/15/20</b>	20	SeqNo: 222	9053	Qual

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

M Matrix Interference

RL Reporting Limit

J Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



### **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: 34223

Sample ID:	MB-34223	SampType: MBLK	TestCode: 6010_W	Units: mg/L		Prep Date: 6/8/2020	RunNo: 90110
Client ID:	PBW	Batch ID: 34223	TestNo: SW6010B		An	nalysis Date: <b>6/15/2020</b>	SeqNo: 2228547
Analyte		Result	PQL SPK value	SPK Ref Val	%REC L	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Boron		< 0.100	0.100				
Calcium		< 0.500	0.500				
Sample ID:	LCS-34223	SampType: <b>LCS</b>	TestCode: 6010_W	Units: mg/L		Prep Date: 6/8/2020	RunNo: <b>90110</b>
Client ID:	LCSW	Batch ID: 34223	TestNo: SW6010B		An	nalysis Date: <b>6/15/2020</b>	SeqNo: <b>2228548</b>
Analyte		Result	PQL SPK value	SPK Ref Val	%REC L	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Boron		0.504	0.100 0.5000	0	101	80 120	
Calcium		47.4	0.500 50.00	0	94.7	80 120	
Sample ID:	LCSD-34223	SampType: <b>LCSD</b>	TestCode: 6010_W	Units: mg/L		Prep Date: 6/8/2020	RunNo: <b>90110</b>
Client ID:	LCSS02	Batch ID: <b>34223</b>	TestNo: SW6010B		An	nalysis Date: <b>6/15/2020</b>	SeqNo: <b>2228549</b>
Analyte		Result	PQL SPK value	SPK Ref Val	%REC L	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Boron		0.508	0.100 0.5000	0	102	80 120 0.5042	0.731 20

96.3

80

120

Qualifiers:

Calcium

Holding times for preparation or analysis exceeded

48.2

0.500

R RPD outside accepted recovery limits

SDL Sample detection limit

I Matrix Interference

RL Reporting Limit

50.00

U Analyte not detected

ND Not Detected at the Reporting Limit

47.37

1.65

20

S Spike Recovery outside accepted recovery limits



**QC SUMMARY REPORT** 

WO#: **20060249** 

19-Jun-20

Client: Pivotal Engineering LLC

SDL Sample detection limit

Project: Entergy: CCR & CADL Constituents BatchID: R89903

Troject. Entergy. Co	CK & CADL Constituen	15	Batchib.	N09903
Sample ID: MB-R89903	SampType: MBLK	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>89903</b>
Client ID: PBW	Batch ID: <b>R89903</b>	TestNo: SM2540C	Analysis Date: 6/8/2020	SeqNo: <b>2221723</b>
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-R89903	SampType: <b>LCS</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>89903</b>
Client ID: LCSW	Batch ID: <b>R89903</b>	TestNo: SM2540C	Analysis Date: 6/8/2020	SeqNo: <b>2221724</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	999	20.0 1,000 0	99.9 85 115	
Sample ID: LCSD-R89903	SampType: <b>LCSD</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>89903</b>
Client ID: LCSS02	Batch ID: <b>R89903</b>	TestNo: SM2540C	Analysis Date: 6/8/2020	SeqNo: <b>2221725</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	994	20.0 1,000 0	99.4 85 115 999.0	0.502 10
Sample ID: <b>20060249-002ADUP</b>	SampType: <b>DUP</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>89903</b>
Client ID: CCR-2	Batch ID: <b>R89903</b>	TestNo: SM2540C	Analysis Date: 6/8/2020	SeqNo: <b>2221745</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	251	20.0	259.0	3.14 10
Quantition	preparation or analysis exceeded pted recovery limits	M Matrix Interference RL Reporting Limit	ND Not Detected at the R S Spike Recovery outsi	Reporting Limit ide accepted recovery limits

Analyte not detected



**QC SUMMARY REPORT** 

WO#: **20060249** 

19-Jun-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: R89903

Sample ID: 20060249-002ADUP SampType: DUP TestCode: TDS\_2540C Units: mg/L Prep Date: RunNo: 89903

Client ID: CCR-2 Batch ID: R89903 TestNo: SM2540C Analysis Date: 6/8/2020 SeqNo: 2221745

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: 20060249-003ADUP Client ID: CCR-3	SampType: <b>DUP</b> Batch ID: <b>R89903</b>		de: TDS_2540 lo: SM2540C	•		Prep Da Analysis Da		0	RunNo: 899 SeqNo: 222		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	376	20.0						387.0	2.88	10	

S Spike Recovery outside accepted recovery limits



# **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: R89994

Sample ID: MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Units: mg/L Prep Date:				RunNo: 899	994	
Client ID: PBW	Batch ID: R89994	TestNo: <b>E 300.0</b>		Analysis Date: 6/10/2020			SeqNo: 222	22849		
Analyte	Result	PQL SPK valu	ue 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	e: <b>300.0</b>	Units: mg/L		Prep Dat	e:		RunNo: 899	94	
Client ID: LCSW	Batch ID: <b>R89994</b>	TestNo	TestNo: <b>E 300.0</b>			Analysis Date: 6/10/2020			SeqNo: <b>2222852</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.91	0.250	10.00	0	99.1	90	110				
Fluoride	1.94	0.0500	2.000	0	97.1	90	110				
Sulfate	9.78	0.250	10.00	0	97.8	90	110				

Sample ID: LCSD	SampType: <b>LCSD</b>	TestCode: 300	0.0	Units: mg/L		Prep Dat	e:		RunNo: <b>899</b>		
Client ID: LCSS02	Batch ID: <b>R89994</b>	TestNo: E 3	0.00			Analysis Dat	e: <b>6/10/20</b>	20	SeqNo: <b>222</b>	2855	
Analyte	Result	PQL SPK	( value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.94	0.250	10.00	0	99.4	90	110	9.906	0.325	15	
Fluoride	2.00	0.0500	2.000	0	100	90	110	1.941	2.93	15	
Sulfate	10.2	0.250	10.00	0	102	90	110	9.784	3.69	15	

Qualifiers:

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



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

### **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: R89994

Website: www.element.com

Sample ID: 20060249-002A	AMS SampType: MS	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899	994	
Client ID: CCR-2	Batch ID: <b>R89994</b>	TestN	TestNo: <b>E 300.0</b>		Analysis Date: 6/10/2020			20	SeqNo: 222		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	102	2.50	50.00	53.81	95.5	80	120				
Fluoride	9.41	0.500	10.00	0.09080	93.2	80	120				
Sulfate	46.8	2.50	50.00	0.2416	93.1	80	120				
Sample ID: <b>20060249-002</b>	AMSD SampType: MSD	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899	994	

Sample ID: 20060249-002AMSD	SampType: <b>MSD</b>	TestCod	TestCode: 300.0 Units: mg/L			Prep Dat	te:		RunNo: 899		
Client ID: CCR-2	Batch ID: <b>R89994</b>	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>6/10/20</b>	20	SeqNo: 222	2898	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	102	2.50	50.00	53.81	95.5	80	120	101.6	0.00299	15	
Fluoride	9.52	0.500	10.00	0.09080	94.3	80	120	9.414	1.12	15	
Sulfate	46.8	2.50	50.00	0.2416	93.1	80	120	46.80	0.0354	15	

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



# **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: R89994-2

Sample ID: MBLK	SampType: <b>MBLK</b>	TestCode: 3	300.0	Units: mg/L	Prep Date:				RunNo: 899	94	
Client ID: PBW	Batch ID: R89994-2	TestNo: E	₹ 300.0		Analysis Date: 6/10/2020			20	SeqNo: 222	2948	
Analyte	Result	PQL SF	PK 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: <b>LCS</b>	TestCod	e: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 899		
Client ID: LCSW	Batch ID: R89994-2	TestN	o: <b>E 300.0</b>			Analysis Date: <b>6/10/2020</b>			SeqNo: <b>2222949</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.99	0.250	10.00	0	99.9	90	110				
Fluoride	1.98	0.0500	2.000	0	99.0	90	110				
Sulfate	10.0	0.250	10.00	0	100	90	110				

Sample ID: LCSD	SampType: LCSD	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899		
Client ID: LCSS02	Batch ID: R89994-2	TestN	lo: <b>E 300.0</b>		Analysis Date: 6/10/2020				SeqNo: 222	2950	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.0	0.250	10.00	0	100	90	110	9.906	1.35	15	
Fluoride	2.04	0.0500	2.000	0	102	90	110	1.941	5.04	15	
Sulfate	10.5	0.250	10.00	0	105	90	110	9.784	7.12	15	

Qualifiers:

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



# **QC SUMMARY REPORT**

WO#: **20060249** 

19-Jun-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR & CADL Constituents BatchID: R89994-2

Sample ID: 20060249-016AMS	SampType: MS	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899	94	
Client ID: FB	Batch ID: R89994-2	TestN	TestNo: <b>E 300.0</b>			Analysis Date: 6/10/2020			SeqNo: <b>2222955</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.76	0.250	5.000	0	95.3	80	120				
Fluoride	1.06	0.0500	1.000	0	106	80	120				
Sulfate	5.04	0.250	5.000	0	101	80	120				

Sample ID:	20060249-016AMSD	SampType: <b>MSD</b>	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899		
Client ID:	FB	Batch ID: R89994-2	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>6/10/20</b>	20	SeqNo: <b>2222956</b>		
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	96.1	80	120	4.764	0.900	15	
Fluoride		1.08	0.0500	1.000	0	108	80	120	1.060	1.92	15	
Sulfate		5.14	0.250	5.000	0	103	80	120	5.039	1.92	15	

Qualifiers:

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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

### Sample Log-In Check List

Clie	nt Name:	PIVOTAL_ENGINEERIN	Work Order Number:	20060249		RcptNo: 1
Log	ged by:	Tammy Thibodeaux	6/6/2020 10:50:00 AM		Jannyo	& Thooleanx
Con	npleted By:	Tammy Thibodeaux	6/8/2020 7:51:57 AM		Janus	& Shoodeaux
Rev	iewed By:	Caitlin Duplantis	6/19/2020 2:03:27 PM		Caitlis Duple	& Throdeaux & Throdeaux
Cha	nin of Cus	stody				
1.	Is Chain of	Custody complete?		Yes	No 🗹	Not Present
2.	How was th	e sample delivered?		<u>Client</u>		
Log	<u>ı In</u>					
3.	Coolers are	present?		Yes 🗸	No 🗌	NA 🗌
4.	Shipping co	ontainer/cooler in good conditio	n?	Yes 🗸	No 🗌	
	Custody sea	als intact on shipping containe	r/cooler?	Yes	No 🗌	Not Present ✓
	No.	Seal Date	<b>e</b> :	Signed By		
5.	Was an atte	empt made to cool the samples	9?	Yes 🗸	No 🗀	NA 📙
6.	Were all sa	mples received at a temperatu	re of >0° C to 6.0°C	Yes 🗸	No 🗌	NA $\square$
7.	Sample(s) i	n proper container(s)?		Yes 🗸	No 🗌	
8.	Sufficient s	ample volume for indicated tes	t(s)?	Yes 🗸	No 🗌	
9.	Are sample	s (except VOA and ONG) prop	perly preserved?	Yes 🗸	No 🗌	
10.	Was preser	rvative added to bottles?		Yes	No 🗸	NA 🗌
11.	Is the heads	space in the VOA vials less tha	an 1/4 inch or 6 mm?	Yes	No 🗌	No VOA Vials <b>✓</b>
12.	Were any s	ample containers received bro	ken?	Yes	No 🗸	
13.		work match bottle labels? epancies on chain of custody)		Yes 🗸	No 🗌	
14.	Are matrice	s correctly identified on Chain	of Custody?	Yes 🗸	No $\square$	
15.	Is it clear w	hat analyses were requested?		Yes 🗸	No $\square$	
16.		Iding times able to be met?  customer for authorization.)		Yes 🗸	No 🗌	
Spe	` •	dling (if applicable)				
		notified of all discrepancies wit	h this order?	Yes	No 🗌	NA 🗸
	Perso	n Notified:	Date:			
	By WI	hom:	Via:	eMail	Phone Fax	☐ In Person
	Regar	ding:				
	Client	Instructions:				
18.	Additional re	emarks:				
		d year of collection to COC as	per samples received.			

#### **Cooler Information**

Cooler No	Temp ºC	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Not Present			



2203 S. Madison St., Muncie, IN 47302	2417 W. Pinhook Rd, Lafayette, LA 70508
765-747-9000/800-874-3563 Fax 765-747-0228	337-235-0483/800-737-2378
629 Washington St., Suite 300, Columbus, IN 47201	Fax 337-233-6540
812-375-0531 Fax 812-375-0531	3445 S Sheridan, Tulsa, OK 74145
5738 Industrial Rd., Fort Wayne, IN 46825	918-828-9977/800324-5757
219-471-7000 Fax 219-471-7777	Fax 918-828-7756

Page	1 of		2					Chain	of C	usto	dy R	ecor	d					ımbe		200	4600	
Client Na	ame: Pivot	al Eng	ginee	ring	LLC		Proj	ect: CCR Detection	n Monitori	ing	Preserv.	Jo a	-	F			Test R	Reque	ested			
Contact ?	Name: Ten	ry Eln	nagga	r			Quo	te #: 5346			O <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Type	Code	1	804	* 0						
Phone/Fa	nx: (504) 7	99-36	53				Sam	pler's Signature:	11			nber / Typ Container	Matrix		CI, FI,	metals*			Com	ments /		
Coll Date	ection Time	Grab	Comp			San	ple I	dentification / D	escriptio	n	нсі ни NаОН	Number	M	TDS	300: 0	6010					Re	marks
4512	920	Х		С	С	R	_	1			None/ HNO:	2 Plastic	Aq	X	Х	Х						
6/5	825	X		С	С	R	-	2			None/ HNO:	2 Plastic	Aq	X	Х	Х					*6010 Me	tals: B, Ca
6/5	735	Х		С	С	R	-	3			None/ HNO:	2 Plastic	Aq	X	Х	Х						
6/5	1010	Х		С	С	R	2	4			None/ HNO:	2 Plastic	Aq	X	Х	Х					1 729	
615	1100	Х		С	С	R	-	5			None/ HNO	2 Plastic	Aq	X	Х	X						
6/5	1145	Х		С	С	R	<i>a</i> .	6			None/ HNO	2 Plastic	Aq	X	X	Х						
45	1230	Х		С	С	R	_	7			None/ HNO	2 Plastic	Aq	X	Х	X						
615	1315	Х		С	С	R	-	8			None/ HNO	2 Plastic	Aq	X	X	X						
£/41	1150	Х		С	С	R	5	9		8	None/ HNO3	2 Plastic	Aq	X	X	Х						
44 V	1050	Х		С	С	R	2	10			None/ HNO3	2 Plastic	Aq	X	Х	Х					77.000	Hand / Mail
								ology for analysis are aterials Technology							the n	nateria	l rema	ins	P.O. Nun	iber		0
11	ed by: (Signat	ture)	,		Rec	wed by	(Sign	1 Baker	Date 6/6	Time	Relinquishe	d by: (Sign	ature)			Receive	ed by:(Si	ignatu	re)		Date	Time
Relinquishe	ed by: (Signat	-			Rec	eived by	(Sign	ature)	Date	Time	Retinquishe	d by: (Signa	ature)			Receive	ed by La	borato	ory:(Sig	gnature)	Date	Time
GW = Gro	<u>N</u> king Water und Water ste Water	0 = 0	Aque Dil	The State of the S	SLE	= Liqu ) = Sol = Sludç	d	Container Types G = Glass P = Plastic V = Vial	☑ Iced	Conditions inp. 20°C pient into	24-H 48-H	łr. 🔽	72-Hi Stand			Th	ank-y	/ou		using E echnol	lement Ma	terials



Received by:(Senature)

SLD = Solid

SL = Sludge

Relinquished by: (Signature)

GW = Ground Water O = Oil

WW = Waste Water SO = Soil

Matrix Codes

DW = Drinking Water AQ = Aqueous LIQ = Liquid

element				w [	<ul> <li>□ 2203 S. Madison St., Muncie, IN 47302         765-747-9000/800-874-3563 Fax 765-747-0228</li> <li>□ 629 Washington St., Suite 300, Columbus, IN 47201</li> </ul>								2417 W. Pinhook Rd, Lafayette, LA 70508 337-235-0483/800-737-2378 Fax 337-233-6540														
9	<i>C.</i>	rc	<u> </u>	1.	rC	71	11		_	812- 3 <b>8 In</b> d	-375-0 dustri	531 F	Fax 812- d., Fort	-375-05 Wayr	531 ne, IN	N 46825	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)			_ 3	91	8-828		n, Tulsa 7/800324			
Page	2 of		2	<u>,                                     </u>				(	Cha				ex 219. USTO			ecor	d				La	ibora umbe	itory	20T	أعلا	124	)
Client Nar	me: Pivota	al Eng	ginee	ring	LLC		Proje	ct: C	CR Det	ection	1 Moni	itoring	o <sub>D</sub>		serv.	Jo e	63				Test I	leque	sted				
Contact N	ame: Terr	y Eln	agga	ir			Quot	e #: 53	346					H <sub>2</sub> SO <sub>4</sub>	Na2S2O3	'Type ainer	Code		804	**							
Phone/Fax			_	_		- 77	Samp	ler's S	Signatur	e: *				HNO3	NaOH N	Number / Typ Container	Matrix		CI, FI,	0 metals*						Comn	nents /
Colle Date 1	Time	Grab	Comp			San	nple I	denti	fication	n/D	escrip	ption	i.	НСІ	Na(	Nur		TDS	300:	6010						Ken	arks
6141	955	Х		С	С	R	2	1	1					None	/ HNO3	2 Plastic	Aq	Х	Х	Х							
41-1	1600	Х		С	С	R		1	2					None	/ HNO3	2 Plastic	Aq	Х	Х	Х						*6010 Meta	als: B, Ca
614	1510	Х		С	С	R	100	1	3					None	HNO3	2 Plastic	Aq	Х	Х	Х							
614	1310	Х		С	С	R	120	1	4					None	/ HNO3	2 Plastic	Aq	Х	Х	Х							
6/5	830	Х	V	М	S		(CC	R- 2	)					None	/ HNO3	2 Plastic	Aq	Х	Х	Х		1					
6/5	830	X		М	S	D	(CC	R- <u></u>	2)	k				None	/ HNO3	2 Plastic	Aq	Х	Х	Х							
6/5	_	Х		D	U	Р								None	/ HNO3	2 Plastic	Aq	Х	Х	Х							
615	705	X		F	В	1	1							None	HNO3	2 Plastic	Aq	Х	Х	Х	_	_	$\sqcup$				
														+	_		_	$\vdash$				-					x Airborne
											1 = 1	30°		1 11 -1		- The Or	aorob	in of	tho n	ratorio	Irom	oine	P.O.			/ Element/	Hand / Mail
All sample with the c	es submitte lient subm	ed to	Elen	nent samr	Mate oles.	rials T	Fechno ent Ma	logy for	or analy s Techn	sis ar ology	e acce reserv	es the	on a cu e right te	stodial o returr	basis n unu	sed samp	le port	ions.	the n	nateria	ii rema	ams	Num	ber			
Relinguished	d by: (Signat	ture)			Rec	eiyed b	by:(Signa	ature)			6/GDa	ate	Time 1050	Relin	ıquishe	ed by: (Signa	ature)			Receiv	ed by:(	Signatu	не)			Date	Time

Relinquished by: (Signature)

24-Hr.

48-Hr.

Other

Requested TAT

72-Hr.

✓ Standard

Date

✓ Iced

Container Types

G = Glass

P = Plastic

V = Vial

Shipping Conditions

Temp. 2.0°C

Ambient 1800

Time

Received by Laboratory:(Signature)

Date

Thank-you for using Element Materials

Technology

Time



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 07, 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.: 20060250

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 6/6/2020 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.

Where applicable, 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



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Case Narrative** 

WO#: **20060250**Date: **7/7/2020** 

**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.

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

The 6020 Lithium analysis was subcontracted to Pace Analytical. 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

5-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 9:20:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-001 **Matrix:** AQUEOUS

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 1:50:20 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.272	0.0500	mg/L	1	6/10/2020 7:45:07 PM
METALS IN WATER BY ICE	P, TOTALS		SW60	10B	Analyst: STS
Barium	0.196	0.0100	mg/L	1	6/15/2020 10:26:58 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 10:26:58 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 10:26:58 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 10:26:58 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 10:26:58 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 10:26:58 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 10:26:58 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 10:26:58 PM
METALS IN WATER BY ICE	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 10:47:45 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 10:47:45 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 10:47:45 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 8:25:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-002 **Matrix:** AQUEOUS

Client Sample ID CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 1:52:38 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.314	0.0500	mg/L	1	6/10/2020 7:58:50 PM
METALS IN WATER BY ICE	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.162	0.0100	mg/L	1	6/15/2020 10:31:26 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 10:31:26 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 10:31:26 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 10:31:26 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 10:31:26 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 10:31:26 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 10:31:26 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 10:31:26 PM
METALS IN WATER BY ICE	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 10:50:33 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 10:50:33 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 10:50:33 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 7:35:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-003 **Matrix:** AQUEOUS

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	/ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:02:58 PM
INORGANIC ANIONS IN V	VATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.355	0.0500	mg/L	1	6/10/2020 8:12:47 PM
METALS IN WATER BY IC	CP, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.306	0.0100	mg/L	1	6/15/2020 10:54:10 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 10:54:10 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 10:54:10 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 10:54:10 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 10:54:10 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 10:54:10 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 10:54:10 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 10:54:10 PM
METALS IN WATER BY IC	CP-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:10:11 AM
Arsenic	5.39	0.250	μg/L	1	6/19/2020 11:10:11 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:10:11 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette 2417 W. Pinhook Road

Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540 **Analytical Report** 

(consolidated)

WO#: 20060250

Website: www.element.com Date Reported: 7/7/2020

**Collection Date:** 6/5/2020 10:10:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

Entergy: CCR Assessment Monitoring

**Project:** Lab ID: 20060250-004

Client Sample ID CCR-4

DF **Analyses** Result **RL Qual Units Date Analyzed** 

•					•
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:05:16 PM
INORGANIC ANIONS IN WATE	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.214	0.0500	mg/L	1	6/10/2020 8:26:30 PM
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: STS
Barium	0.117	0.0100	mg/L	1	6/15/2020 10:58:39 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 10:58:39 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 10:58:39 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 10:58:39 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 10:58:39 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 10:58:39 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 10:58:39 PM
Selenium	0.0227	0.0200	mg/L	1	6/15/2020 10:58:39 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:12:59 AM
Arsenic	0.259	0.250	μg/L	1	6/19/2020 11:12:59 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:12:59 AM

Н Holding times for preparation or analysis exceeded Qualifiers:

ND Not Detected at the Reporting Limit

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

М Matrix Interference

RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits



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#: **20060250**Date Reported: **7/7/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 11:00:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-005 **Matrix:** AQUEOUS

Client Sample ID CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:12:48 PM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.214	0.0500	mg/L	1	6/10/2020 8:40:14 PM
METALS IN WATER BY ICP,	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.240	0.0100	mg/L	1	6/15/2020 11:03:05 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:03:05 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:03:05 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:03:05 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:03:05 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:03:05 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:03:05 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:03:05 PM
METALS IN WATER BY ICP-	MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:15:47 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 11:15:47 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:15:47 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060250** 

7/7/2020

Date Reported:

**Collection Date:** 6/5/2020 11:45:00 AM

**Project:** Entergy: CCR Assessment Monitoring

Pivotal Engineering LLC

**Lab ID:** 20060250-006 **Matrix:** AQUEOUS

**Client Sample ID** CCR-6

**CLIENT:** 

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TO	TAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:15:06 PM
INORGANIC ANIONS IN WATER BY	'IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.232	0.0500	mg/L	1	6/10/2020 8:53:58 PM
METALS IN WATER BY ICP, TOTAL	.s		SW60	10B	Analyst: STS
Barium	0.210	0.0100	mg/L	1	6/15/2020 11:07:32 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:07:32 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:07:32 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:07:32 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:07:32 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:07:32 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:07:32 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:07:32 PM
METALS IN WATER BY ICP-MS, TO	TAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:18:35 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 11:18:35 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:18:35 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette 2417 W. Pinhook Road

Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540

235-0483 FAX: (33/) 233-0540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 12:30:00 PM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-007 **Matrix:** AQUEOUS

**Client Sample ID** CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:17:24 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: <b>SGP</b>
Fluoride	0.257	0.0500	mg/L	1	6/10/2020 9:07:41 PM
METALS IN WATER BY IC		SW6010B		Analyst: <b>STS</b>	
Barium	0.320	0.0100	mg/L	1	6/15/2020 11:11:59 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:11:59 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:11:59 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:11:59 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:11:59 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:11:59 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:11:59 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:11:59 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:21:23 AM
Arsenic	0.411	0.250	μg/L	1	6/19/2020 11:21:23 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:21:23 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250**Date Reported: **7/7/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 1:15:00 PM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-008 **Matrix:** AQUEOUS

Client Sample ID CCR-8

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:19:42 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: <b>SGP</b>
Fluoride	0.140	0.0500	mg/L	1	6/10/2020 9:21:25 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.120	0.0100	mg/L	1	6/15/2020 11:16:27 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:16:27 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:16:27 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:16:27 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:16:27 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:16:27 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:16:27 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:16:27 PM
METALS IN WATER BY ICP-MS, TOTAL			SW6020A		Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:24:10 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 11:24:10 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:24:10 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/4/2020 11:50:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-009 **Matrix:** AQUEOUS

Client Sample ID CCR-9

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:22:00 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: <b>SGP</b>
Fluoride	0.536	0.0500	mg/L	1	6/10/2020 9:35:07 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.250	0.0100	mg/L	1	6/15/2020 11:20:53 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:20:53 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:20:53 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:20:53 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:20:53 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:20:53 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:20:53 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:20:53 PM
METALS IN WATER BY ICP-MS, TOTAL			SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:26:58 AM
Arsenic	0.260	0.250	μg/L	1	6/19/2020 11:26:58 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:26:58 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/4/2020 10:50:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-010 **Matrix:** AQUEOUS

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:24:22 PM
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.601	0.0500	mg/L	1	6/10/2020 9:48:52 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS
Barium	0.272	0.0100	mg/L	1	6/15/2020 11:25:21 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:25:21 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:25:21 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:25:21 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:25:21 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:25:21 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:25:21 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:25:21 PM
METALS IN WATER BY ICP		SW60	Analyst: <b>KML</b>		
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:29:46 AM
Arsenic	1.50	0.250	μg/L	1	6/19/2020 11:29:46 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:29:46 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette
2417 W. Pinhook Road

Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540 **Analytical Report** 

(consolidated)

WO#: **20060250** 

Website: www.element.com Date Reported: 7/7/2020

**Collection Date:** 6/4/2020 9:55:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-011 **Matrix:** AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:26:40 PM
INORGANIC ANIONS IN WATER BY IC			E 300.0		Analyst: <b>SGP</b>
Fluoride	0.701	0.0500	mg/L	1	6/10/2020 10:30:17 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: <b>STS</b>
Barium	0.156	0.0100	mg/L	1	6/15/2020 11:29:50 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:29:50 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:29:50 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:29:50 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:29:50 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:29:50 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:29:50 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:29:50 PM
METALS IN WATER BY ICP-MS, TOTAL			SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:43:48 AM
Arsenic	0.974	0.250	μg/L	1	6/19/2020 11:43:48 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:43:48 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250** 

Date Reported: 7/7/2020

**Collection Date:** 6/4/2020 4:00:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-012 **Matrix:** AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:28:59 PM
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.128	0.0500	mg/L	1	6/10/2020 10:44:00 PM
METALS IN WATER BY ICP, TOTALS			SW6010B		Analyst: STS
Barium	0.178	0.0100	mg/L	1	6/15/2020 11:34:17 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:34:17 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:34:17 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:34:17 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:34:17 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:34:17 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:34:17 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:34:17 PM
METALS IN WATER BY ICP		SW6020A Analy			
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:46:37 AM
Arsenic	0.423	0.250	μg/L	1	6/19/2020 11:46:37 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:46:37 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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**Analytical Report** 

(consolidated)

WO#: **20060250** 

Website: www.element.com Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/4/2020 3:10:00 PM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-013 **Matrix:** AQUEOUS

Client Sample ID CCR-13

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:31:17 PM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.219	0.0500	mg/L	1	6/10/2020 10:57:44 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.106	0.0100	mg/L	1	6/15/2020 11:47:45 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:47:45 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:47:45 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:47:45 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:47:45 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:47:45 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:47:45 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:47:45 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:49:25 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 11:49:25 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:49:25 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250**Date Reported: **7/7/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 6/4/2020 1:10:00 PM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-014 **Matrix:** AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	/ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:33:35 PM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: SGP
Fluoride	0.147	0.0500	mg/L	1	6/10/2020 11:11:29 PM
METALS IN WATER BY IC	CP, TOTALS		SW60	10B	Analyst: STS
Barium	0.0854	0.0100	mg/L	1	6/15/2020 11:52:13 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:52:13 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:52:13 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:52:13 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:52:13 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:52:13 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:52:13 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:52:13 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:52:12 AM
Arsenic	0.786	0.250	μg/L	1	6/19/2020 11:52:12 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:52:12 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250** 

Date Reported: 7/7/2020

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-015 **Matrix:** AQUEOUS

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WAT	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:41:07 PM
INORGANIC ANIONS IN WAT	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.366	0.0500	mg/L	1	6/10/2020 11:25:13 PM
METALS IN WATER BY ICP,	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.280	0.0100	mg/L	1	6/15/2020 11:56:40 PM
Beryllium	< 0.00100	0.00100	mg/L	1	6/15/2020 11:56:40 PM
Cadmium	< 0.00500	0.00500	mg/L	1	6/15/2020 11:56:40 PM
Chromium	< 0.0100	0.0100	mg/L	1	6/15/2020 11:56:40 PM
Cobalt	< 0.0100	0.0100	mg/L	1	6/15/2020 11:56:40 PM
Lead	< 0.0100	0.0100	mg/L	1	6/15/2020 11:56:40 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/15/2020 11:56:40 PM
Selenium	< 0.0200	0.0200	mg/L	1	6/15/2020 11:56:40 PM
METALS IN WATER BY ICP-I	MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:55:00 AM
Arsenic	5.65	0.250	μg/L	1	6/19/2020 11:55:00 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:55:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



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#: **20060250**Date Reported: **7/7/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 6/5/2020 7:05:00 AM

**Project:** Entergy: CCR Assessment Monitoring

**Lab ID:** 20060250-016 **Matrix:** AQUEOUS

Client Sample ID FB

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	6/15/2020 2:43:25 PM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	6/10/2020 5:13:24 PM
METALS IN WATER BY ICE	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	< 0.0100	0.0100	mg/L	1	6/16/2020 12:01:08 AM
Beryllium	< 0.00100	0.00100	mg/L	1	6/16/2020 12:01:08 AM
Cadmium	< 0.00500	0.00500	mg/L	1	6/16/2020 12:01:08 AM
Chromium	< 0.0100	0.0100	mg/L	1	6/16/2020 12:01:08 AM
Cobalt	< 0.0100	0.0100	mg/L	1	6/16/2020 12:01:08 AM
Lead	< 0.0100	0.0100	mg/L	1	6/16/2020 12:01:08 AM
Molybdenum	< 0.0100	0.0100	mg/L	1	6/16/2020 12:01:08 AM
Selenium	< 0.0200	0.0200	mg/L	1	6/16/2020 12:01:08 AM
METALS IN WATER BY ICE	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	6/19/2020 11:57:48 AM
Arsenic	< 0.250	0.250	μg/L	1	6/19/2020 11:57:48 AM
Thallium	< 0.250	0.250	μg/L	1	6/19/2020 11:57:48 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34223

Website: www.element.com

Sample ID 20060250-002BMS Client ID: CCR-2	SampType: MS Batch ID: 34223		de: 6010_W No: SW6010B	Units: mg/L		Prep Dat Analysis Dat	te: 6/8/202 te: 6/15/20		RunNo: 90° SeqNo: 22°		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.680	0.0100	0.5000	0.1622	104	75	125				
Beryllium	0.524	0.00100	0.5000	0	105	75	125				
Cadmium	0.504	0.00500	0.5000	0.0009000	101	75	125				
Chromium	0.522	0.0100	0.5000	0.0007000	104	75	125				
Cobalt	0.506	0.0100	0.5000	0	101	75	125				
Lead	0.510	0.0100	0.5000	0	102	75	125				
Molybdenum	0.518	0.0100	0.5000	0.003500	103	75	125				
Selenium	0.509	0.0200	0.5000	0.01420	99.0	75	125				

Sample ID 20060250-002BMSD	SampType: MSD	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>6/8/202</b>	0	RunNo: 90	143	
Client ID: CCR-2	Batch ID: <b>34223</b>	Test	No: <b>SW6010B</b>			Analysis Da	te: <b>6/15/20</b>	20	SeqNo: 22	29288	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.673	0.0100	0.5000	0.1622	102	75	125	0.6798	1.01	20	
Beryllium	0.523	0.00100	0.5000	0	105	75	125	0.5245	0.286	20	
Cadmium	0.501	0.00500	0.5000	0.0009000	100	75	125	0.5039	0.557	20	
Chromium	0.517	0.0100	0.5000	0.0007000	103	75	125	0.5216	0.847	20	
Cobalt	0.503	0.0100	0.5000	0	101	75	125	0.5063	0.694	20	
Lead	0.505	0.0100	0.5000	0	101	75	125	0.5100	0.965	20	
Molybdenum	0.516	0.0100	0.5000	0.003500	103	75	125	0.5182	0.329	20	
Selenium	0.521	0.0200	0.5000	0.01420	101	75	125	0.5090	2.33	20	

Qualifiers: H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

J Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34223

Website: www.element.com

Sample ID 20060249-002BMS Client ID: ZZZZZZ	SampType: MS Batch ID: 34223		de: 6010_W No: SW6010B	Units: mg/L		Prep Dat Analysis Dat	te: 6/8/202 te: 6/15/20		RunNo: 90° SeqNo: 22°		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.680	0.0100	0.5000	0.1622	104	75	125				
Beryllium	0.524	0.00100	0.5000	0	105	75	125				
Cadmium	0.504	0.00500	0.5000	0.0009000	101	75	125				
Chromium	0.522	0.0100	0.5000	0.0007000	104	75	125				
Cobalt	0.506	0.0100	0.5000	0	101	75	125				
Lead	0.510	0.0100	0.5000	0	102	75	125				
Molybdenum	0.518	0.0100	0.5000	0.003500	103	75	125				
Selenium	0.509	0.0200	0.5000	0.01420	99.0	75	125				

Sample ID <b>20060249-002BMSD</b>	SampType: MSD	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>6/8/202</b>	:0	RunNo: 90	140	
Client ID: ZZZZZZ	Batch ID: <b>34223</b>	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>6/15/20</b>	20	SeqNo: 22	29053	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.673	0.0100	0.5000	0.1622	102	75	125	0.6798	1.01	20	
Beryllium	0.523	0.00100	0.5000	0	105	75	125	0.5245	0.286	20	
Cadmium	0.501	0.00500	0.5000	0.0009000	100	75	125	0.5039	0.557	20	
Chromium	0.517	0.0100	0.5000	0.0007000	103	75	125	0.5216	0.847	20	
Cobalt	0.503	0.0100	0.5000	0	101	75	125	0.5063	0.694	20	
Lead	0.505	0.0100	0.5000	0	101	75	125	0.5100	0.965	20	
Molybdenum	0.516	0.0100	0.5000	0.003500	103	75	125	0.5182	0.329	20	
Selenium	0.521	0.0200	0.5000	0.01420	101	75	125	0.5090	2.33	20	

Qualifiers: H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34223

Website: www.element.com

Sample ID MB-34223 Client ID: PBW	SampType: MBLK Batch ID: 34223		de: 6010_W	Units: mg/L		·	ite: 6/8/202		RunNo: <b>90</b> 1 SegNo: <b>22</b> 2		
Chefit ID. 1 BW	Date111D. 34223	1630	10. <b>3110010</b> B			Allalysis Da	ite. 0/13/20	20	Sequo. 222	20347	
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-34223	SampType: <b>LCS</b>	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>6/8/2020</b>	)	RunNo: 90	110	
Client ID: LCSW	Batch ID: 34223	TestN	No: <b>SW6010B</b>			Analysis Da	te: <b>6/15/202</b>	20	SeqNo: <b>22</b>	28548	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.492	0.0100	0.5000	0	98.3	80	120				
Beryllium	0.488	0.00100	0.5000	0	97.6	80	120				
Cadmium	0.483	0.00500	0.5000	0	96.6	80	120				
Chromium	0.490	0.0100	0.5000	0	98.1	80	120				
Cobalt	0.484	0.0100	0.5000	0	96.9	80	120				
Lead	0.487	0.0100	0.5000	0	97.5	80	120				
Molybdenum	0.482	0.0100	0.5000	0	96.3	80	120				
Selenium	0.520	0.0200	0.5000	0	104	80	120				

Qualifiers: H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34223

Sample ID LCSD-34223	SampType: <b>LCSD</b>	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>6/8/20</b> 2	20	RunNo: 90	110	
Client ID: LCSS02	Batch ID: <b>34223</b>	Test	No: <b>SW6010B</b>			Analysis Da	te: <b>6/15/2</b> 0	)20	SeqNo: 222	28549	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.492	0.0100	0.5000	0	98.4	80	120	0.4917	0.0813	20	
Beryllium	0.492	0.00100	0.5000	0	98.3	80	120	0.4880	0.755	20	
Cadmium	0.485	0.00500	0.5000	0	97.0	80	120	0.4831	0.372	20	
Chromium	0.493	0.0100	0.5000	0	98.6	80	120	0.4903	0.529	20	
Cobalt	0.484	0.0100	0.5000	0	96.7	80	120	0.4845	0.165	20	
Lead	0.487	0.0100	0.5000	0	97.5	80	120	0.4874	0.0205	20	
Molybdenum	0.487	0.0100	0.5000	0	97.4	80	120	0.4817	1.11	20	
Selenium	0.499	0.0200	0.5000	0	99.9	80	120	0.5203	4.12	20	

R RPD outside accepted recovery limits

RL Reporting Limit

U Analyte not detected

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34224

Website: www.element.com

<b>Project:</b> Entergy: C	CR Assessment Monitoria	ng	BatchID: 3	1224
Sample ID MB-34224 Client ID: PBW	SampType: MBLK Batch ID: 34224	TestCode: 6020A_W Units: μg/L TestNo: SW6020A	Prep Date: 6/8/2020 Analysis Date: 6/19/2020	RunNo: <b>90679</b> SeqNo: <b>2243560</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	< 0.250	0.250		
Sample ID LCS-34224	SampType: <b>LCS</b>	TestCode: 6020A_W Units: µg/L	Prep Date: 6/8/2020	RunNo: <b>90679</b>
Client ID: LCSW	Batch ID: <b>34224</b>	TestNo: SW6020A	Analysis Date: 6/19/2020	SeqNo: <b>2243561</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	474	5.00 500.0 0	94.8 80 120	
Sample ID LCSD-34224	SampType: <b>LCSD</b>	TestCode: 6020A_W Units: µg/L	Prep Date: <b>6/8/2020</b>	RunNo: <b>90679</b>
Client ID: LCSS02	Batch ID: 34224	TestNo: SW6020A	Analysis Date: 6/19/2020	SeqNo: <b>2243562</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	470	5.00 500.0 0	94.1 80 120 474.1	0.806 20
Sample ID <b>20060250-002BMS</b>	SampType: <b>MS</b>	TestCode: 6020A_W Units: µg/L	Prep Date: 6/8/2020	RunNo: <b>90679</b>
Client ID: CCR-2	Batch ID: <b>34224</b>	TestNo: SW6020A	Analysis Date: <b>6/19/2020</b>	SeqNo: <b>2243569</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	463	5.00 500.0 0.1299	92.5 75 125	

Qualifiers: H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34224

Website: www.element.com

Sample ID Client ID:	20060250-002BMSD CCR-2	SampType: Batch ID:			e: <b>6020A_W</b> o: <b>SW6020A</b>			Prep Da Analysis Da	te: <b>6/8/202</b>		RunNo: <b>90</b> 0 SeqNo: <b>22</b> 4		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic			475	5.00	500.0	0.1299	94.9	75	125	462.6	2.58	20	

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

Pivotal Engineering LLC **Client:** 

**BatchID: Project:** Entergy: CCR Assessment Monitoring 34224

Website: www.element.com

Toject.	Entergy. CCR Assessme		8							7227		
Sample ID MB-342	24 SampType:	MBLK	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>6/8/20</b> 2	20	RunNo: 90	244	
Client ID: PBW	Batch ID:	34224	TestN	o: <b>SW6020A</b>			Analysis Dat	e: <b>6/19/2</b> 0	)20	SeqNo: 22	31780	
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-34	224 SampType:	LCS	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>6/8/20</b> 2	20	RunNo: 90	244	
Client ID: LCSW	Batch ID:	34224	TestN	o: <b>SW6020A</b>			Analysis Dat	e: <b>6/19/2</b> 0	)20	SeqNo: <b>22</b> :	31781	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		481	5.00	500.0	0	96.1	80	120				
Thallium		494	5.00	500.0	0	98.8	80	120				
Sample ID LCSD-3	<b>4224</b> SampType:	LCSD	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>6/8/20</b> 2	20	RunNo: 90	244	
Client ID: LCSS02	Batch ID:	34224	TestN	o: <b>SW6020A</b>			Analysis Dat	e: <b>6/19/2</b> 0	)20	SeqNo: 22	31782	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		473	5.00	500.0	0	94.6	80	120	480.5	1.54	20	
Thallium		493	5.00	500.0	0	98.6	80	120	493.8	0.202	20	
Sample ID <b>200602</b>	0-002BMS SampType:	MS	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>6/8/20</b> 2	20	RunNo: 90	244	
Client ID: CCR-2	Batch ID:	34224	TestN	o: <b>SW6020A</b>			Analysis Dat	e: <b>6/19/2</b> 0	)20	SeqNo: 22	31789	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		461	5.00	500.0	0.07742	92.3	75	125				
	Holding times for preparation or analys				Interference					eporting Limit		-

RPD outside accepted recovery limits

SDL Sample detection limit

RL Reporting Limit

Analyte not detected

Spike Recovery outside accepted recovery limits



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#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34224

Sample ID <b>20060250-002BMS</b>	SampType: <b>MS</b>	TestCod	de: <b>6020A_W</b>	Units: µg/L		Prep Dat	te: <b>6/8/202</b>	0	RunNo: 902	244	
Client ID: CCR-2	Batch ID: <b>34224</b>	TestN	lo: <b>SW6020A</b>			Analysis Da	te: <b>6/19/20</b>	20	SeqNo: 223	31789	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	475	5.00	500.0	0	95.0	75	125				

Sample ID 20060250-002BMS	D SampType: MSD	TestCoo	le: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>6/8/202</b>	0	RunNo: 902	244	
Client ID: CCR-2	Batch ID: 34224	TestN	lo: <b>SW6020A</b>			Analysis Da	e: <b>6/19/20</b>	20	SeqNo: 22	31790	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	470	5.00	500.0	0.07742	93.9	75	125	461.4	1.75	20	
Thallium	484	5.00	500.0	0	96.8	75	125	475.0	1.86	20	

U Analyte not detected

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34311

Website: www.element.com

Project: Entergy:	CCR Assessment Monit	coring	BatchID: 3	4311
Sample ID MB-34311 Client ID: PBW	SampType: MBLK Batch ID: 34311	TestCode: <b>HG_W_7470</b> Units: <b>mg/L</b> TestNo: <b>SW7470A</b>	Prep Date: <b>6/15/2020</b> Analysis Date: <b>6/15/2020</b>	RunNo: <b>90106</b> SeqNo: <b>2228338</b>
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-34311	SampType: <b>LCS</b>	TestCode: HG_W_7470 Units: mg/L	Prep Date: 6/15/2020	RunNo: <b>90106</b>
Client ID: LCSW	Batch ID: <b>34311</b>	TestNo: SW7470A	Analysis Date: 6/15/2020	SeqNo: 2228342
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury	0.00968	0.000200 0.01000 0	96.8 80 120	
Sample ID LCSD-34311	SampType: <b>LCSD</b>	TestCode: HG_W_7470 Units: mg/L	Prep Date: 6/15/2020	RunNo: <b>90106</b>
Client ID: LCSS02	Batch ID: <b>34311</b>	TestNo: SW7470A	Analysis Date: 6/15/2020	SeqNo: <b>2228345</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury	0.00974	0.000200 0.01000 0	97.4 80 120 0.009676	0.697 20
Sample ID <b>20060250-002BM</b>	S SampType: MS	TestCode: HG_W_7470 Units: mg/L	Prep Date: 6/15/2020	RunNo: <b>90106</b>
Client ID: CCR-2	Batch ID: <b>34311</b>	TestNo: SW7470A	Analysis Date: 6/15/2020	SeqNo: <b>2228361</b>
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

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

Client: Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: 34311

Website: www.element.com

Sample ID	20060250-002BMSD	SampType: MSD	TestCo	ode: <b>HG_W_7</b> 4	170 Units: mg/L		Prep Da	te: <b>6/15/2</b> 0	)20	RunNo: 901	106	
Client ID:	CCR-2	Batch ID: <b>34311</b>	Test	No: <b>SW7470A</b>			Analysis Da	te: <b>6/15/2</b> 0	)20	SeqNo: 222	28364	
Analyte		Resu	lt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.010	1 0.000200	0.01000	0	101	75	125	0.01035	2.89	20	

U Analyte not detected

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

Pivotal Engineering LLC **Client:** 

Website: www.element.com

Project:	Entergy: Co	CR Assessme	ent Monitor	ring					В	BatchID: F	R89995		
Sample ID MBL		SampType:			de: <b>300.0</b>	Units: mg/L		Prep Da			RunNo: 89		
Client ID: PBW		Batch ID:	R89995	lestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	)20	SeqNo: 22	23099	
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	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID: LCS	W	Batch ID:	R89995	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	)20	SeqNo: 22	23100	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			1.94	0.0500	2.000	0	97.1	90	110				
Sample ID LCSI	D	SampType:	LCSD	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID: LCS	S02	Batch ID:	R89995	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	)20	SeqNo: 22	23101	
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	100	90	110	1.941	2.93	15	
Sample ID 2006	0250-002AMS	SampType:	MS	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID: CCR-	-2	Batch ID:	R89995	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	)20	SeqNo: 22	23112	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			9.41	0.500	10.00	0.09080	93.2	80	120				

Holding times for preparation or analysis exceeded Qualifiers:

RPD outside accepted recovery limits

Sample detection limit

Matrix Interference

RL Reporting Limit

Analyte not detected

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits



**QC SUMMARY REPORT** 

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: R89995

Website: www.element.com

1 Toject.	Entergy. CC	A ASSESSIII	ZIII IVIOIIIIO	ning					1	Dattiid. I	N09993		
Sample ID	20060250-002AMSD	SampType:	MSD	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID:	CCR-2	Batch ID:	R89995	Test	No: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	020	SeqNo: 22	23113	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			9.52	0.500	10.00	0.09080	94.3	80	120	9.414	1.12	15	
Sample ID	MBLK	SampType:	MBLK	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID:	PBW	Batch ID:	R89995	Test	No: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	020	SeqNo: <b>22</b>	23128	
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	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID:	LCSW	Batch ID:	R89995	TestN	No: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	020	SeqNo: <b>22</b>	23129	
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	99.0	90	110				
Sample ID	LCSD	SampType:	LCSD	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 89	995	
Client ID:	LCSS02	Batch ID:	R89995	Test	No: <b>E 300.0</b>			Analysis Da	te: <b>6/10/2</b> 0	020	SeqNo: <b>22</b>	23130	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			2.04	0.0500	2.000	0	102	90	110	1.941	5.04	15	

Qualifiers: H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit

U Analyte not detected

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



## **QC SUMMARY REPORT**

WO#: 20060250

07-Jul-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Assessment Monitoring BatchID: R89995

Website: www.element.com

Sample ID 20060250-016AMS	SampType: <b>MS</b>	TestCod	e: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 899	95	
Client ID: FB	Batch ID: <b>R89995</b>	TestN	o: <b>E 300.0</b>			Analysis Da	te: <b>6/10/20</b>	20	SeqNo: 222	23135	
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				

Sample ID	20060250-016AMSD	SampType: M	SD	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 899	95	
Client ID:	FB	Batch ID: R8	89995	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>6/10/20</b>	20	SeqNo: 222	23136	
Analyte		R	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	1.060	1.92	15	



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

### Sample Log-In Check List

Client Name: **PIVOTAL ENGINEERIN** Work Order Number: 20060250 RcptNo: 1 Janus of Thodeaux Janus of Thodeaux Cuthin Duplimi 6/6/2020 10:50:00 AM Logged by: **Tammy Thibodeaux** Completed By: Tammy Thibodeaux 6/8/2020 8:10:10 AM **Caitlin Duplantis** Reviewed By: 6/24/2020 8:25:29 AM Chain of Custody Yes  $\square$ No 🗸 Not Present 1 Is Chain of Custody complete? 2 How was the sample delivered? Client Log In Yes 🗸 No 🗌 NA 🗌 3. Coolers are present? Yes 🗸 No  $\square$ 4 Shipping container/cooler in good condition? Yes Custody seals intact on shipping container/cooler? Not Present Signed By: Seal Date: Yes 🗸 No 🗌 NA 🗌 5. Was an attempt made to cool the samples? Yes 🗸 NA 🗌 6 Were all samples received at a temperature of >0° C to 6.0°C No 7. Sample(s) in proper container(s)? 8. Sufficient sample volume for indicated test(s)? **✓** 9. Are samples (except VOA and ONG) properly preserved? No 🗌 Yes 10. Was preservative added to bottles? Yes No 🗸 NA  $\square$ No 🗌 No VOA Vials 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes 12. Were any sample containers received broken? No 🗸 13. Does paperwork match bottle labels? Yes (Note discrepancies on chain of custody) Yes 🗸 14. Are matrices correctly identified on Chain of Custody? 15. Is it clear what analyses were requested? 16. Were all holding times able to be met? Yes 🗸 No  $\square$ (If no, notify customer for authorization.) Special Handling (if applicable) NA 🗸 Yes No  $\square$ 17. Was client notified of all discrepancies with this order? Person Notified: Date By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 18. Additional remarks:

No sampler's signature by client

Added year of collection to COC as per samples received.

#### **Cooler Information**

Cooler No	Temp ºC	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Not Present			



# **ANALYTICAL RESULTS**

#### **PERFORMED BY**

**Pace Analytical Gulf Coast** 

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

**Report Date** 06/30/2020



**Project** 20060250

Deliver To

Annie Reedy

**Element Materials Technology** 

2417 W Pinhook Rd Lafayette, LA 70508 800-737-2378

**Additional Recipients** 

Caitlin Duplantis, Element Materials

Technology

Cristina Thibeaux, Element Materials

**Technology** 

Rhonda David, Element Materials Technology

Buffy Bryant, Element Materials Technology







Page 33 of 49



## 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 the analyte was detected in the associated Method Blank Indicates a non-compliant QC Result (See Q Flag Application Report)

Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
 Organics - The result is estimated because it exceeded the instrument calibration range

E Metals - % diference 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 220060947

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**Project ID:** 20060250 **Report Date:** 06/30/2020

## 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



**Project ID:** 20060250 **Report Date:** 06/30/2020

### **Case Narrative**

Client: Element Materials Technology Report: 220060947

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.

This report is revised 6/30/20. The client updated the sample collection date and/or time for all samples except 22006094701 (CCR-1).

ID	Date/Time Collected
CCR-2	6/5/20 8:25 AM
CCR-3	6/5/20 7:35 AM
CCR-4	6/5/20 10:10 AM
CCR-5	6/5/20 11:00 AM
CCR-6	6/5/20 11:45 AM
CCR-7	6/5/20 12:30 PM
CCR-8	6/5/20 1:15 PM
CCR-9	6/4/20 11:50 AM
CCR-10	6/4/20 10:50 AM
CCR-11	6/4/20 9:55 AM
CCR-12	6/4/20 4:00 PM
CCR-13	6/4/20 3:10 PM
CCR-14	6/4/20 1:10 PM
DUP	6/5/20 12:00 AM
FB	6/5/20 7:05 AM

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



**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time	
22006094701	22006094701 CCR-1		06/05/2020 09:20	06/09/2020 11:31	
22006094702	CCR-2	Water	06/05/2020 08:25	06/09/2020 11:31	
22006094703	CCR-2 MS	Water	06/05/2020 08:25	06/09/2020 11:31	
22006094704	CCR-2 MSD	Water	06/05/2020 08:25	06/09/2020 11:31	
22006094705	CCR-3	Water	06/05/2020 07:35	06/09/2020 11:31	
22006094706	CCR-4	Water	06/05/2020 10:10	06/09/2020 11:31	
22006094707	CCR-5	Water	06/05/2020 11:00	06/09/2020 11:31	
22006094708	CCR-6	Water	06/05/2020 11:45	06/09/2020 11:31	
22006094709	CCR-7	Water	06/05/2020 12:30	06/09/2020 11:31	
22006094710	CCR-8	Water	06/05/2020 13:15	06/09/2020 11:31	
22006094711	CCR-9	Water	06/04/2020 11:50	06/09/2020 11:31	
22006094712	CCR-10	Water	06/04/2020 10:50	06/09/2020 11:31	
22006094713	CCR-11	Water	06/04/2020 09:55	06/09/2020 11:31	
22006094714	CCR-12	Water	06/04/2020 16:00	06/09/2020 11:31	
22006094715	CCR-13	Water	06/04/2020 15:10	06/09/2020 11:31	
22006094716	CCR-14	Water	06/04/2020 13:10	06/09/2020 11:31	
22006094717	DUP	Water	06/05/2020 00:01	06/09/2020 11:31	
22006094718	FB	Water	06/05/2020 07:05	06/09/2020 11:31	



# Sample Results

CCR-1	Collect Date	06/05/2020 09:20	LAB ID	22006094701
CCR-1	Receive Date	06/09/2020 11:31	Matrix	Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 15:48	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			21.3	5.00	ug/L	

CCR-2	Collect Date	06/05/2020 08:25	LAB ID	22006094702
CCR-2	Receive Date	06/09/2020 11:31	Matrix	Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 15:51	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			21.6	5.00	ug/L	

CCR-2 MS	Collect Date	06/05/2020 08:25	LAB ID	22006094703
	Receive Date	06/09/2020 11:31	Matrix	Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	<b>Analysis Date</b> 06/12/2020 15:55	<b>By</b>	Analytical Batch
06/10/2020 07:15	685522	EPA 3010A	1		TJR	685787
CAS# 7439-93-2	Parameter Lithium			Result 253	LOQ 5.00	Units ug/L

CCR-2 MSD	Collect Date	06/05/2020 08:25	LAB ID	22006094704	
CCR-2 WISD	Receive Date	06/09/2020 11:31	Matrix	Water	

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 15:58	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	,
7439-93-2	Lithium			252	5.00	ug/L	

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**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Results

 CCR-3
 Collect Date
 06/05/2020 07:35
 LAB ID
 22006094705

 Receive Date
 06/09/2020 11:31
 Matrix
 Water

### EPA 6020B

Prep Date 06/10/2020 07:15	Prep Batch 685522	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 06/12/2020 16:09	<b>By</b> TJR	Analytical Batch 685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			27.4	5.00	ug/L

CCR-4	CCD 4	Collect Date	06/05/2020 10:10	LAB ID	22006094706	
	CCR-4	Receive Date	06/09/2020 11:31	Matrix	Water	

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:12	TJR	685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			17.8	5.00	ug/L

CCD 5	Collect Date	06/05/2020 11:00	LAB ID	22006094707
CCR-5	Receive Date	06/09/2020 11:31	Matrix	Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:16	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			20.7	5.00	ug/L	

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**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Results

 CCR-6
 Collect Date
 06/05/2020 11:45
 LAB ID
 22006094708

 Receive Date
 06/09/2020 11:31
 Matrix
 Water

### EPA 6020B

Prep Date 06/10/2020 07:15	Prep Batch 685522	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 06/12/2020 16:19	<b>By</b> TJR	Analytical Batch 685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			13.9	5.00	ug/L

CCR-7	Collect Date	06/05/2020 12:30	LAB ID	22006094709		
	CCR-1	Receive Date	06/09/2020 11:31	Matrix	Water	

### EPA 6020B

Prep Date	Prep Batch	<b>Prep Method</b>	Dilution	Analysis Date	Ву	<b>Analytical Batch</b>	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:23	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			12.9	5.00	ug/L	

CCD 9	Collect Date	06/05/2020 13:15	LAB ID	22006094710
CCR-8	Receive Date	06/09/2020 11:31	Matrix	Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:26	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			36.0	5.00	ug/L	

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**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Results

 CCR-9
 Collect Date
 06/04/2020 11:50
 LAB ID
 22006094711

 Receive Date
 06/09/2020 11:31
 Matrix
 Water

### EPA 6020B

Prep Date 06/10/2020 07:15	Prep Batch 685522	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 06/12/2020 16:37	<b>By</b> TJR	Analytical Batch 685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			13.1	5.00	ug/L

CCR-10	Collect Date	06/04/2020 10:50	LAB ID	22006094712		
	CCR-10	Receive Date	06/09/2020 11:31	Matrix	Water	

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:40	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			11.1	5.00	ug/L	

CCR-11	Collect Date	06/04/2020 09:55	LAB ID	22006094713
CCK-11	Receive Date	06/09/2020 11:31	Matrix	Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:44	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			7.75	5.00	ug/L	

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**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Results

CCR-12 Collect Date 06/04/2020 16:00 LAB ID 22006094714

Receive Date 06/09/2020 11:31 Matrix Water

### **EPA 6020B**

Prep Date 06/10/2020 07:15	Prep Batch 685522	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 06/12/2020 16:47	<b>By</b> TJR	Analytical Batch 685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			24.5	5.00	ug/L

CCR-13

Collect Date 06/04/2020 15:10 LAB ID 22006094715

Receive Date 06/09/2020 11:31 Matrix Water

#### **EPA 6020B**

Prep Date	Prep Batch	<b>Prep Method</b>	Dilution	Analysis Date	Ву	Analytical Batch	
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:51	TJR	685787	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			20.5	5.00	ug/L	

CCR-14	Collect Date	06/04/2020 13:10	LAB ID	22006094716
CCR-14	Receive Date	06/09/2020 11:31	Matrix	Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 16:54	TJR	685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			15.6	5.00	ug/L

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**Project ID:** 20060250 **Report Date:** 06/30/2020

# Sample Results

 Collect Date
 06/05/2020 00:01
 LAB ID
 22006094717

 Receive Date
 06/09/2020 11:31
 Matrix
 Water

### **EPA 6020B**

Prep Date 06/10/2020 07:15	Prep Batch 685522	Prep Method EPA 3010A	Dilution 1	<b>Analysis Date</b> 06/12/2020 16:58	<b>By</b> TJR	Analytical Batch 685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			27.3	5.00	ug/L

 Collect Date
 06/05/2020 07:05
 LAB ID
 22006094718

 Receive Date
 06/09/2020 11:31
 Matrix
 Water

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
06/10/2020 07:15	685522	EPA 3010A	1	06/12/2020 17:01	TJR	685787
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			ND	5.00	ug/L



**Project ID:** 20060250 **Report Date:** 06/30/2020

# Inorganics QC Summary

Analytical Batch	Client ID	MB685522	LCS6855	522			
685787	LAB ID	2049074	2049075				
Prep Batch	Sample Type	MB	LCS				
685522	Prep Date	06/10/2020 07:1	06/10/2020 07:15				
Prep Method	Analysis Date	06/12/2020 15:4	06/12/20	20 15:44			
EPA 3010A	Matrix	Water	Water				
EPA 602	ΛD	Units	ug/L	Spike	Result	0/. D	Control
EPA 002	Result LOQ		Added	Nesull	/0 K	Limits%R	
Lithium	7439-93-2	ND	5.00	250	251	100	80 - 120

Analytical Batch	Client ID	CCR-2	CCR-2					CCR-2 MSD				
685787	LAB ID	22006094702	22006094703				22006094704					
Prep Batch	Sample Type	SAMPLE	MS				MSD					
685522	Prep Date	06/10/2020 07:1	06/10/2020 07:15				06/10/2020 07:15					
Prep Method	Analysis Date	06/12/2020 15:5	06/12/2020 15:55				06/12/2020 15:58					
EPA 3010A	Matrix	Water		Water			Water					
EPA 602	ΛP	Units	ug/L	Spike	Result	0/ <sub>2</sub> D	Control	Spike	Result	% D	DDD	RPD
EPA 002	UB	Result LOQ		Added	Nesult	70 K	Limits%R	Added	Nesull	70 K	INP D	Limit
Lithium	7439-93-2	21.6	5.00	250	253	93	80 - 120	250	252	92	0	20



### CHAIN OF CUSTODY RECORD

Omega COCID 9309

Client ID: 4462 - Element Materials Technology

SDG: 220060947

PM: JLM

PAG



Website: www.element.com

SUB CONTR	ATOR: GCAL	COMPANY:	Pace Analyti	cal (FKA GCAL)		SPECIAL INSTRUCTIONS / COMMENTS:				
ADDRESS:	7979 GSRI Avenue	)			ELA 032226PO>>:	>>testing for Li				
CITY, STATE	Baton Rouge, LA 7	70820								
PHONE: (22	25) 769-4900 FAX: (225	5) 767-5717 EMAI	IL:							
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.			
	20060250-001C	CCR-1	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1				
1	6020_W_SUB (SW6020A)									
2	20060250-002C	CCR-2	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 3	234			
2	6020_W_SUB (SW6020A)	-	-				0,0,1			
	20060250-003C	CCR-3	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	5			
3	6020_W_SUB (SW6020A)									
	20060250-004C	CCR-4	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	ia			
4	6020_W_SUB (SW6020A)	dica management of the second	<del></del>				N. C.			
_	20060250-005C	CCR-5	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	1			
5	6020_W_SUB (SW6020A)									
	20060250-006C	CCR-6	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	8			
6	6020_W_SUB (SW6020A)					, !				
_	20060250-007C	CCR-7	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	a			
7	6020_W_SUB (SW6020A)									
	20060250-008C	CCR-8	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	10			
8	6020_W_SUB (SW6020A)									
	20060250-009C	CCR-9	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 A	M 1	11			
9	6020_W_SUB (SW6020A)		-			•				
Relinquished B	Yarung of Thooleand Date: 61	8/2020 Time: 1	Received By	Bens Date: 6-8	Time: /600		REPORT TRANSMITTAL DESIRED:			
Relinquished B			Received By:	Date:	Time:	☐ HARDCO	DPY (extra cost)			
Relinquished B	Bens & Date: 6-9-	as Time 31	Received By Suy	Date:	-20 Time: 131	Temp of sar	FOR LAB USE ONLY  *C Attempt to Cool?			
	TAT: Standard	RUSH	Next BD 🗌	2nd BD	3rd BD □	Comments:	E34			
			Note: RUSH re	quests will incur surcharges!						

Revision 1

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### CHAIN OF CUSTODY RECORD

Omega COCID 9309

Client ID: 4462 - Element Materials Technology

SDG: 220060947

PM: JLM

PAGE



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR	ATOR: GCAL	COMPANY:	Pace Analyti	ical (FKA GCAL)	SPECIAL INSTRUCTIONS	/ COMMENTS:		
ADDRESS:	7979 GSRI Avenue	e			ELA 032226PO>>>>	testing for Li		
CITY, STATI	Baton Rouge, LA	70820						
PHONE: (22	25) 769-4900 FAX: (225	5) 767-5717 EMA	IL:					
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	20060250-010C	CCR-10	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		12
10	6020_W_SUB (SW6020A)	)						
44	20060250-011C	CCR-11	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		13
11	6020_W_SUB (SW6020A)							
42	20060250-012C	CCR-12	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		14
12	6020_W_SUB (SW6020A)							
	20060250-013C	CCR-13	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		15
13	6020_W_SUB (SW6020A)			- I				
	20060250-014C	CCR-14	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		110
14	6020_W_SUB (SW6020A)							
45	20060250-015C	Dup	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		17
15	6020_W_SUB (SW6020A)							
16	20060250-016C	FB	250HDPEHNO3	Aqueous	6/5/2020 9:20:00 AM	1		18
16	6020_W_SUB (SW6020A)							

Relinquished By ann of Introducent I	Date: 6/8/2020	Time: /600	Received By with Beanet	Date: 8-20	Time: 1600	REPORT TRANSMITTAL DESIRED:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
Relinquisfied By:  (\$100   Bellin   I  TAT:  Standar	6-9-20	Time) 3/ RUSH	Received By:  Next BD	Date: 6-20 3rd BD	Time: 3/	FOR LAB USE ONLY  Temp of samples  Comments:  Comments:  Comments:  Temp of samples  Temp of samples

Revision 1

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## **SAMPLE RECEIVING CHECKLIST**



SAMPLE DELIVERY GROU	JP 2200609	47	CHECKLIST	YES	NO								
Client PM JLM 4462 - Bernent Materials	Transport M	lethod	Samples received with proper thermal preservation	~									
Technology  Profile Number			Radioactivity is <1600 cpm? If no, record cpm valu	~									
Client PM JLM 4462 - Hement Materials Technology  Profile Number 271810  Line Item(s) 8 - LITHIUMONLY  COOLERS	Received By Savage, Tiffa		COC relinquished and complete (including sample	~									
271010	Cavago, Ilira	ily i v	All containers received in good condition and within	n hold time?	~								
` '	Receive Date	e(s)	All sample labels and containers received match the	~									
8-LITHUMONLY	06/09/20		Preservative added to any containers?			~							
			If received, was headspace for VOC water contained	~									
			Samples collected in containers provided by Pace	Gulf Coast?		~							
COOLERS			DISCREPANCIES	LAB PRESERVATIONS									
Airbill Thermomet	er ID: E34	Temp °C	None	None									
		0.1											
NOTES													

Revision 1.6

Revision 1



2203 S. Madison St., Muncie, IN 47302	2417 W. Pinhook Rd, Lafayette, LA 70508
765-747-9000/800-874-3563 Fax 765-747-0228	337-235-0483/800-737-2378
629 Washington St., Suite 300, Columbus, IN 47201 812-375-0531 Fax 812-375-0531	Fax 337-233-6540  3445 S Sheridan, Tulsa, OK 74145
5738 Industrial Rd., Fort Wayne, IN 46825	918-828-9977/800324-5757
219-471-7000 Fax 219-471-7777	Fax 918-828-7756

Page	1 of -		2					Chain	of C	usto	dy R	lecor	·d					Nun			a	10G	0025	0
Client Nar		Eng	ineer	ing l	LLC		Proje	ect: CCR Assessme	nt Monito	ring	Preserv				1 0)		Te	st Re	ques	ted				
Contact Name: Terry Elnaggar							e #: 5346		O <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	ober / Type	Matrix Code	ride	*6010/**6020 metals	Sub	Mercury									
Phone/Fax: (504) 799-3653					Samp	oler's Signature:			HCI HNO3	4.5	Tatri	Fluoride	09**/0	*6020 S	) Mer						Comm Rem	277/217		
Colle Date	Time	Grab	Сотр			Sam	ple I	dentification / De	escription	n	HCI Na(	Nun	-	300:	*601	9***	7470						Kein	arks
6/5/20	920	Х		С	С	R	-	1			None/ HN	3 Plastic	Aq	Х	Х	Х	Х		_				*6010 Meta Be, Cd, Cr,	
1	825	X		С	С	R	<b>3</b>	2			None/ HN	3 Plastic	Aq	X	X	Χ	Х	Ш		_	_		Mo, Se	CCANACA N
	735	Х		С	С	R		3			None/ HN	03 3 Plastic	Aq	X	X	Х	Х			_	_		**6020 Met Sb,Tl	als: As,
	1010	Х		С	С	R		4			None/ HN	03 3 Plastic	Aq	X	Х	Х	Х				_		50,11	
	1100	Х		С	С	R	-	5			None/ HN	03 3 Plastic	Aq	X	Х	Х	Х			_			***6020 Su	Metal:Li
	1145	Х		С	С	R	-	6			None/ HN	03 3 Plastic	Aq	X	Х	Х	Х	Ш		_				
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4	9315	Х		С	С	R	-	8			None/ HN	03 3 Plastic	Aq	X	Х	Χ	Х			_	-	_		
6/4/100	1150	Х		С	С	R	-	9			None/ HN	03 3 Plastic	Aq	Х	Х	Х	Х			_	+		UPS / FedEx	Airborne
6/4/0	1050	X		С	С	R	-	10		- 19		03 3 Plastic		_	X	X	X			200			/ Element I	land / Mail
All sample	es submitte	ed to	Elem	nent l	Mate	rials 1	echno	ology for analysis are aterials Technology	e accepted	d on a cust ne right to	odial bas return un	sis only. O	wnershole por	nip of tions	the i	mate	rial r	emain	10	P.O. Num	ber			
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DW = Drink GW = Grou WW = Was	king Water and Water	AQ =	liC		SLI	i = Liqu D = So = Slud	lid	Container Types G = Glass P = Plastic V = Vial	✓ Iced	Conditions Inp. 29°Coient ) W	48	Request Hr. I-Hr. her	72-H	lr.		-	Γha	nk-y	ou 1			g Elen nology	nent Mat	erials



2203 S. Madison St., Muncie, IN 47302 765-747-9000/800-874-3563 Fax 765-747-0228	2417 W. Pinhook Rd, Lafayette, LA 70508 337-235-0483/800-737-2378
629 Washington St., Suite 300, Columbus, IN 47201 812-375-0531 Fax 812-375-0531	Fax 337-233-6540  3445 S Sheridan, Tulsa, OK 74145
5738 Industrial Rd., Fort Wayne, IN 46825 219-471-7000 Fax 219-471-7777	918-828-9977/800324-5757 Fax 918-828-7756
Chain of Custody Record	Laboratory Number 3000 250

Page	2 of .		2					(	Chair	10	f C	ustoc	ly	R	ecor	d					Num		., (	Ja	160251	)					
Client Name: Pivotal Engineering LLC								ect: (	CCR Assess	sment	-	serv.	Jo			1 00	_	Te	st Req	uest	ed										
Contact Name: Terry Elnaggar Phone/Fax: (504) 799-3653						e #: 5	346 Signature:	HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	$\mathrm{Na}_2\mathrm{S}_2\mathrm{O}_3$	aber / Type Container	Matrix Code	Fluoride	*6010/**6020 metals	gns (	Mercury					Comm											
Collection & & & Sar				San	nple Identification / Description							NaOH	Number /	Mat	300: Fli	*6010/**	***6020	7470 N						nents / narks							
614	955	X		С	С	R	370	1	1				None/	HNO	3 Plastic	Aq	X	X	X	Х					*6010 Meta	KGC 1 2015					
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6/4	1510	X		C	С	R	140	1	3						3 Plastic		X	X	x	X					**6020 Metals: As,						
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615	830	X		M	S	D	(00					_		_	T /		1			X	$\vdash$	$^{+}$	+	+	- 31						
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All samp	les submitt	ed to	Elem	nent	Mate	rials	Fechno	ology	for analysis s Technolo	are a	accepted	on a cust	odial eturn	basis	only. Ov	wners	nip of	the	mate	rial re	emains		P.O. Numb	er							
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			oy:(Signature) 6/6 Date					Time	Relin	quisho	d by: (Sign	ature)			Rec	Received by Laborat			y:(Signa	ature)	Date	Time									
Matrix Codes           DW = Drinking Water AQ = Aqueous LIQ = Liq           GW = Ground Water O = Oil SLD = So           WW = Waste Water SQ = Soil SL = Sluce					Solid P = Plastic Temp. 2.8°C							Requested TAT     24-Hr.							Thank-you for using Element Technology												



Website: www.element.com

Order No.: 20091073

October 16, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875 New Orleans, LA 70112

TEL: (504) 799-3653

FAX

**RE:** CCR Assessment Monitoring

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 9/30/2020 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.

Where applicable, 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



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

#### **Case Narrative**

WO#: **20091073**Date: **10/16/2020** 

**CLIENT:** Pivotal Engineering LLC **Project:** 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 analysis was subcontracted to Pace Analytical. 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#: **20091073** 

Date Reported: 10/16/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 3:25:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-001 **Matrix:** AQUEOUS

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:18:30 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.257	0.0500	mg/L	1	10/1/2020 8:08:53 PM
METALS IN WATER BY ICP, TO	OTALS		SW60	10B	Analyst: STS
Barium	0.177	0.0100	mg/L	1	10/13/2020 3:22:01 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 6:38:56 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 3:22:01 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 3:22:01 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 3:22:01 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 3:22:01 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 3:22:01 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 3:22:01 PM
METALS IN WATER BY ICP-MS	, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:28:02 PM
Arsenic	0.278	0.250	μg/L	1	10/15/2020 12:28:02 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:28:02 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



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#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 2:40:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-002 **Matrix:** AQUEOUS

**Client Sample ID** CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:20:50 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.261	0.0500	mg/L	1	10/1/2020 8:22:38 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.141	0.0100	mg/L	1	10/13/2020 3:25:49 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 6:42:15 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 3:25:49 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 3:25:49 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 3:25:49 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 3:25:49 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 3:25:49 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 3:25:49 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:30:50 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 12:30:50 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:30:50 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



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#: **20091073** 

Date Reported: 10/16/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 12:40:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-003 **Matrix:** AQUEOUS

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:23:09 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.305	0.0500	mg/L	1	10/1/2020 8:36:22 PM
METALS IN WATER BY ICP, TO	TALS		SW6010B		Analyst: STS
Barium	0.261	0.0100	mg/L	1	10/13/2020 4:03:06 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 6:52:39 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:03:06 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:03:06 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:03:06 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:03:06 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:03:06 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:03:06 PM
METALS IN WATER BY ICP-MS	, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:33:38 PM
Arsenic	8.47	0.250	μg/L	1	10/15/2020 12:33:38 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:33:38 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091073

Date Reported: 10/16/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 10:50:00 AM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-004 **Matrix:** AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:25:27 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.118	0.0500	mg/L	1	10/1/2020 8:50:05 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: STS
Barium	0.103	0.0100	mg/L	1	10/13/2020 4:06:58 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 6:56:01 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:06:58 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:06:58 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:06:58 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:06:58 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:06:58 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:06:58 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:44:51 PM
Arsenic	0.272	0.250	μg/L	1	10/15/2020 12:44:51 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:44:51 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 3:20:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-005 **Matrix:** AQUEOUS

Client Sample ID CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:33:01 AM
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.117	0.0500	mg/L	1	10/1/2020 9:04:02 PM
METALS IN WATER BY ICP, TO	OTALS		SW6010B		Analyst: STS
Barium	0.200	0.0100	mg/L	1	10/13/2020 4:10:47 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 6:59:22 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:10:47 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:10:47 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:10:47 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:10:47 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:10:47 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:10:47 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:47:41 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 12:47:41 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:47:41 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



Element Materials Technology Lafayette 2417 W. Pinhook Road

Lafayette, LA 70508-3344 TEL: (337) 235-0483 FAX: (337) 233-6540

0-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073** 

Date Reported: 10/16/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 2:30:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-006 **Matrix:** AQUEOUS

Client Sample ID CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WAT	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:35:20 AM
INORGANIC ANIONS IN WAT	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.177	0.0500	mg/L	1	10/1/2020 9:17:46 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Barium	0.188	0.0100	mg/L	1	10/13/2020 4:14:34 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:02:43 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:14:34 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:14:34 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:14:34 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:14:34 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:14:34 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:14:34 PM
METALS IN WATER BY ICP-I	MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:50:28 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 12:50:28 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:50:28 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 1:30:00 PM

**Project:** CCR Assessment Monitoring

Lab ID: 20091073-007 Matrix: AQUEOUS

**Client Sample ID** CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:37:39 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.186	0.0500	mg/L	1	10/1/2020 9:31:34 PM
METALS IN WATER BY ICP, TO	TALS		SW6010E		Analyst: STS
Barium	0.207	0.0100	mg/L	1	10/13/2020 4:18:39 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:06:05 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:18:39 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:18:39 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:18:39 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:18:39 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:18:39 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:18:39 PM
METALS IN WATER BY ICP-MS	, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:53:16 PM
Arsenic	0.355	0.250	μg/L	1	10/15/2020 12:53:16 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:53:16 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 11:35:00 AM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-008 **Matrix:** AQUEOUS

Client Sample ID CCR-8

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WAT	ΓER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:39:58 AM
INORGANIC ANIONS IN WA	TER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.0632	0.0500	mg/L	1	10/1/2020 9:45:17 PM
METALS IN WATER BY ICP,	TOTALS		SW60	10B	Analyst: STS
Barium	0.106	0.0100	mg/L	1	10/13/2020 4:22:33 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:09:28 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:22:33 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:22:33 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:22:33 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:22:33 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:22:33 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:22:33 PM
METALS IN WATER BY ICP-	MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:56:04 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 12:56:04 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:56:04 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20091073 Date Reported: 10/16/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 9/29/2020 10:30:00 AM

CCR Assessment Monitoring **Project:** 

Lab ID: 20091073-009 Matrix: AQUEOUS

Client Sample ID CCR-9

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	TER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:42:17 AM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.446	0.0500	mg/L	1	10/1/2020 9:59:00 PM
METALS IN WATER BY ICP	, TOTALS		SW60	10B	Analyst: STS
Barium	0.226	0.0100	mg/L	1	10/13/2020 4:26:23 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:12:51 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:26:23 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:26:23 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:26:23 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:26:23 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:26:23 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:26:23 PM
METALS IN WATER BY ICP	-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 12:58:52 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 12:58:52 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 12:58:52 PM

Value above quantitation range Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



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(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 9:40:00 AM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-010 **Matrix:** AQUEOUS

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATE	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:52:42 AM
INORGANIC ANIONS IN WAT	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.532	0.0500	mg/L	1	10/1/2020 10:12:58 PM
METALS IN WATER BY ICP, 1	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.236	0.0100	mg/L	1	10/13/2020 4:38:39 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:23:00 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:38:39 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:38:39 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:38:39 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:38:39 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:38:39 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:38:39 PM
METALS IN WATER BY ICP-N	IS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:10:03 PM
Arsenic	1.82	0.250	μg/L	1	10/15/2020 1:10:03 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:10:03 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



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**Analytical Report** 

(consolidated)

WO#: 20091073 Date Reported: 10/16/2020

Pivotal Engineering LLC **CLIENT: Collection Date:** 9/29/2020 8:40:00 AM

**Project: CCR** Assessment Monitoring

Lab ID: 20091073-011 Matrix: AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	Analyst: <b>BXB</b>		
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 7:55:01 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: SGP
Fluoride	0.669	0.0500	mg/L	1	10/1/2020 10:54:10 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: STS
Barium	0.133	0.0100	mg/L	1	10/13/2020 4:54:33 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:33:06 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:54:33 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:54:33 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:54:33 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:54:33 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:54:33 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:54:33 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:23:21 PM
Arsenic	1.32	0.250	μg/L	1	10/15/2020 1:23:21 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:23:21 PM

Value above quantitation range Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



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#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 5:40:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-012 **Matrix:** AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 8:02:34 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.0781	0.0500	mg/L	1	10/1/2020 11:07:54 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.176	0.0100	mg/L	1	10/13/2020 4:58:20 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:36:26 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 4:58:20 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 4:58:20 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 4:58:20 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 4:58:20 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 4:58:20 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 4:58:20 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:26:10 PM
Arsenic	1.51	0.250	μg/L	1	10/15/2020 1:26:10 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:26:10 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 4:55:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-013 **Matrix:** AQUEOUS

Client Sample ID CCR-13

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 8:04:55 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.171	0.0500	mg/L	1	10/1/2020 11:21:38 PM
METALS IN WATER BY ICI	P, TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.0999	0.0100	mg/L	1	10/13/2020 5:02:09 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:39:45 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 5:02:09 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 5:02:09 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 5:02:09 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 5:02:09 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 5:02:09 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 5:02:09 PM
METALS IN WATER BY ICI	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:28:58 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 1:28:58 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:28:58 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 4:15:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-014 **Matrix:** AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 8:07:13 AM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.0857	0.0500	mg/L	1	10/1/2020 11:35:23 PM
METALS IN WATER BY ICE	P, TOTALS		SW60	10B	Analyst: STS
Barium	0.0734	0.0100	mg/L	1	10/13/2020 5:05:57 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:43:06 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 5:05:57 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 5:05:57 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 5:05:57 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 5:05:57 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 5:05:57 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 5:05:57 PM
METALS IN WATER BY ICE	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:31:46 PM
Arsenic	1.08	0.250	μg/L	1	10/15/2020 1:31:46 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:31:46 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091073

Date Reported: 10/16/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-015 **Matrix:** AQUEOUS

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATE	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 8:09:31 AM
INORGANIC ANIONS IN WAT	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.641	0.0500	mg/L	1	10/1/2020 11:49:06 PM
METALS IN WATER BY ICP, 1	TOTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.136	0.0100	mg/L	1	10/13/2020 5:09:43 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:46:27 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 5:09:43 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 5:09:43 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 5:09:43 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 5:09:43 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 5:09:43 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 5:09:43 PM
METALS IN WATER BY ICP-N	IS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:34:34 PM
Arsenic	1.40	0.250	μg/L	1	10/15/2020 1:34:34 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:34:34 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091073**Date Reported: **10/16/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 3:30:00 PM

**Project:** CCR Assessment Monitoring

**Lab ID:** 20091073-016 **Matrix:** AQUEOUS

Client Sample ID FB

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WA	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	10/2/2020 8:11:50 AM
INORGANIC ANIONS IN WA	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	10/2/2020 10:29:02 AM
METALS IN WATER BY ICF	P, TOTALS		SW60	10B	Analyst: STS
Barium	< 0.0100	0.0100	mg/L	1	10/13/2020 5:14:01 PM
Beryllium	< 0.00100	0.00100	mg/L	1	10/15/2020 7:49:49 PM
Cadmium	< 0.00500	0.00500	mg/L	1	10/13/2020 5:14:01 PM
Chromium	< 0.0100	0.0100	mg/L	1	10/13/2020 5:14:01 PM
Cobalt	< 0.0100	0.0100	mg/L	1	10/13/2020 5:14:01 PM
Lead	< 0.0100	0.0100	mg/L	1	10/13/2020 5:14:01 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	10/13/2020 5:14:01 PM
Selenium	< 0.0200	0.0200	mg/L	1	10/13/2020 5:14:01 PM
METALS IN WATER BY ICF	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	10/15/2020 1:37:21 PM
Arsenic	< 0.250	0.250	μg/L	1	10/15/2020 1:37:21 PM
Thallium	< 0.250	0.250	μg/L	1	10/15/2020 1:37:21 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



**PQL** 

0.000200

Result

0.0101

### **QC SUMMARY REPORT**

WO#: **20091073** 

%RPD RPDLimit Qual

16-Oct-20

**Client:** Pivotal Engineering LLC

Analyte

Mercury

Project: CCR Assessment Monitoring BatchID: 35453

SPK value SPK Ref Val

0.01000

Website: www.element.com

Sample ID MB-35453	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470</b> Units: <b>mg/L</b>	Prep Date: 10/1/2020	RunNo: <b>92886</b>
Client ID: PBW	Batch ID: 35453	TestNo: SW7470A	Analysis Date: 10/2/2020	SeqNo: <b>2297580</b>
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-35453	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470</b> Units: <b>mg/L</b>	Prep Date: 10/1/2020	RunNo: 92886
Client ID: LCSW	Batch ID: 35453	TestNo: SW7470A	Analysis Date: 10/2/2020	SeqNo: <b>2297581</b>

%REC

101

Sample ID LCSD-35453 Client ID: LCSS02	SampType: LCSD Batch ID: 35453	TestCode: <b>HG_W_7470</b> Units: <b>mg/L</b> TestNo: <b>SW7470A</b>			Prep Date: <b>10/1/2020</b> Analysis Date: <b>10/2/2020</b>				RunNo: <b>92886</b> SeqNo: <b>2297582</b>		
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	0.01013	2.88	20	

0

Sample ID 20091073-009BMS	S SampType: MS	TestCode	: HG_W_74	70 Units: mg/L		Prep Dat	te: <b>10/1/20</b>	20	RunNo: 928	886	
Client ID: CCR-9	Batch ID: 35453	TestNo: SW7470A			Analysis Date: 10/2/2020			20	SeqNo: <b>2297597</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00987	0.000200	0.01000	0	98.7	75	125				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

M Matrix Interference

LowLimit HighLimit RPD Ref Val

120

80

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



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#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35453

Sample ID	20091073-009BMSD	SampType:	MSD	TestCode: <b>HG_W_7470</b> Units: <b>mg/L</b>				Prep Da	te: <b>10/1/2</b> 0	)20	RunNo: 92886			
Client ID:	CCR-9	Batch ID:	35453	TestN	TestNo: SW7470A			Analysis Date: 10/2/2020				SeqNo: <b>2297598</b>		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury			0.0100	0.000200	0.01000	0	100	75	125	0.009867	1.36	20		

M

U Analyte not detected



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35473A

Website: www.element.com

Sample ID MB-35473 Client ID: PBW	SampType: MBLK  Batch ID: 35473A		de: 6010_W No: SW6010B	Units: mg/L		•	te: 10/2/2020 te: 10/13/2020		RunNo: <b>94137</b> SeqNo: <b>2304638</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Va	al %RPD	RPDLimit	Qual	
Barium	< 0.0100	0.0100									
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-35473	SampType: <b>LCS</b>	TestCod	le: <b>6010_W</b>	Units: mg/L		Prep Date: 10/2/2020			RunNo: 94137		
Client ID: LCSW	Batch ID: 35473A	TestN	lo: <b>SW6010B</b>		Analysis Date: 10/13/2020			SeqNo: <b>2304639</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.469	0.0100	0.5000	0	93.8	80	120				
Cadmium	0.464	0.00500	0.5000	0	92.9	80	120				
Chromium	0.463	0.0100	0.5000	0	92.6	80	120				
Cobalt	0.471	0.0100	0.5000	0	94.1	80	120				
Lead	0.466	0.0100	0.5000	0	93.1	80	120				
Molybdenum	0.459	0.0100	0.5000	0	91.9	80	120				
Selenium	0.482	0.0200	0.5000	0	96.4	80	120				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

M

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35473A

Website: www.element.com

Sample ID LCSD-35473	SampType: <b>LCSD</b>	TestCode: 6010_W Units: mg/L		Prep Date: 10/2/2020				RunNo: 94			
Client ID: LCSS02	Batch ID: <b>35473A</b>	Test	No: <b>SW6010B</b>		Analysis Date: 10/13/2020			SeqNo: <b>2304640</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.452	0.0100	0.5000	0	90.5	80	120	0.4692	3.67	20	
Cadmium	0.449	0.00500	0.5000	0	89.8	80	120	0.4645	3.42	20	
Chromium	0.445	0.0100	0.5000	0	88.9	80	120	0.4628	4.01	20	
Cobalt	0.455	0.0100	0.5000	0	90.9	80	120	0.4706	3.46	20	
Lead	0.449	0.0100	0.5000	0	89.9	80	120	0.4657	3.58	20	
Molybdenum	0.446	0.0100	0.5000	0	89.1	80	120	0.4593	3.01	20	
Selenium	0.466	0.0200	0.5000	0	93.3	80	120	0.4821	3.31	20	

Sample ID <b>20091073-009BMS</b>	SampType: <b>MS</b>	TestCode: 6010_W		Units: mg/L		Prep Date: 10/2/2020			RunNo: 94		
Client ID: CCR-9	Batch ID: 35473A	TestN	No: <b>SW6010B</b>		Analysis Date: 10/13/2020			SeqNo: <b>2304653</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.676	0.0100	0.5000	0.2256	90.0	75	125				
Cadmium	0.452	0.00500	0.5000	0.002500	89.8	75	125				
Chromium	0.452	0.0100	0.5000	0.002600	89.8	75	125				
Cobalt	0.455	0.0100	0.5000	0.001200	90.7	75	125				
Lead	0.451	0.0100	0.5000	0.006700	88.9	75	125				
Molybdenum	0.450	0.0100	0.5000	0.006700	88.7	75	125				
Selenium	0.460	0.0200	0.5000	0.005900	90.8	75	125				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

RL Reporting Limit

Analyte not detected

M Matrix Interference

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35473A

Website: www.element.com

Sample ID 20091073-009BMSD	SampType: <b>MSD</b>	TestCod	de: <b>6010_W</b>	Units: mg/L	Units: mg/L Prep Date: 10/2/2020			RunNo: <b>94137</b>			
Client ID: CCR-9	Batch ID: 35473A	TestN	No: <b>SW6010B</b>		Analysis Date: 10/13/2020			SeqNo: <b>2304654</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.675	0.0100	0.5000	0.2256	90.0	75	125	0.6755	0.0148	20	
Cadmium	0.451	0.00500	0.5000	0.002500	89.8	75	125	0.4515	0.0222	20	
Chromium	0.450	0.0100	0.5000	0.002600	89.5	75	125	0.4516	0.377	20	
Cobalt	0.454	0.0100	0.5000	0.001200	90.6	75	125	0.4546	0.110	20	
Lead	0.449	0.0100	0.5000	0.006700	88.5	75	125	0.4510	0.400	20	
Molybdenum	0.454	0.0100	0.5000	0.006700	89.4	75	125	0.4501	0.841	20	
Selenium	0.468	0.0200	0.5000	0.005900	92.4	75	125	0.4600	1.66	20	

M

RL Reporting Limit

U Analyte not detected

S Spike Recovery outside accepted recovery limits



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### **QC SUMMARY REPORT**

WO#: 20091073

16-Oct-20

Pivotal Engineering LLC **Client:** 

Project: CCR Assessmen	t Monitoring		BatchID:	35473C
Sample ID MB-35473	SampType: <b>MBLK</b>	TestCode: 6010_W Units: mg/L	Prep Date: 10/2/2020	RunNo: <b>94250</b>
Client ID: PBW	Batch ID: <b>35473C</b>	TestNo: SW6010B	Analysis Date: <b>10/15/2020</b>	SeqNo: <b>2308084</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Beryllium	< 0.00100	0.00100		
Sample ID LCS-35473	SampType: <b>LCS</b>	TestCode: 6010_W Units: mg/L	Prep Date: <b>10/2/2020</b>	RunNo: <b>94250</b>
Client ID: LCSW	Batch ID: 35473C	TestNo: SW6010B	Analysis Date: <b>10/15/2020</b>	SeqNo: <b>2308085</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Beryllium	0.494	0.00100 0.5000 0	98.8 80 120	
Sample ID LCSD-35473	SampType: <b>LCSD</b>	TestCode: 6010_W Units: mg/L	Prep Date: <b>10/2/2020</b>	RunNo: <b>94250</b>
Client ID: LCSS02	Batch ID: 35473C	TestNo: SW6010B	Analysis Date: 10/15/2020	SeqNo: <b>2308086</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Beryllium	0.493	0.00100 0.5000 0	98.6 80 120 0.4941	0.243 20
Sample ID <b>20091073-009BMS</b>	SampType: <b>MS</b>	TestCode: 6010_W Units: mg/L	Prep Date: <b>10/2/2020</b>	RunNo: <b>94250</b>
Client ID: CCR-9	Batch ID: <b>35473C</b>	TestNo: SW6010B	Analysis Date: 10/15/2020	SeqNo: <b>2308098</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Beryllium	0.487	0.00100 0.5000 0	97.4 75 125	

Qualifiers:

Value above quantitation range

Not Detected at the Reporting Limit

Sample detection limit

Holding times for preparation or analysis exceeded

Reporting Limit

Analyte not detected

Matrix Interference M

Spike Recovery outside accepted recovery limits

Sample container temperature is out of limit as sp



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#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35473C

Sample ID	20091073-009BMSD	SampType: <b>MSD</b>	TestCode: 6010_W		Units: mg/L	Prep Date: 10/2/2020			RunNo: 942			
Client ID:	CCR-9	Batch ID: <b>35473C</b>	Test	No: <b>SW6010B</b>			Analysis Da	te: <b>10/15/2</b>	020	SeqNo: 230	08099	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bervllium		0.485	0.00100	0.5000	0	96.9	75	125	0.4871	0.515	20	

M



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35474

Website: www.element.com

Sample ID MB-35474	SampType: <b>MBLK</b>	TestCode: 6020A_W Units: µg/L		Prep Date: 10/2/2020	RunNo: <b>94236</b>
Client ID: PBW	Batch ID: 35474	TestNo: SW6020A		Analysis Date: 10/15/2020	SeqNo: <b>2307202</b>
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-35474 Client ID: LCSW	SampType: LCS  Batch ID: 35474		TestCode: 6020A_W Units: μg/L TestNo: SW6020A			Prep Da Analysis Da	te: 10/2/20 te: 10/15/2	RunNo: <b>94236</b> SeqNo: <b>2307203</b>			
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				
Arsenic	505	5.00	500.0	0	101	80	120				
Thallium	523	5.00	500.0	0	105	80	120				

Sample ID LCSD-35474 Client ID: LCSS02	SampType: LCSD Batch ID: 35474		de: 6020A_W lo: SW6020A	1.5	nits: μg/L Prep Date: 10/2/2020 Analysis Date: 10/15/2020			RunNo: <b>94236</b> SeqNo: <b>2307204</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	465	5.00	500.0	0	93.0	80	120	468.2	0.685	20	
Arsenic	487	5.00	500.0	0	97.5	80	120	505.4	3.62	20	
Thallium	508	5.00	500.0	0	102	80	120	522.5	2.76	20	

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 35474

Website: www.element.com

Sample ID 20091073-009BMS	SampType: MS	_		Units: µg/L	Prep Date: 10/2/2020				RunNo: 942		
Client ID: CCR-9	Batch ID: <b>35474</b>	Testi	lo: <b>SW6020A</b>		Analysis Date: 10/15/2020			SeqNo: <b>2307218</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	486	5.00	500.0	0	97.1	75	125				
Arsenic	522	5.00	500.0	0.2320	104	75	125				
Thallium	502	5.00	500.0	0	100	75	125				

Sample ID	20091073-009BMSD	SampType: MSD	TestCod	le: <b>6020A_W</b>	Units: µg/L		Prep Dat	te: <b>10/2/20</b>	20	RunNo: 942	236	
Client ID:	CCR-9	Batch ID: <b>35474</b>	TestN	lo: <b>SW6020A</b>		Analysis Date: 10/15/2020			SeqNo: <b>2307219</b>			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		477	5.00	500.0	0	95.4	75	125	485.7	1.81	20	
Arsenic		526	5.00	500.0	0.2320	105	75	125	521.9	0.860	20	
Thallium		502	5.00	500.0	0	100	75	125	502.2	0.111	20	

M

RL Reporting Limit

U Analyte not detected

Matrix Interference

S Spike Recovery outside accepted recovery limits



Website: www.element.com

### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessmen	t Monitoring			BatchID:	R92870
Sample ID MBLK	SampType: <b>MBLK</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92870</b>
Client ID: PBW	Batch ID: <b>R92870</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/1/2020	SeqNo: <b>2297131</b>
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: <b>LCS</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92870</b>
Client ID: LCSW	Batch ID: <b>R92870</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/1/2020	SeqNo: <b>2297132</b>
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	100 90 110	
Sample ID LCSD	SampType: <b>LCSD</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92870</b>
Client ID: LCSS02	Batch ID: <b>R92870</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/1/2020	SeqNo: <b>2297133</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	1.93	0.0500 2.000	0	96.4 90 110 2.000	3.66 15
Sample ID <b>20091073-009AMS</b>	SampType: <b>MS</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92870</b>
Client ID: CCR-9	Batch ID: <b>R92870</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/1/2020	SeqNo: <b>2297143</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	9.51	0.500 10.00	0	95.1 80 120	

Qualifiers: E Value above

E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: R92870

Website: www.element.com

Project:	CCR Assessment	Monitoring							BatchID:	R92870		
Sample ID	20091073-009AMSD	SampType: MSD	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date	e:		RunNo: 92	870	
Client ID:	CCR-9	Batch ID: <b>R92870</b>	TestN	No: <b>E 300.0</b>		Analysis Date: 10/1/2020			SeqNo: 22			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		9.08	0.500	10.00	0	90.8	80	120	9.506	4.54	15	
Sample ID	20091073-016AMS	SampType: <b>MS</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date	e:		RunNo: 92	870	
Client ID:	FB	Batch ID: <b>R92870</b>	TestN	lo: <b>E 300.0</b>			Analysis Date	e: <b>10/1/2</b> 0	)20	SeqNo: 22	97154	
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	20091073-016AMSD	SampType: MSD	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date	e:		RunNo: 92	870	
Client ID:	FB	Batch ID: <b>R92870</b>	TestN	lo: <b>E 300.0</b>			Analysis Date	e: <b>10/1/2</b> 0	020	SeqNo: 22	97155	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

0

98.4

80

120

Qualifiers:

Fluoride

Value above quantitation range

0.984

0.0500

ND Not Detected at the Reporting Limit

SDL Sample detection limit

Holding times for preparation or analysis exceeded

RL Reporting Limit

1.000

U Analyte not detected

M Matrix Interference

S Spike Recovery outside accepted recovery limits

1.044

5.94

15

W Sample container temperature is out of limit as st



Website: www.element.com

## **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessmen	t Monitoring			BatchID:	R92913
Sample ID MBLK	SampType: MBLK	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92913</b>
Client ID: PBW	Batch ID: <b>R92913</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/2/2020	SeqNo: <b>2298292</b>
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: <b>LCS</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92913</b>
Client ID: LCSW	Batch ID: <b>R92913</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/2/2020	SeqNo: <b>2298293</b>
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: <b>LCSD</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92913</b>
Client ID: LCSS02	Batch ID: <b>R92913</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/2/2020	SeqNo: <b>2298294</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	1.96	0.0500 2.000	0	98.0 90 110 2.016	2.83 15
Sample ID <b>20091073-016AMS</b>	SampType: <b>MS</b>	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: <b>92913</b>
Client ID: FB	Batch ID: <b>R92913</b>	TestNo: <b>E 300.0</b>		Analysis Date: 10/2/2020	SeqNo: <b>2298296</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	1.07	0.0500 1.000	0	107 80 120	

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



### **QC SUMMARY REPORT**

WO#: **20091073** 

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: R92913

Website: www.element.com

Sample ID	20091073-016AMSD	SampType:	MSD	TestCode: 300.0		Units: mg/L	Prep Date:				RunNo: 929		
Client ID:	FB	Batch ID:	R92913	TestN	TestNo: <b>E 300.0</b>		Analysis Date: 10/2/2020				SeqNo: <b>22</b> 9		
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	1.044	0.528	15	

M

U Analyte not detected

S Spike Recovery outside accepted recovery limits



TEL: (337) 235-0483 FAX: (337) 233-6540

#### Sample Log-In Check List

Website: www.element.com Client Name: **PIVOTAL ENGINEERIN** Work Order Number: 20091073 RcptNo: 1 Janns of Thodeaux Janns of Thodeaux Cuthi Diplining 9/30/2020 7:05:00 AM Logged by: **Tammy Thibodeaux** Completed By: Tammy Thibodeaux 9/30/2020 8:51:40 AM **Caitlin Duplantis** 10/6/2020 12:11:45 PM Reviewed By: Chain of Custody Yes No 🗸 Not Present 1 Is Chain of Custody complete? 2 How was the sample delivered? Drop Off Box Log In Yes 🗸 No 🗌 NA 🗌 3. Coolers are present? Yes 🗸 No  $\square$ 4 Shipping container/cooler in good condition? Yes Custody seals intact on shipping container/cooler? No  $\square$ Not Present Signed By: Seal Date: Yes 🗸 No 🗌 NA 🗌 5. Was an attempt made to cool the samples? Yes 🗸 NA 🗌 6 Were all samples received at a temperature of >0° C to 6.0°C No 7. Sample(s) in proper container(s)? 8. Sufficient sample volume for indicated test(s)? **✓** 9. Are samples (except VOA and ONG) properly preserved? No 🗌 Yes 10. Was preservative added to bottles? Yes No 🗸 NA  $\square$ No 🗌 No VOA Vials 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes 12. Were any sample containers received broken? No 🗸 13. Does paperwork match bottle labels? Yes (Note discrepancies on chain of custody) Yes 🗸 14. Are matrices correctly identified on Chain of Custody? 15. Is it clear what analyses were requested? Yes 🗸 16. Were all holding times able to be met? No  $\square$ (If no, notify customer for authorization.) Special Handling (if applicable) NA 🗌 Yes 🗸 No  $\square$ 17. Was client notified of all discrepancies with this order? Person Notified: Date Terry Elnaggar 9/30/2020 By Whom: Via: ✓ eMail Phone Fax In Person Caitlin Duplantis Regarding: Confirm am/pm for collection times.

18. Additional remarks:

No sampler's signature by client.

Client Instructions:

Added year of collection to COC as per samples received.

See attached email.

#### **Cooler Information**

Cooler No	Temp ⁰C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Not Present			

#### **Caitlin Duplantis**

From: Courtland Parr <cparr@pivotaleng.com>
Sent: Wednesday, September 30, 2020 12:26 PM

To: Caitlin Duplantis
Cc: Terry Elnaggar

Subject: Re: Confirm Collection Times: 20091073, Entergy: CCR & CADL Constituents

**CAUTION:** This email originated from outside of Element Materials Technology. **DO NOT** click links or open attachments unless you recognize the sender and know the content is safe. Please contact IT Service Desk if you are in any doubt about this email.

#### Caitlin,

The times for the samples are as follows.

CCR-1 P.M.

CCR-2 P.M.

CCR-3 P.M.

CCR-4 A.M.

CCR-5 P.M.

CCR-6 P.M.

CCR-7 P.M.

CCR-8 A.M.

CCR-9 A.M.

CCR-10 A.M.

CCR-11 A.M.

CCR-12 P.M.

CCR-13 P.M.

CCR-14 P.M.

MS A.M.

MSD A.M.

FB P.M.

Thanks.

# Courtland Parr | Environmental Project Manager Pivotal Engineering, LLC

O: <u>504-799-3653</u> C: <u>337-967-3749</u>

**From:** "<CustomerService.Lafayette@element.com>"

<CustomerService.Lafayette@Element.com>
Date: September 30, 2020 at 9:34:48 AM CDT

To: telnaggar@pivotaleng.com

**Cc:** Caitlin.Duplantis@element.com

Subject: Confirm Collection Times: 20091073, Entergy: CCR & CADL

**Constituents** 

Terry,

Can you please clarify if the collection times are AM or PM on the attached COC?

Please feel free to contact me by email at Caitlin.Duplantis@element.com with any questions.

Sincerely,

Caitlin Duplantis
Project Manager
Caitlin.Duplantis@element.com
2417 W. Pinhook Road
Lafayette, LA 70508-3344
Element Materials Technology Lafayette
TEL: (337) 235-0483 ()

FAX: (337) 233-6540 www.element.com

<COC\_20091073\_v1.pdf>



# **ANALYTICAL RESULTS**

#### **PERFORMED BY**

**Pace Analytical Gulf Coast** 

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

**Report Date** 10/11/2020



**Project** 20091073

Deliver To

Annie Reedy

**Element Materials Technology** 

2417 W Pinhook Rd Lafayette, LA 70508 800-737-2378

**Additional Recipients** 

Caitlin Duplantis, Element Materials

Technology

Cristina Thibeaux, Element Materials

Technology

Rhonda David, Element Materials Technology

Buffy Bryant, Element Materials Technology









Report#: 220100336

**Project ID:** 20091073 **Report Date:** 10/11/2020

#### 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

Organics - The result is estimated because it exceeded the instrument calibration range

E Metals - % diference 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 220100336



**Report#:** 220100336

**Project ID:** 20091073 **Report Date:** 10/11/2020

## 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		



**Project ID:** 20091073 **Report Date:** 10/11/2020

## Case Narrative

Client: Element Materials Technology Report: 220100336

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).



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
22010033601	CCR-1	Water	09/28/2020 15:25	10/02/2020 10:27
22010033602	CCR-2	Water	09/28/2020 14:40	10/02/2020 10:27
22010033603	CCR-3	Water	09/28/2020 12:40	10/02/2020 10:27
22010033604	CCR-4	Water	09/28/2020 10:50	10/02/2020 10:27
22010033605	CCR-5	Water	09/29/2020 15:20	10/02/2020 10:27
22010033606	CCR-6	Water	09/29/2020 14:30	10/02/2020 10:27
22010033607	CCR-7	Water	09/29/2020 13:30	10/02/2020 10:27
22010033608	CCR-8	Water	09/29/2020 11:35	10/02/2020 10:27
22010033609	CCR-9	Water	09/29/2020 10:30	10/02/2020 10:27
22010033610	CCR-9 MS	Water	09/29/2020 10:30	10/02/2020 10:27
22010033611	CCR-9 MSD	Water	09/29/2020 10:30	10/02/2020 10:27
22010033612	CCR-10	Water	09/29/2020 09:40	10/02/2020 10:27
22010033613	CCR-11	Water	09/29/2020 08:40	10/02/2020 10:27
22010033614	CCR-12	Water	09/28/2020 17:40	10/02/2020 10:27
22010033615	CCR-13	Water	09/28/2020 16:55	10/02/2020 10:27
22010033616	CCR-14	Water	09/28/2020 16:15	10/02/2020 10:27
22010033617	DUP	Water	09/29/2020 00:01	10/02/2020 10:27
22010033618	FB	Water	09/29/2020 15:30	10/02/2020 10:27



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Results

CCR-1	Collect Date	09/28/2020 15:25	LAB ID	22010033601
CCR-1	Receive Date	10/02/2020 10:27	Matrix	Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 14:23	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.024	0.0013	0.0050	mg/L

CCR-2	Collect Date	09/28/2020 14:40	LAB ID	22010033602	
CCR-2	Receive Date	10/02/2020 10:27	Matrix	Water	

## EPA 6020B

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 14:28	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.023	DL 0.0013	LOQ 0.0050	Units mg/L

CCR-3	Collect Date	09/28/2020 12:40	LAB ID	22010033603
CCK-3	Receive Date	10/02/2020 10:27	Matrix	Water

## EPA 6020B

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 14:33	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.028	DL 0.0013	LOQ 0.0050	Units mg/L

CCR-4	Collect Date	09/28/2020 10:50	LAB ID	22010033604	
CCR-4	Receive Date	10/02/2020 10:27	Matrix	Water	

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	<b>Analytical Batch</b>	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 14:37	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.019	0.0013	0.0050	mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Results

 CCR-5
 Collect Date
 09/29/2020 15:20
 LAB ID
 22010033605

 Receive Date
 10/02/2020 10:27
 Matrix
 Water

#### **EPA 6020B**

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 14:51	<b>By</b> LWZ	Analytical Batch 694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.023	0.0013	0.0050	mg/L

CCR-6	Collect Date	09/29/2020 14:30	LAB ID	22010033606	
CCR-6	Receive Date	10/02/2020 10:27	Matrix	Water	

### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 14:55	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.015	0.0013	0.0050	mg/L

CCR-7	Collect Date	09/29/2020 13:30	LAB ID	22010033607
CCR-7	Receive Date	10/02/2020 10:27	Matrix	Water

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:00	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.016	DL 0.0013	LOQ 0.0050	Units mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Results

CCR-8	Collect Date	09/29/2020 11:35	LAB ID	22010033608
CCK-6	Receive Date	10/02/2020 10:27	Matrix	Water

## EPA 6020B

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:04	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.038	DL 0.0013	LOQ 0.0050	Units mg/L

CCP 0	Collect Date	09/29/2020 10:30	LAB ID	22010033609	
CCR-9	Receive Date	10/02/2020 10:27	Matrix	Water	

## EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 15:09	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.013	0.0013	0.0050	mg/L

CCD O MC	Collect Date	09/29/2020 10:30	LAB ID	22010033610
CCR-9 MS	Receive Date	10/02/2020 10:27	Matrix	Water

<b>Prep Date</b> 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:14	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.27	DL 0.0013	LOQ 0.0050	Units mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Results

 CCR-9 MSD
 Collect Date
 09/29/2020 10:30
 LAB ID
 22010033611

 Receive Date
 10/02/2020 10:27
 Matrix
 Water

#### **EPA 6020B**

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:18	<b>By</b> LWZ	Analytical Batch 694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.25	0.0013	0.0050	mg/L

CCR-10	Collect Date	09/29/2020 09:40	LAB ID	22010033612		
	CR-10	Receive Date	10/02/2020 10:27	Matrix	Water	

## EPA 6020B

Prep Date	Prep Batch	<b>Prep Method</b>	Dilution	Analysis Date	Ву	<b>Analytical Batch</b>	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 15:32	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.0097	0.0013	0.0050	mg/L

CCR-11	Collect Date	09/29/2020 08:40	LAB ID	22010033613
CCR-11	Receive Date	10/02/2020 10:27	Matrix	Water

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:36	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.0077	DL 0.0013	LOQ 0.0050	Units mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Sample Results

CCR-12 Collect Date 09/28/2020 17:40 LAB ID 22010033614

Receive Date 10/02/2020 10:27 Matrix Water

### **EPA 6020B**

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 15:41	<b>By</b> LWZ	Analytical Batch 694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.027	0.0013	0.0050	mg/L

CCR-13	Collect Date	09/28/2020 16:55	LAB ID	22010033615	
CCR-13	Receive Date	10/02/2020 10:27	Matrix	Water	

## EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	<b>Analytical Batch</b>	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 15:55	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.019	0.0013	0.0050	mg/L

CCR-14	Collect Date	09/28/2020 16:15	LAB ID	22010033616
CCR-14	Receive Date	10/02/2020 10:27	Matrix	Water

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 16:00	<b>By</b> LWZ	Analytical Batch 694324	
CAS# 7439-93-2	Parameter Lithium			Result 0.017	DL 0.0013	LOQ 0.0050	Units mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

## Sample Results

 Collect Date
 09/29/2020 00:01
 LAB ID
 22010033617

 Receive Date
 10/02/2020 10:27
 Matrix
 Water

#### **EPA 6020B**

Prep Date 10/05/2020 07:00	Prep Batch 693928	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 10/09/2020 16:05	<b>By</b> LWZ	Analytical Batch 694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.0082	0.0013	0.0050	mg/L

FB Collect Date 09/29/2020 15:30 LAB ID 22010033618

Receive Date 10/02/2020 10:27 Matrix Water

Prep Date	Prep Batch	<b>Prep Method</b>	Dilution	Analysis Date	Ву	<b>Analytical Batch</b>	
10/05/2020 07:00	693928	EPA 3010A	1	10/09/2020 16:09	LWZ	694324	
CAS#	Parameter			Result	DL	LOQ	Units
7439-93-2	Lithium			0.0013U	0.0013	0.0050	mg/L



**Project ID:** 20091073 **Report Date:** 10/11/2020

# Inorganics QC Summary

Analytical Batch Client ID		MB693928		LCS693928			
694324	2092632	2092633					
Prep Batch	MB	LCS					
693928	Prep Date	10/05/20 07:00		10/05/20	07:00		
Prep Method	Analysis Date	10/09/20 14:14		10/09/20	14:19		
EPA 3010A	Matrix	Water		Water			
EPA 602	ΛP	Units	mg/L	Spike	Result	0/, D	Control
EPA 002	VB	Result	DL	Added	Nesult	/0 K	Limits%R
Lithium	7439-93-2	0.0013U	0.0013	0.25	0.25	98	80 - 120

Analytical Batch	Client ID	CCR-9	CCR-9					CCR-9 M	CCR-9 MSD			
694324	LAB ID	22010033609	22010033610			22010033611						
Prep Batch	Sample Type	SAMPLE	MS				MSD					
693928	Prep Date	10/05/2020 07	7:00	10/05/20 07:00				10/05/20 07:00				
Prep Method	Analysis Date	10/09/2020 15	10/09/2020 15:09			10/09/20 15:14						
EPA 3010A	Matrix	Water		Water			Water					
EPA 602	ΛD	Units	mg/L	Spike	Result	0/. D	Control	Spike	Result	0/. D	םםם	RPD
EPA 002	VB	Result	DL	Added	Nesult	70 K	Limits%R	Added	Nesull	/0 K	INPU	Limit
Lithium	7439-93-2	0.013	0.0013	0.25	0.27	103	80 - 120	0.25	0.25	96	8	20



#### CHAIN OF CUSTODY RECORD

Omega COCID 9605

OGOS PAC Client ID: 4462 - Element Materials Technology

SDG: 220100336

PM: JLM



FAX: (337) 233-6540 Website: www.element.com

							Website. WWW.element.com
SUB CONTR	ATOR: GCAL	COMPANY:	Pace Analytic	cal (FKA GCAL	) SPECIAL INSTRUCTIONS		
ADDRESS:	7979 GSRI Avenue				ELA 033893 PO	1 =	
		:			Lalah	and her	it bequired is 0.1 ppm
CITY, STATE	Baton Rouge, LA 7	0820			Diffee	1 1 - 1	121 11 7'5
PHONE: (22	25) 769-4900 FAX: (225	) 767-5717 EMA	IL:		Repo	10 to 1	it beginned is 0.1ppm  ADL WI J's
ACCOUNT #							
		T					
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
	20091073-001C	CCR-1	250HDPEHNO3	Aqueous	9/28/2020 3:25:00 PM	1	
1	6020_W_SUB (SW6020A)						
2	20091073-002C	CCR-2	250HDPEHNO3	Aqueous	9/28/2020 2:40:00 PM	1	2
2	6020_W_SUB (SW6020A)						
2	20091073-003C	CCR-3	250HDPEHNO3	Aqueous	9/28/2020 12:40:00 PM	1	3
3	6020_W_SUB (SW6020A)						
_	20091073-004C	CCR-4	250HDPEHNO3	Aqueous	9/28/2020 10:50:00 AM	1	4
4	6020_W_SUB (SW6020A)	4				31	
_	20091073-005C	CCR-5	250HDPEHNO3	Aqueous	9/29/2020 3:20:00 PM	1	5
5	6020_W_SUB (SW6020A)						
_	20091073-006C	CCR-6	250HDPEHNO3	Aqueous	9/29/2020 2:30:00 PM	1	(0)
6	6020_W_SUB (SW6020A)						
,	20091073-007C	CCR-7	250HDPEHNO3	Aqueous	9/29/2020 1:30:00 PM	1	7
7	6020_W_SUB (SW6020A)						
	20091073-008C	CCR-8	250HDPEHNO3	Aqueous	9/29/2020 11:35:00 AM	1	8
8	6020_W_SUB (SW6020A)				Anna anna anna anna anna anna anna anna		
	20091073-009C	CCR-9	250HDPEHNO3	Aqueous	9/29/2020 10:30:00 AM	3	9.10.11
9	6020_W_SUB (SW6020A)						
	101	Georgi		,	(		
Relinquished I	Byang of Thooleand Date:	0/2020 Time 330	Received By:	Date Date	10 Times		REPORT TRANSMITTAL DESIRED:
Relinquished I	Date:	Time:	Regerred By	1 Dates	Times	☐ HARDCO	PY (extra cost)
Relinquished F	By: Date:		Received By:	Date:	2 20 10 2 T		FOR LAB USE ONLY
		1		0.0		Temp of sam	N-7 1211
	TAT: Standard [	RUSH	Next BD	2nd BD	3rd BD	Comments:	
			Note: RUSH re	equests will incur surcharge	s!	Comments.	

Page 47 of 51



#### CHAIN OF CUSTODY RECORD

Omega COCID 9605

Client ID: 4462 - Element Materials Technology

SDG: 220100336

PM: JLM

PAG



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR	ATOR: GCAL	COMPANY:	Pace Analyti	cal (FKA GCAL)	SPECIAL INSTRUCTIONS	COMMENTS:		
ADDRESS:	7979 GSRI Avenue	e			ELA 033893 PO	. 0 1.	La Limit Room and	
CITY, STAT	Baton Rouge, LA	70820			The state of	Meste	CONT MILE I I GULLE	
	25) 769-4900 FAX: (225		IL:		10/1/200	60	1 ppm	
ACCOUNT #						Re	cotes himst Required. I ppm poet to use us J's	
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	20091073-010C	CCR-10	250HDPEHNO3	Aqueous	9/29/2020 9:40:00 AM	1		12
10	6020_W_SUB (SW6020A)							
11	20091073-011C	CCR-11	250HDPEHNO3	Aqueous	9/29/2020 8:40:00 AM	1		13
11	6020_W_SUB (SW6020A)							
12	20091073-012C	CCR-12	250HDPEHNO3	Aqueous	9/28/2020 5:40:00 PM	1		14
12	6020_W_SUB (SW6020A)				·			
13	20091073-013C	CCR-13	250HDPEHNO3	Aqueous	9/28/2020 4:55:00 PM	1		15
13	6020_W_SUB (SW6020A)							
14	20091073-014C	CCR-14	250HDPEHNO3	Aqueous	9/28/2020 4:15:00 PM	1		16
14	6020_W_SUB (SW6020A)							
15	20091073-015C	Dup	250HDPEHNO3	Aqueous	9/29/2020	1		17
15	6020_W_SUB (SW6020A)							
16	20091073-016C	FB	250HDPEHNO3	Aqueous	9/29/2020 3:30:00 PM	1		18
10	6020_W_SUB (SW6020A)				•			0

	10/1/20	Ð					
Relinquished By Jung of Theodeaux	Date: -9/30/2020	Time 37	Received By	Lanos	Date (Vo	Time:	REPORT TRANSMITTAL DESIRED:
Relinquished By:	Date:	Time:	Received By	Chilucolla	Date 12/20	Time:	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
Relinquished By	Date:	Time:	Received By:	CCOMMAN	Date:	T0:27	FOR LAB USE ONLY  Temp of samples () 7 F3 4 °C Attempt to Cool?
TAT: Stand	lard 🗌	RUSH	Next BD	2nd BD	3rd BD		Comments:
			Note: RUSH requ	ests will incur surch	arges!		

Page 48 of 51



## **SAMPLE RECEIVING CHECKLIST**



SAMPLE DELIVERY GROUP 220100336			CHECKLIST	YES	NO				
Client PM JLM 4462 - Bement Materials	Transport M	lethod	Samples received with proper thermal preservation	?	~				
Technology			Radioactivity is <1600 cpm? If no, record cpm valu	~					
Profile Number 271810	Received By Savage, Tiffa		COC relinquished and complete (including sample	~					
Cavage, Illiany IX			All containers received in good condition and within	~					
Line Item(s) Receive Date(s)			All sample labels and containers received match the	ne chain of custody?	~				
8 - LITHUMONLY 10/02/20			Preservative added to any containers?			~			
			If received, was headspace for VOC water contained	ers < 6mm?	~				
			Samples collected in containers provided by Pace	Gulf Coast?		~			
COOLERS			DISCREPANCIES	LAB PRESERVATIONS					
Airbill Thermome	ter ID: E34	Temp °C	None	None					
		0.7							
NOTES									

Revision 1.6 Page 1 of 1



2203 S. Madison St., Muncie, IN 47302
765-747-9000/800-874-3563 Fax 765-747-0228
620 Weshington St. Suite 300 Columbus IN 47201

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

4	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					Cha	ain	of C	usto	dy	R	ecor	d					Labo Nun			2000	1003	
Client Na	ame: Pivota	l Eng	ginee	ring	LLC		Pro	ect: CCR A	ssessme	ent Monito	ring	-	serv.	of	9230	L	1 0		Te	st Re	ques	ted			
	Contact Name: Terry Elnaggar Phone/Fax: (504) 799-3653					Quote #: 5346 Sampler's Signature:				)3 H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	aber / Type Container	Matrix Code	Fluoride	*6010/**6020 metals	Sub	Mercury								
FHORE/Fa	ix. (304) 73	79-30	22				Sampler's Signature.				HNO <sub>3</sub>		Con	atr	Eluo Plus	19**/	20 8	Me					Com	nents /	
Coll Date	ection Time	Grab	Сошр			San	Sample Identification / Description  Namber / Conta  Conta  Namble Identification / Description  Natrix  Matrix  Matrix  A70 Merc.					7470			Ren	Remarks									
9/28	3:25	Х		С	С	R	-	1				None	/ HNO:	3 Plastic	Aq	X	X	X	X					*6010 Met	2000
1	2:40	Х		С	С	R	-	2				None	/ HNO	3 Plastic	Aq	Х	X	Х	X			-		Be, Cd, Ci Mo, Se	, Co, Pb,
-	12:40	х		С	С	R	-	3				None	/ HNO:	3 Plastic	Aq	X	X	Х	Х					6020 Me	tals: As.
	10:60	х		C	С	R	-	4					_	3 Plastic			Х	Х	Х					Sb,TI	
9/200	3:20	Х		С	С	R	-	5				_		3 Plastic			X	x	x					***6020 St	ıb Metal:Li
1	2:30	Х		С	С	R	_	6						3 Plastic		1	X	Х	X					1	
	1:30	X		C	С	R	658	7					-	3 Plastic			X	X	X						
					O.	5193		8				_		3 Plastic	- Committee		X	X	X					-	
	<b>*</b> 35	X		С	С	R	-									1		~							
1	10:30	X		С	С	R	-	9						3 Plastic		X	X	^	X	$\vdash$	$\dashv$	-	++		x Airborne
	9:40	X		С	С	R	-	10						3 Plastic		X	X	Χ	Х			P.O.		/ Element	Hand / Mail
All samp	les submitte	ed to	Elen	nent	Mate	rials 1	ent M	ology for ana laterials Tech	alysis ar inology	e accepted reserves th	d on a cust ne right to	todial returi	l basis n unu	s only. On sed samp	vnersh le por	nip of tions.	the r	nate	rial re	emain	10	Num	ber		
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Relinquish	ed by: (Signat	ure)			Rec	eived b	y:(Sig	nature)		Date	Time	Relin	nquish	od by: (Sign	ature)	e) Received by Laboratory (Signature)				PBO BOOK	Time 0705				
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				pien	Other																				

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THE REAL PROPERTY.		

Page 2 of 2 Client Name: Pivotal Engineering LLC

Contact Name: Terry Elnaggar

Phone/Fax: (504) 799-3653

Collection

Date Time

9	nt™	□ 2203 S. Madison St., Mn 765-747-9000/800-874 □ 629 Washington St., Su 812-375-0531 Fax 812 □ 5738 Industrial Rd., For 219-471-7000 Fax 219	4-3563 Fax 7 lite 300, Co 2-375-0531 t Wayne, II 9-471-7777	765-747-0 Numbus N 46825	, IN 47	7201			3   <b>3445</b>   9   F	W. Pinhook 337-235-0483/ Fax 337-233-66 S Sheridan 318-828-9977/ Fax 918-828-7	800-737-23 540 , <b>Tulsa, O</b> 800324-57	K 74145	
1	The state of the s	CCR Assessment Monitoring	Preserv.	of		F	1 0			Requested	4101		
	Quote #: 5	5346	1     O <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	lype	Code		metal						
	Sampler's	Signature:	Na,	nber / Typ Container	Matrix C	Fluoride	*6010/**6020 metals	0 Sub	Mercury			Comments /	
Sa	mple Ident	ification / Description	HCI HÎ	Number	Mg	300: F	*6010/	***6020	7470 1			Remarks	
R	- 1	1	None/ HNO	3 Plastic	Aq	Х	Х	Х	Х			*6010 Metals: Ba,	
R	- 1	2	None/ HNO	3 Diastic	Aa	×	x	x	x			Be, Cd, Cr, Co, Pb,	

411		_	_											1							- 1				
9/28-13:40	)	(	С	С	R	-	•	2				None/ HNO	3 Plastic	Aq	X	X	X	X						Be, Cd, Cr Mo, Se	, Co, Pb,
1 4:53	5 >	(	C	C	R	-	1	3				None/ HNO:	3 Plastic	Aq	Х	Х	x	X				$\top$		**6020 Me	tala: Aa
4:15	5 >	(	С	С	R	-	1	4				None/ HNO3	/		1	X	X	X						Sb,TI	iais. As,
429 2903	30 >	(	M	S		(C	CR-	9	_)			None/ HNO3			X	X	X	X				1		***6020 Su	h Metal·l i
1 103	0 >		M	S	D	(C	CR-	9	_)			None/ HNO3	3 Plastic	Aq	X	Х	X	х						-	is motal.Li
	- x	(	D	U	Р							None/ HNO3	3 Plastic	Aq	X		X	X						1	
33	) ×		F	В	1	81 850						None/ HNO3	3 Plastic	Aq	Х		Х	X				1		1	
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ll samples subnith the client su	nitted t	to Eler	ment I samp	Mater les.	rials T Elem	echr	nology	for an	alysis ar	e accepted	on a cust	odial basis	only. Ov	vnersh	ip of ions.	the r	nate	rial re	main		P.O. Num	her			
elinquished by (Sig		1	22				nature)			Date 9/29	_	Relinquishe					Rece	ived b	y:(Sigr	_				Date	Time
elinquished by: (Sig	gnature)			Rece	ived b	y:(Sig	nature)			Date	Time	Relinquishe	d by: (Sign	ature)		/	Rege	Ned b	Labo	rator	y (Sig	nature)	2 4	Bate	Time
Matrix Codes         Container Type           W = Drinking Water AQ = Aqueous LIQ = Liquid         G = Glass           W = Ground Water O = Oil         SLD = Solid         P = Plastic			lass	Shipping Iced Tem	101	☐ 24-Hr. ☐ 72-Hr.					Thank-you for using Element Materials					erials									
	Vaste Water SO = Soil SL = Sludge V = Vial			☐ Amb	TIM	☐ 48-Hr. ☑ Standard ☐ Other ☐					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

Order No.: 20091074

October 15, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875 New Orleans, LA 70112

TEL: (504) 799-3653

**FAX** 

**RE:** CCR Detection Monitoring

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 9/30/2020 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.

Where applicable, 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



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Case Narrative** 

WO#: **20091074**Date: **10/15/2020** 

**CLIENT:** Pivotal Engineering LLC **Project:** 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).



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 3:25:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-001 **Matrix:** AQUEOUS

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY I	С		E 30	0.0	Analyst: <b>SGP</b>
Chloride	42.9	2.50	mg/L	10	10/1/2020 11:12:47 AM
Fluoride	0.257	0.0500	mg/L	1	10/1/2020 8:08:53 PM
Sulfate	2.79	0.250	mg/L	1	10/1/2020 8:08:53 PM
METALS IN WATER BY ICP, TOTALS	<b>3</b>		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	10/13/2020 3:22:01 PM
Calcium	24.9	0.500	mg/L	1	10/13/2020 3:22:01 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	273	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 2:40:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-002 **Matrix:** AQUEOUS

**Client Sample ID** CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E 30	0.0	Analyst: <b>SGP</b>
Chloride	58.0	2.50	mg/L	10	10/1/2020 11:26:31 AM
Fluoride	0.261	0.0500	mg/L	1	10/1/2020 8:22:38 PM
Sulfate	1.01	0.250	mg/L	1	10/1/2020 8:22:38 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 3:25:49 PM
Calcium	19.5	0.500	mg/L	1	10/13/2020 3:25:49 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	257	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 12:40:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-003 **Matrix:** AQUEOUS

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	113	2.50	mg/L	10	10/1/2020 11:40:14 AM
Fluoride	0.305	0.0500	mg/L	1	10/1/2020 8:36:22 PM
Sulfate	3.82	0.250	mg/L	1	10/1/2020 8:36:22 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:03:06 PM
Calcium	28.9	0.500	mg/L	1	10/13/2020 4:03:06 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	388	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 10:50:00 AM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-004 **Matrix:** AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	45.9	2.50	mg/L	10	10/1/2020 11:53:58 AM
Fluoride	0.118	0.0500	mg/L	1	10/1/2020 8:50:05 PM
Sulfate	9.84	0.250	mg/L	1	10/1/2020 8:50:05 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:06:58 PM
Calcium	17.9	0.500	mg/L	1	10/13/2020 4:06:58 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	257	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 3:20:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-005 **Matrix:** AQUEOUS

Client Sample ID CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	68.7	5.00	mg/L	20	10/1/2020 12:07:41 PM
Fluoride	0.117	0.0500	mg/L	1	10/1/2020 9:04:02 PM
Sulfate	< 0.250	0.250	mg/L	1	10/1/2020 9:04:02 PM
METALS IN WATER BY ICP, TOTAL	s		SW60	10B	Analyst: STS
Boron	0.104	0.100	mg/L	1	10/13/2020 4:10:47 PM
Calcium	30.4	0.500	mg/L	1	10/13/2020 4:10:47 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	393	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 2:30:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-006 **Matrix:** AQUEOUS

**Client Sample ID** CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	84.4	2.50	mg/L	10	10/1/2020 12:21:25 PM
Fluoride	0.177	0.0500	mg/L	1	10/1/2020 9:17:46 PM
Sulfate	< 0.250	0.250	mg/L	1	10/1/2020 9:17:46 PM
METALS IN WATER BY ICP, TOTAL	s		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:14:34 PM
Calcium	28.7	0.500	mg/L	1	10/13/2020 4:14:34 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	327	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 1:30:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-007 **Matrix:** AQUEOUS

**Client Sample ID** CCR-7

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	74.5	1.25	mg/L	5	10/1/2020 12:35:08 PM
Fluoride	0.186	0.0500	mg/L	1	10/1/2020 9:31:34 PM
Sulfate	< 0.250	0.250	mg/L	1	10/1/2020 9:31:34 PM
METALS IN WATER BY ICP, TOTALS	5		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:18:39 PM
Calcium	43.4	0.500	mg/L	1	10/13/2020 4:18:39 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	337	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

Pivotal Engineering LLC Collection Date: 9/29/2020 11:35:00 AM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-008 **Matrix:** AQUEOUS

Client Sample ID CCR-8

**CLIENT:** 

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	90.3	2.50	mg/L	10	10/1/2020 12:48:52 PM
Fluoride	0.0632	0.0500	mg/L	1	10/1/2020 9:45:17 PM
Sulfate	0.501	0.250	mg/L	1	10/1/2020 9:45:17 PM
METALS IN WATER BY ICP, TOTALS	5		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:22:33 PM
Calcium	11.4	0.500	mg/L	1	10/13/2020 4:22:33 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	281	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 10:30:00 AM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-009 **Matrix:** AQUEOUS

Client Sample ID CCR-9

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	С		E 30	0.0	Analyst: <b>SGP</b>
Chloride	66.2	2.50	mg/L	10	10/1/2020 1:02:36 PM
Fluoride	0.446	0.0500	mg/L	1	10/1/2020 9:59:00 PM
Sulfate	5.99	0.250	mg/L	1	10/1/2020 9:59:00 PM
METALS IN WATER BY ICP, TOTALS	i		SW60	10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:26:23 PM
Calcium	28.8	0.500	mg/L	1	10/13/2020 4:26:23 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	345	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 9:40:00 AM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-010 **Matrix:** AQUEOUS

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY I	С		E 30	0.0	Analyst: <b>SGP</b>
Chloride	43.2	2.50	mg/L	10	10/1/2020 1:43:48 PM
Fluoride	0.532	0.0500	mg/L	1	10/1/2020 10:12:58 PM
Sulfate	8.98	0.250	mg/L	1	10/1/2020 10:12:58 PM
METALS IN WATER BY ICP, TOTALS	<b>;</b>		SW60	)10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:38:39 PM
Calcium	25.3	0.500	mg/L	1	10/13/2020 4:38:39 PM
TOTAL DISSOLVED SOLIDS			SM25	340C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	324	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 8:40:00 AM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-011 **Matrix:** AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	28.3	2.50	mg/L	10	10/1/2020 2:25:02 PM
Fluoride	0.669	0.0500	mg/L	1	10/1/2020 10:54:10 PM
Sulfate	3.36	0.250	mg/L	1	10/1/2020 10:54:10 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:54:33 PM
Calcium	25.8	0.500	mg/L	1	10/13/2020 4:54:33 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	227	20.0	mg/L	1	10/2/2020 7:22:00 AM

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

**Collection Date:** 9/28/2020 5:40:00 PM

CLIENT: Pivotal Engineering LLC

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-012 **Matrix:** AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E 30	0.0	Analyst: <b>SGP</b>
Chloride	16.5	1.25	mg/L	5	10/1/2020 2:38:47 PM
Fluoride	0.0781	0.0500	mg/L	1	10/1/2020 11:07:54 PM
Sulfate	8.33	0.250	mg/L	1	10/1/2020 11:07:54 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 4:58:20 PM
Calcium	17.4	0.500	mg/L	1	10/13/2020 4:58:20 PM
TOTAL DISSOLVED SOLIDS			SM2540C		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	164	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 4:55:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-013 **Matrix:** AQUEOUS

Client Sample ID CCR-13

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E 30	0.0	Analyst: <b>SGP</b>
Chloride	11.7	1.25	mg/L	5	10/1/2020 2:52:26 PM
Fluoride	0.171	0.0500	mg/L	1	10/1/2020 11:21:38 PM
Sulfate	0.565	0.250	mg/L	1	10/1/2020 11:21:38 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 5:02:09 PM
Calcium	21.6	0.500	mg/L	1	10/13/2020 5:02:09 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	178	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/28/2020 4:15:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-014 **Matrix:** AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	11.0	1.25	mg/L	5	10/1/2020 3:06:10 PM
Fluoride	0.0857	0.0500	mg/L	1	10/1/2020 11:35:23 PM
Sulfate	< 0.250	0.250	mg/L	1	10/1/2020 11:35:23 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 5:05:57 PM
Calcium	15.4	0.500	mg/L	1	10/13/2020 5:05:57 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	149	20.0	mg/L	1	10/2/2020 7:22:00 AM

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: 20091074 Date Reported: 10/15/2020

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-015 **Matrix:** AQUEOUS

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	25.3	2.50	mg/L	10	10/1/2020 3:20:07 PM
Fluoride	0.641	0.0500	mg/L	1	10/1/2020 11:49:06 PM
Sulfate	3.26	0.250	mg/L	1	10/1/2020 11:49:06 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 5:09:43 PM
Calcium	26.3	0.500	mg/L	1	10/13/2020 5:09:43 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	216	20.0	mg/L	1	10/2/2020 7:22:00 AM

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

SDL Sample detection limit



TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20091074**Date Reported: **10/15/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 9/29/2020 3:30:00 PM

**Project:** CCR Detection Monitoring

**Lab ID:** 20091074-016 **Matrix:** AQUEOUS

Client Sample ID FB

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	/ IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	< 0.250	0.250	mg/L	1	10/1/2020 3:33:51 PM
Fluoride	< 0.0500	0.0500	mg/L	1	10/2/2020 10:29:02 AM
Sulfate	< 0.250	0.250	mg/L	1	10/1/2020 3:33:51 PM
METALS IN WATER BY ICP, TOTAL	_S		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	10/13/2020 5:14:01 PM
Calcium	< 0.500	0.500	mg/L	1	10/13/2020 5:14:01 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0	mg/L	1	10/2/2020 7:22:00 AM

Qualifiers: H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit



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#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project:	CCR Detection N	Monitoring							BatchID:	35473		
Sample ID Client ID:	MB-35473 PBW	SampType: MBLK Batch ID: 35473		de: <b>6010_W</b> No: <b>SW6010B</b>	Units: mg/L		Prep Date Analysis Date	e: 10/2/20 e: 10/13/2		RunNo: <b>94</b> * SeqNo: <b>23</b> (		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		< 0.100 < 0.500	0.100 0.500									
Sample ID	LCS-35473	SampType: <b>LCS</b>	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>10/2/2</b> 0	)20	RunNo: 94	138	
Client ID:	LCSW	Batch ID: 35473	TestN	No: <b>SW6010B</b>	1	Analysis Date: 10/13/2020				SeqNo: <b>2304697</b>		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		0.468 47.2	0.100 0.500	0.5000 50.00	0	93.6 94.4	80 80	120 120				
Sample ID	LCSD-35473	SampType: <b>LCSD</b>	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>10/2/2</b> 0	)20	RunNo: 94	138	
Client ID:	LCSS02	Batch ID: 35473	TestN	lo: <b>SW6010B</b>			Analysis Date	e: <b>10/13/2</b>	2020	SeqNo: <b>2304698</b>		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		0.458 46.4	0.100 0.500	0.5000 50.00	0	91.5 92.8	80 80	120 120	0.4680 47.20	2.27 1.69	20 20	
Sample ID	20091074-009BMS	SampType: <b>MS</b>	TestCode: 6010_W		Units: mg/L		Prep Date: 1		)20	RunNo: <b>94138</b>		
Client ID:	CCR-9	Batch ID: <b>35473</b>	TestN	TestNo: SW6010B		Analysis Date: 10/13/2020			SeqNo: <b>2304711</b>			
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

Matrix Interference

S Spike Recovery outside accepted recovery limits

Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit

SDL Sample detection limit



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#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: 35473

Sample ID	20091074-009BMS	SampType: <b>MS</b>	TestCode: 6010_W	Units: mg/L	Prep Date:	10/2/2020	RunNo: <b>94138</b>
Client ID:	CCR-9	Batch ID: 35473	TestNo: SW6010B		Analysis Date:	10/13/2020	SeqNo: <b>2304711</b>

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Calcium 74.4 0.500 50.00 28.82 91.2 75 125

Sample ID 20091074-009BMSD Client ID: CCR-9	SampType: MSD Batch ID: 35473	TestCode: 6010_W Units: mg TestNo: SW6010B		Units: mg/L	Prep Date: <b>10/2/2020</b> Analysis Date: <b>10/13/2020</b>				RunNo: <b>94138</b> SeqNo: <b>2304712</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.539	0.100	0.5000	0	108	75	125	0.5303	1.55	20	
Calcium	75.2	0.500	50.00	28.82	92.9	75	125	74.43	1.10	20	

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

M

S Spike Recovery outside accepted recovery limits

ts SDL Sample detection limit

Not Detected at the Reporting Limit



Holding times for preparation or analysis exceeded

Reporting Limit

Analyte not detected

Qualifiers:

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#: 20091074

16-Oct-20

Client: Pivotal Engineering LLC

Project: CCR Detection N	· ·		BatchID:	R92869		
Sample ID MB-R92869	SampType: MBLK	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>92869</b>		
Client ID: PBW	Batch ID: <b>R92869</b>	TestNo: SM2540C	Analysis Date: 10/2/2020	SeqNo: <b>2298677</b>		
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-R92869	SampType: <b>LCS</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>92869</b>		
Client ID: LCSW	Batch ID: <b>R92869</b>	TestNo: SM2540C	Analysis Date: 10/2/2020	SeqNo: <b>2298678</b>		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Total Dissolved Solids (Residue, Filterable)	1,030	20.0 1,000 0	103 85 115			
Sample ID LCSD-R92869	SampType: <b>LCSD</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>92869</b>		
Client ID: LCSS02	Batch ID: <b>R92869</b>	TestNo: SM2540C	Analysis Date: 10/2/2020	SeqNo: <b>2298679</b>		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Total Dissolved Solids (Residue, Filterable)	1,040	20.0 1,000 0	104 85 115 1,027	1.55 10		
Sample ID <b>20091074-009ADUP</b>	SampType: <b>DUP</b>	TestCode: TDS_2540C Units: mg/L	Prep Date:	RunNo: <b>92869</b>		
Client ID: CCR-9	Batch ID: <b>R92869</b>	TestNo: SM2540C	Analysis Date: 10/2/2020	SeqNo: <b>2298689</b>		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Total Dissolved Solids (Residue, Filterable)	336	20.0	345.0	2.64 10		

Matrix Interference

Spike Recovery outside accepted recovery limits

Sample container temperature is out of limit as specified at testcode

Not Detected at the Reporting Limit

SDL Sample detection limit



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## **QC SUMMARY REPORT**

WO#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92869

Sample ID 20091074-009ADUP SampType: DUP TestCode: TDS\_2540C Units: mg/L Prep Date: RunNo: 92869

Client ID: CCR-9 Batch ID: R92869 TestNo: SM2540C Analysis Date: 10/2/2020 SeqNo: 2298689

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID 20091074-015ADUP SampType: DUP Client ID: Dup Batch ID: R92869		TestCode: TDS_2540C Units: mg/L TestNo: SM2540C			Prep Date: Analysis Date: 10/2/2020				RunNo: <b>92869</b> SeqNo: <b>2298696</b>		
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	225	20.0						216.0	4.08	10	

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

D Not Detected at the Reporting Limit

SDL Sample detection limit



**QC SUMMARY REPORT** 

WO#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92872

Website: www.element.com

Sample ID MBL	SampType: <b>MBLK</b>	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 928	372	
Client ID: PBW	Batch ID: <b>R92872</b>	Test	No: <b>E 300.0</b>			Analysis Da	te: <b>10/1/2</b> 0	)20	SeqNo: <b>22</b> 9	97196	
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: <b>LCS</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: <b>92</b> 8	372	
Client ID:	LCSW	Batch ID: R92872	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>10/1/20</b>	20	SeqNo: <b>22</b> 9	7197	
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				
Fluoride		2.00	0.0500	2.000	0	100	90	110				
Sulfate		10.4	0.250	10.00	0	104	90	110				

Sample ID LCSD	SampType: <b>LCSD</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: <b>92</b> 8	372	
Client ID: LCSS02	Batch ID: R92872	TestN	No: <b>E 300.0</b>			Analysis Da	te: <b>10/1/2</b> 0	20	SeqNo: <b>22</b> 9	97198	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.82	0.250	10.00	0	98.2	90	110	9.850	0.356	15	
Fluoride	1.93	0.0500	2.000	0	96.4	90	110	2.000	3.66	15	
Sulfate	10.2	0.250	10.00	0	102	90	110	10.36	1.54	15	

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

S Spike Recovery outside accepted recovery limits

V Sample container temperature is out of limit as specified at testcode

ID Not Detected at the Reporting Limit



# **QC SUMMARY REPORT**

WO#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92872

Project: CCR Detection I	vionitoring							ваиспи);	K92872		
Sample ID <b>20091074-009AMS</b>	SampType: <b>MS</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date:			RunNo: 928	<del></del> 372	
Client ID: CCR-9	Batch ID: <b>R92872</b>	TestN	No: <b>E 300.0</b>			Analysis Date:	10/1/20	)20	SeqNo: <b>22</b> 9	<del>)</del> 7208	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit F	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	111	2.50	50.00	66.21	89.9	80	120				
Fluoride	9.51	0.500	10.00	0	95.1	80	120				
Sulfate	51.6	2.50	50.00	5.434	92.3	80	120				
Sample ID <b>20091074-009AMSD</b>	SampType: <b>MSD</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Date:	:		RunNo: 928	<del></del> 372	
Client ID: CCR-9	Batch ID: <b>R92872</b>	TestN	No: <b>E 300.0</b>			Analysis Date:	10/1/20	)20	SeqNo: 229	<del>3</del> 7209	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit F	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	111	2.50	50.00	66.21	89.0	80	120	111.2	0.409	15	
Fluoride	9.08	0.500	10.00	0	90.8	80	120	9.506	4.54	15	
Sulfate	51.5	2.50	50.00	5.434	92.2	80	120	51.61	0.166	15	
Sample ID <b>20091074-016AMS</b>	SampType: <b>MS</b>	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Date:			RunNo: 928	<del></del> 372	
Client ID: FB	Batch ID: <b>R92872</b>	TestN	No: <b>E 300.0</b>			Analysis Date:	10/1/20	)20	SeqNo: 229	<del>3</del> 7219	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit F	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.91	0.250	5.000	0	98.2	80	120				
Fluoride	1.04	0.0500	1.000	0	104	80	120				
Sulfate	5.51	0.250	5.000	0.1378	108	80	120				

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

M

S Spike Recovery outside accepted recovery limits

Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting LimitSDL Sample detection limit

ecovery outside accepted recovery limits SDL Sample detection



# **QC SUMMARY REPORT**

WO#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92872

Sample ID 2	20091074-016AMSD	SampType: MS	SD	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Dat	e:		RunNo: <b>928</b>	372	
Client ID: F	FB	Batch ID: R9	92872	TestN	lo: <b>E 300.0</b>			Analysis Dat	e: <b>10/1/2</b> 0	20	SeqNo: <b>229</b>	7220	
Analyte		Re	esult	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride			4.95	0.250	5.000	0	99.0	80	120	4.912	0.821	15	
Fluoride		0	).984	0.0500	1.000	0	98.4	80	120	1.044	5.94	15	
Sulfate			5.23	0.250	5.000	0.1378	102	80	120	5.514	5.36	15	

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

M

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Not Detected at the Reporting Limit



# **QC SUMMARY REPORT**

WO#: 20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92914

Sample ID MBLK	SampType: MBLK	TestCode: 300.0	Inits: mg/L Prep Date:	RunNo: <b>92914</b>
Client ID: PBW	Batch ID: <b>R92914</b>	TestNo: <b>E 300.0</b>	Analysis Date:	<b>10/2/2020</b> SeqNo: <b>2298335</b>
Analyte	Result	PQL SPK value SPK I	Ref Val %REC LowLimit Hig	hLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride < 0.0500 0.0500

Sample ID LCS	SampType: LCS	TestCode: 300.0	Units: mg/L		Prep Dat	te:		RunNo: 929	914	
Client ID: LCSW	Batch ID: <b>R92914</b>	TestNo: <b>E 300.0</b>			Analysis Dat	te: <b>10/2/202</b>	20	SeqNo: <b>22</b> 9	98336	
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	<u> </u>			

Sample ID LCSD	SampType: <b>LCSD</b>	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 929	914	
Client ID: LCSS02	Batch ID: <b>R92914</b>	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>10/2/2</b> 0	20	SeqNo: <b>22</b> 9	98337	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.96	0.0500	2.000	0	98.0	90	110	2.016	2.83	15	

Sample ID 20	0091074-016AMS	SampType: MS	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: <b>92</b> 9	914	
Client ID: FE	В	Batch ID: <b>R92914</b>	TestN	lo: <b>E 300.0</b>			Analysis Dat	te: <b>10/2/202</b>	20	SeqNo: <b>22</b> 9	98339	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.07	0.0500	1.000	0	107	80	120				

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

S Spike Recovery outside accepted recovery limits

V Sample container temperature is out of limit as specified at testcode

ND Not Detected at the Reporting Limit



**QC SUMMARY REPORT** 

WO#: 2

20091074

16-Oct-20

**Client:** Pivotal Engineering LLC

Project: CCR Detection Monitoring BatchID: R92914

Website: www.element.com

Sample ID	20091074-016AMSD	SampType:	MSD	TestCod	le: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 929	914	
Client ID:	FB	Batch ID:	R92914	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>10/2/2</b> 0	20	SeqNo: <b>22</b> 9	98340	
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	1.044	0.528	15	

Qualifiers: H Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

Matrix Interference

M

S Spike Recovery outside accepted recovery limits

V Sample container temperature is out of limit as specified at testcode

D Not Detected at the Reporting Limit



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

### Sample Log-In Check List

Client Name: **PIVOTAL ENGINEERIN** Work Order Number: 20091074 RcptNo: 1 Janns of Thodeaux Janns of Thodeaux Cuthi Diplining 9/30/2020 7:05:00 AM Logged by: **Tammy Thibodeaux** Completed By: Tammy Thibodeaux 9/30/2020 9:12:40 AM **Caitlin Duplantis** 10/6/2020 12:15:38 PM Reviewed By: Chain of Custody Yes No 🗸 Not Present 1 Is Chain of Custody complete? 2 How was the sample delivered? Drop Off Box Log In Yes 🗸 No 🗌 NA 🗌 3. Coolers are present? Yes 🗸 No  $\square$ 4 Shipping container/cooler in good condition? Yes Custody seals intact on shipping container/cooler? No  $\square$ Not Present Signed By: Seal Date: Yes 🗸 No 🗌 NA 🗌 5. Was an attempt made to cool the samples? Yes 🗸 NA 🗌 6 Were all samples received at a temperature of >0° C to 6.0°C No 7. Sample(s) in proper container(s)? 8. Sufficient sample volume for indicated test(s)? **✓** 9. Are samples (except VOA and ONG) properly preserved? **✓** No 🗌 Yes 10. Was preservative added to bottles? Yes No 🗸 NA  $\square$ No 🗌 No VOA Vials 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes 12. Were any sample containers received broken? No 🗸 13 Does paperwork match bottle labels? Yes (Note discrepancies on chain of custody) Yes 🗸 14. Are matrices correctly identified on Chain of Custody? 15. Is it clear what analyses were requested? 16. Were all holding times able to be met? Yes 🗸 No  $\square$ (If no, notify customer for authorization.) Special Handling (if applicable) NA 🗌 Yes 🗸 No  $\square$ 17. Was client notified of all discrepancies with this order? Person Notified: Date Terry Elnaggar 9/30/2020 By Whom: Via: ✓ eMail Phone Fax In Person Caitlin Duplantis Regarding: Confirm am/pm for collection times. Client Instructions: See attached email. 18. Additional remarks: No sampler's signature by client.

Added year of collection to COC as per samples received.

#### **Cooler Information**

Cooler No	Temp ⁰C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Not Present			

element

Comp

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C

C R

C R

C R

R C C

R C

R C

8

9

Page 1 of 2 Client Name: Pivotal Engineering LLC

Contact Name: Terry Elnaggar

Time

10:30

Phone/Fax: (504) 799-3653

Collection

Date

9/29

er	2203 S. Madison St., Muncie, IN 4730: 765-747-9000/800-874-3563 Fax 765- 629 Washington St., Suite 300, Colum 812-375-0531 Fax 812-375-0531 5738 Industrial Rd., Fort Wayne, IN 46 219-471-7000 Fax 219-471-7777					5-747-0228 Imbus, IN 47201				✓ 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 Custo	ody R	ecor	·d				Lab Nun	oratory aber	200	91074				
Sam	Quote	et: CCR Detection Monitoring #: 5346  ler's Signature:  entification / Description	HCI HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> And Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> And Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Number / Type of Container	Matrix Code	LDS	300; CI, FI, SO4	6010 metals*	Test Re	quested		Comments / Remarks				
_	pic id	4			1	+			$\dashv$	-		11/6				
R	- 5	1	None/ HNO	2 Plastic	Aq	Х	X	X	$\rightarrow$	-		10010				
R	2	2	None/ HNO:	2 Plastic	Aq	X	Х	X				*6010 Metals: B, Ca				
R	-	3	None/ HNO:	2 Plastic	Aq	Х	Х	Х								
R		4	None/ HNO:	2 Plastic	Aq	Х	Х	X				1 1 2 2 2				
R	2	5	None/ HNO:	2 Plastic	Aq	Х	Х	Х				115				
D		6		20/0	1	V	V	V								

XX

XX

X X

UPS / FedEx Airborne None/ HNO3 2 Plastic Aq / Element Hand / Mail P.O. 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. Number

None/ HNO3 2 Plastic Aq

None/ HNO3 2 Plastic Aq

elingsished by: (Signature)	Received by:(Sign	Date 9/29	Time	Relinquished by: (Signature)	Received by:(Signature)	Date	Time	
elinquished by: (Signature)	Received by:(Signature)		Date	Time	Relinquished by: (Signature)	Received by Laboratory (Signature)	Date	Time
Matrix Codes  W = Drinking Water AQ = Aqueous  W = Ground Water O = Oil	LIQ = Liquid SLD = Solid	Container Types G = Glass P = Plastic	Shipping (Iced	19	Requested TAT  24-Hr. 72-Hr.  48-Hr. Standard	Thank-you for using Ele		erials
/W = Waste Water SO = Soil	SL = Sludge	V = Vial	Amb	ient I	Other		,,	

~ 8.7	N.
element	

2203 S. Madison St., Muncie, IN 47302	4 2
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	3
FEO. 1	

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 .	8	2				Chain	of C	usto	dy	R	ecor	d					Labo Nun	orato iber	ry	20	110	274	+
Client Na			ineer	ing L	LC	Pro	ject: CCR Detection				serv.	of			_		Tes	st Re	quest	ed				
Contact N	Contact Name: Terry Elnaggar			Que	Quote #: 5346			H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Type	Code		804	* 0										
Phone/Fax	c: (504) 79	9-36				San	Sampler's Signature:			HNO,		Number / Typ Container	Matrix		CI, FI,	metals*						(	Comm	
Colle Date			HCI	NaOH	Nan	Σ	TDS		6010	8					Remark	arks								
9/29	8:40	Х		С	C R	-	1 1			None	/ HNO:	2 Diastic	Aq	X	X	Х								
9/28	5:40	Х		С	C R	-	1 2			None	/ HNO:	2 Plastic	Aq	X	X	X						*6010	Meta	s: B, Ca
	4:55	Х		С	C R	-	1 3			None	/ HNO:	2 Plastic	Aq	X	X	Х								
V	4:15	X		С	C R	-	1 4			None	/ HNO:	2 Plastic	Aq	Х	Х	Х								
9/29	1030	Х		M	S	(C	CR- 9_)			None	/ HNO:	2 Plastic	Aq	Х	X	х								
1	1030	Х		M	s D		CR- 9_)			None	/ HNO	2 Plastic	Aq	Х	X	Х								
	-	Х		D	U P					None	/ HNO	2 Plastic	Aq	X	X	Х								
7	330	Х		F	В	1	36			None	/ HNO	2 Plastic	Aq	Х	Х	Х								
									8		_			-						-		524.90		Airborne and / Mail
All sample	es submitte	ed to	Eleme	ent N	laterials	Techi ment N	nology for analysis a Materials Technolog	are accepte y reserves t	d on a cus he right to	todial returi	basis n unu	s only. Ov	vnersh	nip of	the r	nateri	al re	emain	10	P.O. Num	ber			
Relinquishe	d by: (Signat	45°)	12.	2	Receive	l by:(Sig	gnature)	Date 9/20	Time 8500		nquish	ed by: (Sign	ature)			Recei	ved b	y:(Sig	nature	)		D	ate	Time
Com i i			Time					Recei				O705												
GW = Gro	N king Water und Water ste Water	AQ =	Dil	-	LIQ = L SLD = S	Solid	G = Glass P = Plastic V = Vial	Ter	Conditions d mp. [9] bient		24-l 48-l Oth	Hr. 🔽	72-H Stan	lr.		Т	har	nk-y	ou f		sing E	lement	Mat	erials

#### **Caitlin Duplantis**

From: Courtland Parr <cparr@pivotaleng.com>
Sent: Wednesday, September 30, 2020 12:26 PM

To: Caitlin Duplantis
Cc: Terry Elnaggar

Subject: Re: Confirm Collection Times: 20091073, Entergy: CCR & CADL Constituents

**CAUTION:** This email originated from outside of Element Materials Technology. **DO NOT** click links or open attachments unless you recognize the sender and know the content is safe. Please contact IT Service Desk if you are in any doubt about this email.

#### Caitlin,

The times for the samples are as follows.

CCR-1 P.M.

CCR-2 P.M.

CCR-3 P.M.

CCR-4 A.M.

CCR-5 P.M.

CCR-6 P.M.

CCR-7 P.M.

CCR-8 A.M.

CCR-9 A.M.

CCR-10 A.M.

CCR-11 A.M.

CCR-12 P.M.

CCR-13 P.M.

CCR-14 P.M.

MS A.M.

MSD A.M.

FB P.M.

Thanks.

# Courtland Parr | Environmental Project Manager Pivotal Engineering, LLC

O: <u>504-799-3653</u> C: <u>337-967-3749</u>

**From:** "<CustomerService.Lafayette@element.com>"

<CustomerService.Lafayette@Element.com>
Date: September 30, 2020 at 9:34:48 AM CDT

To: telnaggar@pivotaleng.com

**Cc:** Caitlin.Duplantis@element.com

Subject: Confirm Collection Times: 20091073, Entergy: CCR & CADL

**Constituents** 

Terry,

Can you please clarify if the collection times are AM or PM on the attached COC?

Please feel free to contact me by email at Caitlin.Duplantis@element.com with any questions.

Sincerely,

Caitlin Duplantis
Project Manager
Caitlin.Duplantis@element.com
2417 W. Pinhook Road
Lafayette, LA 70508-3344
Element Materials Technology Lafayette
TEL: (337) 235-0483 ()

TEL: (337) 235-0483 () FAX: (337) 233-6540 www.element.com

<COC\_20091073\_v1.pdf>



Order No.: 20120773

December 29, 2020

Terry Elnaggar Pivotal Engineering LLC 1515 Poydras St., STE. 1875

New Orleans, LA 70112 TEL: (504) 799-3653

FAX:

**RE:** CCR Assessment Monitoring

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 12/16/2020 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.

Where applicable, 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



235-0483 FAX: (337) 233-6540 Website: www.element.com

## **Case Narrative**

WO#: **20120773**Date: **12/29/2020** 

**CLIENT:** Pivotal Engineering LLC **Project:** 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 EPA 3010A analysis was subcontracted to Pace Gulf Coast (Baton Rouge, LA). Their report is attached in its entirety.



Website: www.element.com

**Analytical Report** (consolidated)

**Collection Date:** 12/14/2020 11:35:00 AM

WO#: 20120773 Date Reported 12/29/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20120773-001

Client Sample ID CCR-1

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 9:22:34 AM	
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>	
Fluoride	0.236	0.0500	mg/L	1	12/17/2020 7:26:47 PM	
METALS IN WATER BY ICP, TO	OTALS		SW60	10B	Analyst: STS	
Barium	0.185	0.0100	mg/L	1	12/18/2020 2:54:55 PM	
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 2:54:55 PM	
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 2:54:55 PM	
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 2:54:55 PM	
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 2:54:55 PM	
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 2:54:55 PM	
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 2:54:55 PM	
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 2:54:55 PM	
METALS IN WATER BY ICP-MS	S, TOTAL		SW60	20A	Analyst: <b>KML</b>	
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 2:49:41 PM	
Arsenic	0.293	0.250	μg/L	1	12/22/2020 2:49:41 PM	
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 2:49:41 PM	

Qualifiers: Value above quantitation range

> M Matrix Interference

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte not detected

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit SDL

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#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/14/2020 10:40:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20120773-002

Client Sample ID CCR-2

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER,TO		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 9:24:50 AM
INORGANIC ANIONS IN WATER B	Y IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.307	0.0500	mg/L	1	12/17/2020 7:41:34 PM
METALS IN WATER BY ICP, TOTA		SW60	10B	Analyst: <b>STS</b>	
Barium	0.152	0.0100	mg/L	1	12/18/2020 2:57:03 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 2:57:03 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 2:57:03 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 2:57:03 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 2:57:03 PM
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 2:57:03 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 2:57:03 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 2:57:03 PM
METALS IN WATER BY ICP-MS, T	OTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 2:52:30 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 2:52:30 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 2:52:30 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120773 12/29/2020 Date Reported

**Collection Date:** 12/14/2020 9:55:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20120773-003

Client Sample ID CCR-3

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 9:27:06 AM	
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>	
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 7:56:21 PM	
METALS IN WATER BY ICP, TO	OTALS		SW60	10B	Analyst: STS	
Barium	0.267	0.0100	mg/L	1	12/18/2020 3:03:26 PM	
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 3:03:26 PM	
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 3:03:26 PM	
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 3:03:26 PM	
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 3:03:26 PM	
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 3:03:26 PM	
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 3:03:26 PM	
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 3:03:26 PM	
METALS IN WATER BY ICP-MS	S, TOTAL		SW60	20A	Analyst: <b>KML</b>	
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 2:55:18 PM	
Arsenic	6.53	0.250	μg/L	1	12/22/2020 2:55:18 PM	
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 2:55:18 PM	

Qualifiers: Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte not detected

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit SDL

Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/14/2020 12:25:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-004 Matrix: AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 9:29:22 AM
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:11:08 PM
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.106	0.0100	mg/L	1	12/18/2020 3:05:34 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 3:05:34 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 3:05:34 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 3:05:34 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 3:05:34 PM
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 3:05:34 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 3:05:34 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 3:05:34 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 2:58:06 PM
Arsenic	0.292	0.250	μg/L	1	12/22/2020 2:58:06 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 2:58:06 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode



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## **Analytical Report**

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/14/2020 1:25:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20120773-005

**Client Sample ID** CCR-5

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND W	ATER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:27:21 AM
INORGANIC ANIONS IN W	ATER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:25:55 PM
METALS IN WATER BY IC	P, TOTALS		SW60	10B	Analyst: STS
Barium	0.213	0.0100	mg/L	1	12/18/2020 3:07:42 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 3:07:42 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 3:07:42 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 3:07:42 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 3:07:42 PM
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 3:07:42 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 3:07:42 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 3:07:42 PM
METALS IN WATER BY IC	P-MS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:00:54 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 3:00:54 PM
			· -		

0.250

< 0.250

Qualifiers: E Value above quantitation range

Thallium

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

J Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection

μg/L

W Sample container temperature is out of limit as specified at testcode

12/22/2020 3:00:54 PM



Website: www.element.com

**Analytical Report** 

**Collection Date:** 12/14/2020 2:15:00 PM

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-006 Matrix: AQUEOUS

Client Sample ID CCR-6

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
MERCURY IN GROUND WATE	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>	
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:29:38 AM	
INORGANIC ANIONS IN WATE	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>	
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:40:43 PM	
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: STS	
Barium	0.190	0.0100	mg/L	1	12/18/2020 3:09:50 PM	
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 3:09:50 PM	
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 3:09:50 PM	
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 3:09:50 PM	
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 3:09:50 PM	
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 3:09:50 PM	
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 3:09:50 PM	
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 3:09:50 PM	
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>	
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:03:41 PM	
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 3:03:41 PM	
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 3:03:41 PM	

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection

W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120773

Date Reported 12/29/2020

**Collection Date:** 12/14/2020 3:05:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20120773-007

Client Sample ID CCR-7

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WATE	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:31:55 AM
INORGANIC ANIONS IN WATI	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:55:30 PM
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: STS
Barium	0.224	0.0100	mg/L	1	12/18/2020 3:11:59 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/18/2020 3:11:59 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/18/2020 3:11:59 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/18/2020 3:11:59 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/18/2020 3:11:59 PM
Lead	< 0.0100	0.0100	mg/L	1	12/18/2020 3:11:59 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/18/2020 3:11:59 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/18/2020 3:11:59 PM
METALS IN WATER BY ICP-M	IS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:06:29 PM
Arsenic	0.342	0.250	μg/L	1	12/22/2020 3:06:29 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 3:06:29 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** (consolidated)

**Collection Date:** 12/14/2020 3:45:00 PM

WO#: 20120773 Date Reported 12/29/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20120773-008

**Client Sample ID** CCR-8

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:34:11 AM
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 9:10:17 PM
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.110	0.0100	mg/L	1	12/21/2020 5:15:06 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:15:06 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:15:06 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:15:06 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:15:06 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:15:06 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:15:06 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:15:06 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:42:23 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 3:42:23 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 3:42:23 PM

Qualifiers: Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte not detected

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit SDL

Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/15/2020 10:55:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-009 Matrix: AQUEOUS

Client Sample ID CCR-9

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WATER	,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:36:27 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.518	0.0500	mg/L	1	12/17/2020 9:25:04 PM
METALS IN WATER BY ICP, TO	TALS		SW60	10B	Analyst: STS
Barium	0.238	0.0100	mg/L	1	12/21/2020 5:17:24 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:17:24 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:17:24 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:17:24 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:17:24 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:17:24 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:17:24 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:17:24 PM
METALS IN WATER BY ICP-MS	, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:45:11 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 3:45:11 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 3:45:11 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit
W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/15/2020 10:10:00 AM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-010 Matrix: AQUEOUS

Client Sample ID CCR-10

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:46:49 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.552	0.0500	mg/L	1	12/17/2020 9:39:51 PM
METALS IN WATER BY ICP, TO	OTALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.256	0.0100	mg/L	1	12/21/2020 5:19:42 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:19:42 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:19:42 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:19:42 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:19:42 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:19:42 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:19:42 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:19:42 PM
METALS IN WATER BY ICP-MS	s, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 3:47:58 PM
Arsenic	1.88	0.250	μg/L	1	12/22/2020 3:47:58 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 3:47:58 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection

W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

0508-3344 (consolidated) 0233-6540 WO#: **20** 

**Collection Date:** 12/15/2020 9:20:00 AM

WO#: **20120773**Date Reported **12/29/2020** 

**Analytical Report** 

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-011 Matrix: AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Qu	RL Qual Units		Date Analyzed
MERCURY IN GROUND WAT	ER,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:53:19 AM
INORGANIC ANIONS IN WAT	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.605	0.0500	mg/L	1	12/17/2020 10:24:13 PM
METALS IN WATER BY ICP,	TOTALS		SW60	10B	Analyst: STS
Barium	0.143	0.0100	mg/L	1	12/21/2020 5:22:00 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:22:00 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:22:00 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:22:00 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:22:00 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:22:00 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:22:00 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:22:00 PM
METALS IN WATER BY ICP-N	IS, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:02:00 PM
Arsenic	1.28	0.250	μg/L	1	12/22/2020 4:02:00 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:02:00 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit
W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120773

Date Reported 12/29/2020

**Collection Date:** 12/15/2020 2:10:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-012 Matrix: AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Qual Units I		DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:55:35 AM
INORGANIC ANIONS IN WATE	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 10:39:00 PM
METALS IN WATER BY ICP, TO	<b>DTALS</b>		SW60	10B	Analyst: STS
Barium	0.175	0.0100	mg/L	1	12/21/2020 5:24:18 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:24:18 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:24:18 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:24:18 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:24:18 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:24:18 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:24:18 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:24:18 PM
METALS IN WATER BY ICP-MS	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:04:49 PM
Arsenic	0.813	0.250	μg/L	1	12/22/2020 4:04:49 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:04:49 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection

W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

**Lab ID:** 20120773-013

Client Sample ID CCR-13

**Collection Date:** 12/15/2020 1:20:00 PM

Matrix: AQUEOUS

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 7:57:52 AM
INORGANIC ANIONS IN WATER	BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.207	0.0500	mg/L	1	12/17/2020 10:53:47 PM
METALS IN WATER BY ICP, TO	TALS		SW60	10B	Analyst: <b>STS</b>
Barium	0.0888	0.0100	mg/L	1	12/21/2020 5:26:36 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:26:36 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:26:36 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:26:36 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:26:36 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:26:36 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:26:36 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:26:36 PM
METALS IN WATER BY ICP-MS	TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:07:37 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 4:07:37 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:07:37 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

J Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit

SDL Sample detection limit
W Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120773 Date Reported 12/29/2020

**Collection Date:** 12/15/2020 12:05:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: 20120773-014

Client Sample ID CCR-14				
Analyses	Result	RL Qual Units	DF	Date A

Analyses	Result	RL Qual Units		DF	Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 8:00:08 AM
INORGANIC ANIONS IN WATE	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 11:08:35 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: <b>STS</b>
Barium	0.0769	0.0100	mg/L	1	12/21/2020 5:28:54 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:28:54 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:28:54 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:28:54 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:28:54 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:28:54 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:28:54 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:28:54 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:10:25 PM
Arsenic	0.994	0.250	μg/L	1	12/22/2020 4:10:25 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:10:25 PM

Value above quantitation range Qualifiers:

> M Matrix Interference R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte not detected

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit SDL

Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Collection Date:** 12/14/2020

**Analytical Report** (consolidated)

WO#: 20120773 Date Reported 12/29/2020

**CLIENT:** Pivotal Engineering LLC

**Project: CCR** Assessment Monitoring

Lab ID: Matrix: AQUEOUS 20120773-015

Client Sample ID Dup

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
MERCURY IN GROUND WATER	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 8:10:25 AM
INORGANIC ANIONS IN WATER	R BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 11:23:22 PM
METALS IN WATER BY ICP, TO	TALS		SW60	10B	Analyst: STS
Barium	0.105	0.0100	mg/L	1	12/21/2020 5:40:23 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:40:23 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:40:23 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:40:23 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:40:23 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:40:23 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:40:23 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:40:23 PM
METALS IN WATER BY ICP-MS	, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:21:36 PM
Arsenic	0.295	0.250	μg/L	1	12/22/2020 4:21:36 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:21:36 PM

Qualifiers: Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte not detected

Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

RL Reporting Limit  $\operatorname{SDL}$ 

Sample container temperature is out of limit as specified at testcode



Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120773**Date Reported **12/29/2020** 

**Collection Date:** 12/15/2020 2:20:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** CCR Assessment Monitoring

Lab ID: 20120773-016 Matrix: AQUEOUS

Client Sample ID FB 1

Analyses	Result	RL Qu	RL Qual Units		Date Analyzed
MERCURY IN GROUND WATE	R,TOTAL		SW74	70A	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200	mg/L	1	12/18/2020 8:12:41 AM
INORGANIC ANIONS IN WATE	ER BY IC		E 30	0.0	Analyst: <b>SGP</b>
Fluoride	0.0610	0.0500	mg/L	1	12/17/2020 5:58:00 PM
METALS IN WATER BY ICP, T	OTALS		SW60	10B	Analyst: <b>STS</b>
Barium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:42:41 PM
Beryllium	< 0.00100	0.00100	mg/L	1	12/21/2020 5:42:41 PM
Cadmium	< 0.00500	0.00500	mg/L	1	12/21/2020 5:42:41 PM
Chromium	< 0.0100	0.0100	mg/L	1	12/21/2020 5:42:41 PM
Cobalt	< 0.0100	0.0100	mg/L	1	12/21/2020 5:42:41 PM
Lead	< 0.0100	0.0100	mg/L	1	12/21/2020 5:42:41 PM
Molybdenum	< 0.0100	0.0100	mg/L	1	12/21/2020 5:42:41 PM
Selenium	< 0.0200	0.0200	mg/L	1	12/21/2020 5:42:41 PM
METALS IN WATER BY ICP-M	S, TOTAL		SW60	20A	Analyst: <b>KML</b>
Antimony	< 0.250	0.250	μg/L	1	12/22/2020 4:24:24 PM
Arsenic	< 0.250	0.250	μg/L	1	12/22/2020 4:24:24 PM
Thallium	< 0.250	0.250	μg/L	1	12/22/2020 4:24:24 PM

Qualifiers: E Value above quantitation range

M Matrix Interference

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

U Analyte not detected

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Limit
SDL Sample detection

W Sample container temperature is out of limit as specified at testcode



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37229

Sample ID: <b>MB-37229</b>	SampType: MBLK	TestCod	e: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/16/2</b>	020	RunNo: 959	004	
Client ID: PBW	Batch ID: 37229	TestN	o: <b>SW6010B</b>			Analysis Da	te: <b>12/18/2</b>	020	SeqNo: 234	14729	
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-37229	SampType: LCS	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>12/16/2</b>	020	RunNo: 959		
Client ID: LCSW	Batch ID: 37229	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>12/18/2</b>	020	SeqNo: 234	14730	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.498	0.0100	0.5000	0	99.5	80	120				
Beryllium	0.503	0.00100	0.5000	0	101	80	120				
Cadmium	0.485	0.00500	0.5000	0	97.0	80	120				
Chromium	0.489	0.0100	0.5000	0	97.7	80	120				
Cobalt	0.492	0.0100	0.5000	0	98.4	80	120				
Lead	0.483	0.0100	0.5000	0	96.6	80	120				
Molybdenum	0.495	0.0100	0.5000	0	99.0	80	120				
Selenium	0.488	0.0200	0.5000	0	97.6	80	120				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37229

Sample ID: LCSD-37229 Client ID: LCSS02	SampType: LCSD  Batch ID: 37229		de: 6010_W	Units: <b>mg/L</b>		Prep Dat			RunNo: <b>959</b> SegNo: <b>23</b> 4		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.483	0.0100	0.5000	0	96.7	80	120	0.4976	2.91	20	
Beryllium	0.492	0.00100	0.5000	0	98.5	80	120	0.5028	2.10	20	
Cadmium	0.474	0.00500	0.5000	0	94.9	80	120	0.4851	2.26	20	
Chromium	0.478	0.0100	0.5000	0	95.5	80	120	0.4886	2.26	20	
Cobalt	0.478	0.0100	0.5000	0	95.7	80	120	0.4918	2.78	20	
Lead	0.477	0.0100	0.5000	0	95.3	80	120	0.4828	1.31	20	
Molybdenum	0.482	0.0100	0.5000	0	96.4	80	120	0.4951	2.68	20	
Selenium	0.474	0.0200	0.5000	0	94.8	80	120	0.4881	2.92	20	

Sample ID: 20120476-001EMS	SampType: <b>MS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/16/2</b>	020	RunNo: 959	904	
Client ID: ZZZZZZ	Batch ID: 37229	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>12/18/2</b>	020	SeqNo: 234	14733	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.547	0.0100	0.5000	0.06477	96.5	75	125				
Beryllium	0.492	0.00100	0.5000	0	98.5	75	125				
Cadmium	0.472	0.00500	0.5000	0	94.5	75	125				
Chromium	0.481	0.0100	0.5000	0	96.2	75	125				
Cobalt	0.481	0.0100	0.5000	0	96.3	75	125				
Lead	0.472	0.0100	0.5000	0	94.4	75	125				
Molybdenum	0.486	0.0100	0.5000	0	97.2	75	125				
Selenium	0.476	0.0200	0.5000	0.008460	93.5	75	125				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37229

Sample ID: 20120476-001EMSD Client ID: ZZZZZZ	SampType: MSD  Batch ID: 37229	TestCode: 6010_W Units: mg/L TestNo: SW6010B			Prep Date: 12/16/2020  Analysis Date: 12/18/2020				RunNo: <b>959</b> SegNo: <b>23</b> 4		
Chert ID. ZZZZZZ	Datch 1D. 31229	1630	10. <b>3440010B</b>			Allalysis Da	ic. 12/10/2	020	Oeq110. 234	14134	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.544	0.0100	0.5000	0.06477	95.8	75	125	0.5473	0.627	20	
Beryllium	0.489	0.00100	0.5000	0	97.8	75	125	0.4925	0.674	20	
Cadmium	0.472	0.00500	0.5000	0	94.3	75	125	0.4724	0.150	20	
Chromium	0.479	0.0100	0.5000	0	95.7	75	125	0.4811	0.536	20	
Cobalt	0.480	0.0100	0.5000	0	96.0	75	125	0.4813	0.243	20	
Lead	0.472	0.0100	0.5000	0	94.3	75	125	0.4720	0.0975	20	
Molybdenum	0.480	0.0100	0.5000	0	96.1	75	125	0.4859	1.12	20	
Selenium	0.467	0.0200	0.5000	0.008460	91.6	75	125	0.4760	1.99	20	

Qualifiers:

E

Value above quantitation range

Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit

M



**QC SUMMARY REPORT** 

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37230

Website: www.element.com

Sample ID: MB-37230 Client ID: PBW	SampType: MBLK Batch ID: 37230	TestCode: 6020A_W TestNo: SW6020A	Units: µg/L	Prep Date: 12/16/2020 RunNo: 9598 Analysis Date: 12/22/2020 SeqNo: 2346	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD	RPDLimit Qual
Antimony Arsenic	< 0.250 < 0.250	0.250 0.250			
Thallium	< 0.250	0.250			

Sample ID: LCS-37230 Client ID: LCSW	SampType: LCS Batch ID: 37230		le: 6020A_W lo: SW6020A	Units: µg/L		Prep Dat Analysis Dat	te: <b>12/16/2</b> te: <b>12/22/2</b>		RunNo: <b>959</b> SeqNo: <b>234</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	490	5.00	500.0	0	98.1	80	120				
Arsenic	466	5.00	500.0	0	93.2	80	120				
Thallium	499	5.00	500.0	0	99.7	80	120				

Sample ID: L	LCSD-37230	SampType: <b>LCSD</b>	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>12/16/2</b>	020	RunNo: 959		
Client ID: L	LCSS02	Batch ID: <b>37230</b>	TestN	o: <b>SW6020A</b>			Analysis Dat	te: <b>12/22/2</b>	020	SeqNo: 234	6678	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		475	5.00	500.0	0	95.0	80	120	490.5	3.19	20	
Arsenic		464	5.00	500.0	0	92.7	80	120	466.1	0.530	20	
Thallium		485	5.00	500.0	0	97.0	80	120	498.5	2.79	20	

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37230

Sample ID: <b>201204</b> 7	6-001EMS SampType: MS	TestCo	ode: <b>6020A_W</b>	Units: µg/L		Prep Dat	e: <b>12/16/2</b>	020	RunNo: 959	985	
Client ID: ZZZZZ	Batch ID: <b>37230</b>	Test	:No: <b>SW6020A</b>	Analysis Date: 12/22/2020			SeqNo: 234	16681			
Analyte	Resul	t PQL	SPK value	SPK Ref Val	Ref Val %REC LowLimit HighLimit RPD Ref Val			%RPD	RPDLimit	Qual	
Antimony	469	5.00	500.0	0.2029	93.8	75	125				
Arsenic	458	5.00	500.0	0.08378	91.5	75	125				
Thallium	482	5.00	500.0	0.2362	96.4	75	125				

Sample ID: 2012047	'6-001EMSD	SampType: MSD	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	te: <b>12/16/2</b>	020	RunNo: 959		
Client ID: ZZZZZZ	<u>z</u>	Batch ID: <b>37230</b>	TestN	TestNo: SW6020A			Analysis Da	te: <b>12/22/2</b>	020	SeqNo: <b>2346685</b>		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		476	5.00	500.0	0.2029	95.2	75	125	469.2	1.53	20	
Arsenic		467	5.00	500.0	0.08378	93.5	75	125	457.7	2.12	20	
Thallium		488	5.00	500.0	0.2362	97.6	75	125	482.1	1.32	20	

Qualifiers:

E

Value above quantitation range

D Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37245

Project:	CCR Assessment	Monitoring					В	atchID: 3	37245		
Sample ID: Client ID:	MB-37245 PBW	SampType: MBLK Batch ID: 37245	TestCode: <b>HG_V</b> TestNo: <b>SW7</b>	V_7470A Units: mg/L 170A		Prep Date Analysis Date	12/17/2		RunNo: 958 SeqNo: 234		
Analyte		Result	PQL SPK v	alue SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200	0.000200								
Sample ID:	LCSD-37245	SampType: <b>LCSD</b>	TestCode: HG_N	V_7470A Units: mg/L		Prep Date	: 12/17/2	020	RunNo: 958	374	
Client ID:	LCSS02	Batch ID: <b>37245</b>	TestNo: SW7	170A		Analysis Date	: 12/18/2	020	SeqNo: 234	13951	
Analyte		Result	PQL SPK v	alue SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0109	0.000200 0.01	000 0	109	80	120	0.01195	9.63	20	
Sample ID:	20120773-014BMS	SampType: <b>MS</b>	TestCode: <b>HG_</b> \	<b>V_7470A</b> Units: <b>mg/L</b>		Prep Date	: 12/17/2	020	RunNo: 958	374	
Client ID:	CCR-14	Batch ID: <b>37245</b>	TestNo: SW7	170A		Analysis Date	: 12/18/2	020	SeqNo: 234	13973	
Analyte		Result	PQL SPK v	alue SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00390	0.000200 0.01	000 0	39.0	75	125				S
Sample ID:	20120773-014BMSD	SampType: <b>MSD</b>	TestCode: <b>HG_</b> \	N_7470A Units: mg/L		Prep Date	: 12/17/2	020	RunNo: 958	374	
Client ID:	CCR-14	Batch ID: <b>37245</b>	TestNo: SW7	170A		Analysis Date	: 12/18/2	020	SeqNo: 234	13974	
Analyte		Result	PQL SPK v	alue SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury NOTES:		0.00617	0.000200 0.01	000 0	61.7	75	125	0.003904	45.0	20	RS

NOTES:

MS/MSD recoveries were outside of QC limits. PDS/PDSD recoveries were within the acceptance limits. The method is in control as indicated by the Lab Control Sample(s).

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

M Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#:

20120773

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37245

Website: www.element.com

Sample ID: LCS-37245	SampType: <b>LCS</b>	TestCode: <b>HG_W_7</b>	470A Units: mg/L		Prep Da	te: <b>12/17/2</b> 0	020	RunNo: <b>958</b>		
Client ID: LCSW	Batch ID: <b>37245</b>	TestNo: SW7470		Analysis Da	te: <b>12/18/2</b> 0	020	SeqNo: 234	13999		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0120	0.000200 0.01000 0		120	80	120				

Qualifiers:

E

Value above quantitation range

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37272

Sample ID: 20120775-014BMS Client ID: ZZZZZZ	SampType: MS  Batch ID: 37272		de: <b>6010_W</b> do: <b>SW6010B</b>	Units: mg/L		Prep Dat	te: <b>12/18/2</b>		RunNo: 959 SegNo: 234		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	,	HighLimit		%RPD	RPDLimit	Qual
,								THE PROPERTY	701 (1 12	THE DELITIES	Quai
Barium	0.543	0.0100	0.5000	0.07688	93.2	75	125				
Beryllium	0.476	0.00100	0.5000	0	95.1	75	125				
Cadmium	0.459	0.00500	0.5000	0	91.7	75	125				
Chromium	0.465	0.0100	0.5000	0.0008400	92.8	75	125				
Cobalt	0.464	0.0100	0.5000	0	92.8	75	125				
Lead	0.457	0.0100	0.5000	0	91.4	75	125				
Molybdenum	0.467	0.0100	0.5000	0	93.3	75	125				
Selenium	0.461	0.0200	0.5000	0	92.2	75	125				

Sample ID: 20120775-014BMSD	SampType: MSD	TestCode: 6010_W		Units: mg/L	Prep Date: 12/18/2020				RunNo: <b>95967</b>		
Client ID: ZZZZZZ	Batch ID: 37272 TestNo: SW6010B			Analysis Date: 12/21/2020			020	SeqNo: 2346418			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.553	0.0100	0.5000	0.07688	95.2	75	125	0.5431	1.83	20	
Beryllium	0.481	0.00100	0.5000	0	96.3	75	125	0.4757	1.18	20	
Cadmium	0.468	0.00500	0.5000	0	93.5	75	125	0.4586	1.94	20	
Chromium	0.472	0.0100	0.5000	0.0008400	94.3	75	125	0.4647	1.66	20	
Cobalt	0.469	0.0100	0.5000	0	93.8	75	125	0.4640	1.11	20	
Lead	0.468	0.0100	0.5000	0	93.7	75	125	0.4570	2.44	20	
Molybdenum	0.479	0.0100	0.5000	0	95.7	75	125	0.4667	2.50	20	
Selenium	0.469	0.0200	0.5000	0	93.7	75	125	0.4609	1.67	20	

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37272

Sample ID: <b>MB-37272</b>	SampType: MBLK	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/18/2</b>	020	RunNo: 959		
Client ID: PBW	Batch ID: <b>37272</b>	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	020	SeqNo: 234	16318	
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-37272	SampType: <b>LCS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/18/2</b>	020	RunNo: 959	966	
Client ID: LCSW	Batch ID: 37272	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	020	SeqNo: 234	<b>1</b> 6319	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.483	0.0100	0.5000	0	96.5	80	120				
Beryllium	0.490	0.00100	0.5000	0	98.0	80	120				
Cadmium	0.473	0.00500	0.5000	0	94.6	80	120				
Chromium	0.475	0.0100	0.5000	0	95.0	80	120				
Cobalt	0.478	0.0100	0.5000	0	95.7	80	120				
Lead	0.473	0.0100	0.5000	0	94.6	80	120				
Molybdenum	0.483	0.0100	0.5000	0	96.7	80	120				
Selenium	0.473	0.0200	0.5000	0	94.6	80	120				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37272

Sample ID: LCSD-37272 Client ID: LCSS02	SampType: LCSD  Batch ID: 37272		de: 6010_W do: SW6010B		Prep Da			RunNo: <b>95966</b> SeqNo: <b>2346320</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.476	0.0100	0.5000	0	95.2	80	120	0.4826	1.34	20	
Beryllium	0.484	0.00100	0.5000	0	96.8	80	120	0.4899	1.17	20	
Cadmium	0.464	0.00500	0.5000	0	92.8	80	120	0.4730	1.95	20	
Chromium	0.470	0.0100	0.5000	0	94.0	80	120	0.4752	1.13	20	
Cobalt	0.473	0.0100	0.5000	0	94.6	80	120	0.4783	1.08	20	
Lead	0.464	0.0100	0.5000	0	92.8	80	120	0.4731	1.96	20	
Molybdenum	0.479	0.0100	0.5000	0	95.9	80	120	0.4835	0.854	20	
Selenium	0.474	0.0200	0.5000	0	94.7	80	120	0.4729	0.150	20	

Sample ID: 20120773-014BMS	SampType: <b>MS</b>	TestCo	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/18/2</b>	020	RunNo: 959	966	
Client ID: CCR-14	Batch ID: 37272	TestN	No: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	020	SeqNo: 234	16330	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.543	0.0100	0.5000	0.07688	93.2	75	125				
Beryllium	0.476	0.00100	0.5000	0	95.1	75	125				
Cadmium	0.459	0.00500	0.5000	0	91.7	75	125				
Chromium	0.465	0.0100	0.5000	0.0008400	92.8	75	125				
Cobalt	0.464	0.0100	0.5000	0	92.8	75	125				
Lead	0.457	0.0100	0.5000	0	91.4	75	125				
Molybdenum	0.467	0.0100	0.5000	0	93.3	75	125				
Selenium	0.461	0.0200	0.5000	0	92.2	75	125				

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37272

Sample ID: <b>20120773-014BMSD</b>	SampType: MSD		de: <b>6010_W</b>	Units: mg/L	Prep Date: 12/18/2020				RunNo: 959		
Client ID: CCR-14	Batch ID: <b>37272</b>	TestN	lo: <b>SW6010B</b>			Analysis Dat	te: <b>12/21/2</b>	020	SeqNo: 234	16331	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.553	0.0100	0.5000	0.07688	95.2	75	125	0.5431	1.83	20	
Beryllium	0.481	0.00100	0.5000	0	96.3	75	125	0.4757	1.18	20	
Cadmium	0.468	0.00500	0.5000	0	93.5	75	125	0.4586	1.94	20	
Chromium	0.472	0.0100	0.5000	0.0008400	94.3	75	125	0.4647	1.66	20	
Cobalt	0.469	0.0100	0.5000	0	93.8	75	125	0.4640	1.11	20	
Lead	0.468	0.0100	0.5000	0	93.7	75	125	0.4570	2.44	20	
Molybdenum	0.479	0.0100	0.5000	0	95.7	75	125	0.4667	2.50	20	
Selenium	0.469	0.0200	0.5000	0	93.7	75	125	0.4609	1.67	20	

Qualifiers:

E

Value above quantitation range

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

M Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37273

Sample ID: MB-37273 Client ID: PBW	SampType: MBLK Batch ID: 37273	TestCode: 6020A_W TestNo: SW6020A	Units: µg/L	Prep Date: <b>12/18/2020</b> Analysis Date: <b>12/22/2020</b>	RunNo: <b>95986</b> SeqNo: <b>2346770</b>
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-37273	SampType: <b>LCS</b>	TestCod	e: <b>6020A_W</b>	Units: μg/L		Prep Dat	te: <b>12/18/2</b>	020	RunNo: 959	86	
Client ID: LCSW	Batch ID: <b>37273</b>	TestN	o: <b>SW6020A</b>			Analysis Da	te: <b>12/22/2</b>	020	SeqNo: <b>23</b> 4	6771	
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				
Arsenic	462	5.00	500.0	0	92.4	80	120				
Thallium	483	5.00	500.0	0	96.7	80	120				

Sample ID: LCSD-37273	SampType: <b>LCSD</b>	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	te: <b>12/18/2</b>	020	RunNo: 959	86	
Client ID: LCSS02	Batch ID: 37273	TestN	o: <b>SW6020A</b>			Analysis Dat	te: <b>12/22/2</b>	020	SeqNo: 234	6772	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	464	5.00	500.0	0	92.9	80	120	462.9	0.345	20	
Arsenic	471	5.00	500.0	0	94.2	80	120	462.0	1.98	20	
Thallium	479	5.00	500.0	0	95.7	80	120	483.3	0.986	20	

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

I Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: 37273

Sample ID: 20120773-014BMS	SampType: MS	TestCod	e: <b>6020A_W</b>	Units: µg/L		Prep Dat	ie: <b>12/18/2</b>	020	RunNo: <b>95986</b>		
Client ID: CCR-14	Batch ID: 37273	TestNo: SW6020A				Analysis Date: 12/22/2020			SeqNo: <b>2346785</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	465	5.00	500.0	0	93.1	75	125				
Arsenic	488	5.00	500.0	0.9943	97.4	75	125				
Thallium	468	5.00	500.0	0	93.6	75	125				

Sample ID: 20120773-014BMSD	SampType: MSD	TestCoo	le: <b>6020A_W</b>	Units: µg/L		Prep Da	te: <b>12/18/2</b>	020	RunNo: <b>95986</b>		
Client ID: CCR-14	Batch ID: <b>37273</b>	TestNo: SW6020A				Analysis Da	te: <b>12/22/2</b>	020	SeqNo: <b>2346786</b>		
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	75	125	465.4	0.526	20	
Arsenic	486	5.00	500.0	0.9943	96.9	75	125	487.8	0.437	20	
Thallium	471	5.00	500.0	0	94.1	75	125	468.1	0.527	20	

Qualifiers:

E

Value above quantitation range

D Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

DL Sample detection limit

Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID: R95859

		t Monitoring			Batchid: R95859							
Sample ID: Client ID:	MBLK PBW	SampType: MBLK Batch ID: R95859		de: <b>300.0</b> lo: <b>E 300.0</b>	Units: mg/L		Prep Da Analysis Da	te: te: <b>12/17/2</b>	020	RunNo: 958 SeqNo: 234		
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: <b>LCS</b>	TestCoo	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 958	359	
Client ID:	LCSW	Batch ID: <b>R95859</b>	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: 234	13494	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.85	0.0500	2.000	0	92.4	90	110				
Sample ID:	LCSD	SampType: LCSD	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 958	359	
Sample ID: Client ID:	LCSD LCSS02	SampType: LCSD Batch ID: R95859		de: <b>300.0</b> lo: <b>E 300.0</b>	Units: mg/L		•	te: te: <b>12/17/2</b>	2020	RunNo: 958 SeqNo: 234		
'					Units: mg/L SPK Ref Val	%REC	•	te: <b>12/17/2</b>	RPD Ref Val			Qual
Client ID:		Batch ID: <b>R95859</b>	TestN	lo: <b>E 300.0</b>	J	%REC 92.6	Analysis Da	te: <b>12/17/2</b>		SeqNo: 234	13495	Qual
Client ID: Analyte Fluoride		Batch ID: R95859	TestN PQL 0.0500	No: <b>E 300.0</b> SPK value	SPK Ref Val		Analysis Da	te: <b>12/17/2</b> HighLimit 110	RPD Ref Val	SeqNo: 234	<b>RPDLimit</b> 15	Qual
Client ID: Analyte Fluoride Sample ID:	LCSS02	Batch ID: <b>R95859</b> Result  1.85	PQL 0.05000	SPK value 2.000	SPK Ref Val		Analysis Da LowLimit 90 Prep Da	te: <b>12/17/2</b> HighLimit 110	RPD Ref Val	SeqNo: <b>23</b> 4 %RPD 0.188	13495 RPDLimit 15	Qual
Client ID: Analyte Fluoride Sample ID:	LCSS02 20120691-001BMS	Result  1.85  SampType: MS	PQL 0.05000	SPK value 2.000	SPK Ref Val		Analysis Da  LowLimit  90  Prep Da  Analysis Da	te: 12/17/2 HighLimit 110 te: te: 12/17/2	RPD Ref Val	SeqNo: 234 %RPD 0.188 RunNo: 958	13495 RPDLimit 15	Qual

Qualifiers: E Value above quantitation range

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

M Matrix Interference

RL Reporting Limit



# **QC SUMMARY REPORT**

R95859

WO#: **20120773** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: CCR Assessment Monitoring BatchID:

Sample ID:	20120691-001BMSD	SampType: <b>MSD</b>	TestCod	e: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 958	359	
Client ID:	ZZZZZZ	Batch ID: <b>R95859</b>	TestN	o: <b>E 300.0</b>			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: <b>23</b> 4	13498	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.78	0.500	10.00	0.2982	84.8	80	120	8.705	0.891	15	

Sample ID: 20120773-014AMS	SampType: <b>MS</b>	TestCoo	le: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 958	359	
Client ID: CCR-14	Batch ID: <b>R95859</b>	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: <b>23</b> 4	l3515	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.06	0.250	5.000	0.1814	77.7	80	120				S

#### NOTES:

S - Spike recovery outside of recovery limits. The method is in control for the analyte(s) as indicated by the LCS/LCSD and sample matrix spike duplicate

Sample ID: 20120773-014AMSD	SampType: <b>MSD</b>	TestCod	e: <b>300.0</b>	Units: mg/L		Prep Dat	te:		RunNo: 958	359	
Client ID: CCR-14	Batch ID: <b>R95859</b>	TestN	o: <b>E 300.0</b>			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: 234	3516	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.61	0.250	5.000	0.1814	88.7	80	120	4.064	12.7	15	

Qualifiers:

E

Value above quantitation range

D Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

SDL Sample detection limit

M Matrix Interference

RL Reporting Limit



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

### Sample Log-In Check List

Client Name: PIVOTAL_ENGINEERIN	Work Order Number:	20120773		RcptNo:	1
Logged by: Tammy Thibodeaux	12/16/2020 7:00:00 AM		Janus	Ihrodeaux	
Completed By: Tammy Thibodeaux	12/16/2020 7:54:23 AM		January	Thooleanx	
Reviewed By: Caitlin Duplantis	12/17/2020 8:21:07 AM		Catlin Duplan	Thoodeaux Thoodeaux	
Chain of Custody					
1. Is Chain of Custody complete?		Yes	No 🗸	Not Present	
2. How was the sample delivered?		Drop Off Bo	<u>DX</u>		
<u>Log In</u>					
3. Coolers are present?		Yes 🗸	No 🗌	NA 🗌	
		_	_		
4. Shipping container/cooler in good cor		Yes 🗹	No 📙		
Custody seals intact on shipping cont		Yes 🗆	No 📙	Not Present ✓	
No. Seal Da		Signed By		NA 🗆	
<ol><li>Was an attempt made to cool the san</li></ol>	nples?	Yes 🗸	No 📙	NA 🗌	
6. Were all samples received at a temper	erature of >0° C to 6.0°C	Yes 🗸	No 🗆	NA $\square$	
7. Sample(s) in proper container(s)?		Yes 🗸	No 🗆		
8. Sufficient sample volume for indicated	d test(s)?	Yes 🗸	No 🗆		
9. Are samples (except VOA and ONG)	properly preserved?	Yes 🗸	No 🗌		
10. Was preservative added to bottles?		Yes	No 🗸	NA $\square$	
11. Is the headspace in the VOA vials les	s than 1/4 inch or 6 mm?	Yes	No 🗌	No VOA Vials 🗹	
12. Were any sample containers received	I broken?	Yes	No 🗹		
13. Does paperwork match bottle labels? (Note discrepancies on chain of custo	ody)	Yes 🗸	No 🗌		
14. Are matrices correctly identified on Cl	nain of Custody?	Yes 🗸	No 🗆		
15. Is it clear what analyses were request	red?	Yes 🗸	No $\square$		
16. Were all holding times able to be met (If no, notify customer for authorizatio		Yes 🗸	No 🗆		
Special Handling (if applicable)	,				
17. Was client notified of all discrepancie	s with this order?	Yes	No $\square$	NA 🗹	
Person Notified:	Date:				
By Whom:	Via:	eMail 🗌	Phone   Fax	☐ In Person	
Regarding:					
Client Instructions:					
18. Additional remarks:					

Incomplete custody signature(s) prior to receipt by Element personnel Added year of collection to COC as per samples received.

#### **Cooler Information**

Cooler No	Temp ºC	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Not Present			



4.1

Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

# Sample Log-In Check List

PIVOTAL\_ENGINEERIN Client Name: RcptNo: 1 Work Order Number: 20120773 2 2.8 Good Not Present

Not Present

Good



# **ANALYTICAL RESULTS**

#### PERFORMED BY

**Pace Analytical Gulf Coast** 

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

**Report Date** 12/28/2020



**Project** 20120773

Deliver To

**Element Materials Technology** 

2417 W Pinhook Rd

Lafayette, LA 70508

800-737-2378

Annie Reedy

**Additional Recipients** 

Kelli Foreman, Element Materials Technology

Caitlin Duplantis, Element Materials

Technology

Cristina Thibeaux, Element Materials

Technology

Rhonda David, Element Materials Technology

Buffy Bryant, Element Materials Technology









**Project ID:** 20120773 **Report Date:** 12/28/2020

### 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
 Organics - The result is estimated because it exceeded the instrument calibration range

Metals - % diference for the serial dilution is > 10%
 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 220121707



**Project ID:** 20120773 **Report Date:** 12/28/2020

# 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



**Project ID:** 20120773 **Report Date:** 12/28/2020

### **Case Narrative**

Client: Element Materials Technology Report: 220121707

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).



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
22012170701	CCR-1	Water	12/14/2020 11:35	12/17/2020 09:28
22012170702	CCR-2	Water	12/14/2020 10:40	12/17/2020 09:28
22012170703	CCR-3	Water	12/14/2020 09:55	12/17/2020 09:28
22012170704	CCR-4	Water	12/14/2020 12:25	12/17/2020 09:28
22012170705	CCR-5	Water	12/14/2020 13:25	12/17/2020 09:28
22012170706	CCR-6	Water	12/14/2020 14:15	12/17/2020 09:28
22012170707	CCR-7	Water	12/14/2020 15:05	12/17/2020 09:28
22012170708	CCR-8	Water	12/14/2020 15:45	12/17/2020 09:28
22012170709	CCR-9	Water	12/15/2020 10:55	12/17/2020 09:28
22012170710	CCR-10	Water	12/15/2020 10:10	12/17/2020 09:28
22012170711	CCR-11	Water	12/15/2020 09:20	12/17/2020 09:28
22012170712	CCR-12	Water	12/15/2020 14:10	12/17/2020 09:28
22012170713	CCR-13	Water	12/15/2020 13:20	12/17/2020 09:28
22012170714	CCR-14	Water	12/15/2020 12:05	12/17/2020 09:28
22012170715	DUP	Water	12/14/2020 00:01	12/17/2020 09:28
22012170716	FB-1	Water	12/15/2020 14:20	12/17/2020 09:28
22012170717	20120773-014C-MS	Water	12/15/2020 12:05	12/17/2020 09:28
22012170718	20120773-014C-MSD	Water	12/15/2020 12:05	12/17/2020 09:28



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

CCR-1	Collect Date 12/14/	2020 11:35 <b>LAB ID</b>	22012170701
CCK-I	Receive Date 12/17/	/2020 09:28 <b>Matrix</b>	Water

#### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 15:19	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			22.4	5.00	ug/L

CCR-2	Collect Date	12/14/2020 10:40	LAB ID	22012170702	
GCR-2	Receive Date	12/17/2020 09:28	Matrix	Water	

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 15:24	LWZ	700228	
CAS#	Parameter			Result	LOQ	Units	

CCR-3	Collect Date	12/14/2020 09:55	LAB ID	22012170703	
CCR-3	Receive Date	12/17/2020 09:28	Matrix	Water	

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	<b>Analysis Date</b> 12/21/2020 15:28	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
CAS# 7439-93-2	Parameter Lithium			Result 27.1	LOQ 5.00	Units ug/L

CCR-4	Collect Date	12/14/2020 12:25	LAB ID	22012170704	
CCR-4	Receive Date	12/17/2020 09:28	Matrix	Water	

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:0	0 699942	EPA 3010A	1	12/21/2020 15:33	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			17.4	5.00	ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

CCR-5	Collect Date	12/14/2020 13:25	LAB ID	22012170705
CCR-5	Receive Date	12/17/2020 09:28	Matrix	Water

### EPA 6020B

Prep Date 12/18/2020 07:00	<b>Prep Batch</b> 699942	Prep Method EPA 3010A	<b>Dilution</b> 1	Analysis Date 12/21/2020 15:37	<b>By</b> LWZ	Analytical Batch 700228	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			19.8	5.00	ug/L	

CCR 6	Collect Date	12/14/2020 14:15	LAB ID	22012170706
CCR-6	Receive Date	12/17/2020 09:28	Matrix	Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 15:42	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			13.6	5.00	ug/L

CCP 7	Collect Date	12/14/2020 15:05	LAB ID	22012170707
CCR-7	Receive Date	12/17/2020 09:28	Matrix	Water

Prep Date	Prep Batch	Prep Method	<b>Dilution</b>	<b>Analysis Date</b> 12/21/2020 15:46	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
CAS# 7439-93-2	Parameter Lithium			Result 12.4	LOQ 5.00	Units ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

CCR-8	Collect Date	12/14/2020 15:45	LAB ID	22012170708
CCR-6	Receive Date	12/17/2020 09:28	Matrix	Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	<b>Dilution</b>	<b>Analysis Date</b> 12/21/2020 15:51	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
CAS# 7439-93-2	Parameter Lithium			Result 33.1	LOQ 5.00	Units ug/L

	CD 0	Collect Date	12/15/2020 10:55	LAB ID	22012170709	1
•	CR-9	Receive Date	12/17/2020 09:28	Matrix	Water	1

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 15:56	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			12.6	5.00	ug/L

CCR-10	Collect Date	12/15/2020 10:10	LAB ID	22012170710
CCR-10	Receive Date	12/17/2020 09:28	Matrix	Water

Prep Date	Prep Batch	Prep Method	<b>Dilution</b>	<b>Analysis Date</b> 12/21/2020 16:00	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
CAS# 7439-93-2	Parameter Lithium			Result 8.57	LOQ 5.00	Units ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

 CCR-11
 Collect Date
 12/15/2020 09:20
 LAB ID
 22012170711

 Receive Date
 12/17/2020 09:28
 Matrix
 Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 16:17	LWZ	700228
CAS#	Parameter			Result	LOQ	Units

7439-93-2 Lithium 7.75 5.00 ug/L

 CCR-12
 Collect Date
 12/15/2020 14:10
 LAB ID
 22012170712

 Receive Date
 12/17/2020 09:28
 Matrix
 Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 16:22	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			25.7	5.00	ug/L

CCR-13	Collect Date	12/15/2020 13:20	LAB ID	22012170713
CCR-13	Receive Date	12/17/2020 09:28	Matrix	Water

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 16:26	LWZ	700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			15.5	5.00	ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

CCR-14 Collect Date 12/15/2020 12:05 LAB ID 22012170714

Receive Date 12/17/2020 09:28 Matrix Water

#### **EPA 6020B**

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	Ву	Analytical Batch	
12/18/2020 07:00	699942	EPA 3010A	1	12/21/2020 16:31	LWZ	700228	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			15.0	5.00	ua/L	

DUP	Collect Date	12/14/2020 00:01	LAB ID	22012170715
DOP	Receive Date	12/17/2020 09:28	Matrix	Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	<b>Dilution</b>	<b>Analysis Date</b> 12/21/2020 16:54	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
<b>CAS#</b> 7439-93-2	Parameter Lithium			<b>Result</b> ND	<b>LOQ</b> 5.00	<b>Units</b> ug/L

FB-1	Collect Date	12/15/2020 14:20	LAB ID	22012170716
FD-I	Receive Date	12/17/2020 09:28	Matrix	Water

Prep Date	Prep Batch	Prep Method	<b>Dilution</b>	<b>Analysis Date</b> 12/21/2020 16:58	<b>By</b>	Analytical Batch
12/18/2020 07:00	699942	EPA 3010A	1		LWZ	700228
CAS# 7439-93-2	Parameter Lithium			Result 17.5	LOQ 5.00	Units ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Sample Results

#### **EPA 6020B**

Prep Date 12/18/2020 07:00	Prep Batch 699942	Prep Method EPA 3010A	<b>Dilution</b> 1	<b>Analysis Date</b> 12/21/2020 16:36	<b>By</b> LWZ	Analytical Batch 700228	
CAS#	Parameter			Result	LOQ	Units	
7439-93-2	Lithium			244	5.00	ua/l	

Prep Date 12/18/2020 07:00	Prep Batch 699942	Prep Method EPA 3010A			<b>By</b> LWZ	Analytical Batch 700228
CAS#	Parameter			Result	LOQ	Units
7439-93-2	Lithium			258	5.00	ug/L



**Project ID:** 20120773 **Report Date:** 12/28/2020

# Inorganics QC Summary

Analytical Batch	Client ID	MB699942		LCS6999	942				
700228	LAB ID	2125705		2125707					
Prep Batch	Sample Type	MB		LCS					
699942	Prep Date	12/18/20 07:00		12/18/20	07:00				
Prep Method	Analysis Date	12/21/20 15:10		12/21/20 15:15					
EPA 3010A	Matrix	Water		Water					
EPA 602	ΛP	Units	ug/L	Spike	Result	0/, D	Control		
EPA 002	VB	Result LOQ		Added	Nesult	/0 K	Limits%R		
Lithium	7439-93-2	ND	5.00	250	229	91	80 - 120		

Analytical Batch	Client ID CCR-14				3-014C-N	20120773-014C-MSD							
700228	LAB ID	22012170714		2201217	0717	22012170718							
Prep Batch	Sample Type	SAMPLE		MS		MSD							
699942	Prep Date	12/18/2020 07:0	0	12/18/20	07:00			12/18/20 07:00					
Prep Method	Analysis Date	12/21/2020 16:3	1	12/21/20	16:36	12/21/20 16:40							
EPA 3010A	Matrix	Water		Water		Water							
EPA 602	ΛP	Units	ug/L	Spike	Pocult	0/, D	Control	Spike	Result	0/, D	DDD	RPD	
EFA 002	UD .	Result	LOQ	Added Result %R Limits%R		Limits%R	Added	Nesult	/011	I NI-D	Limit		
Lithium	7439-93-2	15.0	5.00	250	244	92	80 - 120	250	258	97	6	20	



#### CHAIN OF CUSTODY RECORD

Omega COCID 9923

Client ID: 4462 - Element Materials Technology

SDG: 220121707

PM: JLM



FAX: (337) 233-6540 Website: www.element.com

SUB CONTR.	ATOR: GCAL	COMPANY:	Pace Analytic	cal (FKA GCAL)		COMMENTS:		
ADDRESS:	7979 GSRI Avenue				ELA 034978 PO			
CITY, STATE	Baton Rouge, LA 7	0820						
		) 767-5717 EMAI	L:					
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	20120773-001C	CCR-1	250HDPEHNO3	Aqueous	12/14/2020 11:35:00 AM	1		j
1	6020_W_SUB (SW6020A)							
2	20120773-002C	CCR-2	250HDPEHNO3	Aqueous	12/14/2020 10:40:00 AM	1		2
	6020_W_SUB (SW6020A)							
3	20120773-003C	CCR-3	250HDPEHNO3	Aqueous	12/14/2020 9:55:00 AM	1		3
3	6020_W_SUB (SW6020A)				*			
4	20120773-004C	CCR-4	250HDPEHNO3	Aqueous	12/14/2020 12:25:00 PM	1		4
4	6020_W_SUB (SW6020A)	Western Hotel of the State of t		# 1000 - 11 - 1000 m m m m m m m m m m m m m m m m m				
-	20120773-005C	CCR-5	250HDPEHNO3	Aqueous	12/14/2020 1:25:00 PM	1		5
5	6020_W_SUB (SW6020A)			•				
	20120773-006C	CCR-6	250HDPEHNO3	Aqueous	12/14/2020 2:15:00 PM	1		le
6	6020_W_SUB (SW6020A)			•				
-	20120773-007C	CCR-7	250HDPEHNO3	Aqueous	12/14/2020 3:05:00 PM	1		7
7	6020_W_SUB (SW6020A)			<del> </del>				
	20120773-008C	CCR-8	250HDPEHNO3	Aqueous	12/14/2020 3:45:00 PM	1		8
8	6020_W_SUB (SW6020A)		1	<u> </u>				
	20120773-009C	CCR-9	250HDPEHNO3	Aqueous	12/15/2020 10:55:00 AM	1		9
9	6020_W_SUB (SW6020A)		-	<u> </u>				
		1						
Relinquished B	James of Thebodeaux Pate 1-	Time:	Received By	Date	Time: 505		REPORT TRANSMITTAL DESIRED:	
Relinquished B			Received By:	Date:	Time:	☐ HARDCO	PY (extra cost)	
Relinquished B	Pate: 1	Zo Time:	Received By: JEV	King Date:	120 928	Temp of sam	FOR LAB USE ONLY ples 0.7 634°C Attempt to Cool?	
	TAT: Standard	RUSH	Next BD	2nd BD	3rd BD □	Comments:		
			Note: RUSH re	quests will incur surcharges!	:			

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#### CHAIN OF CUSTODY RECORD

Omega COCID 9923

Client ID: 4462 - Element Materials Technology

SDG: 220121707

PM: JLM



FAX: (337) 233-6540 Website: www.element.com

SUB CONTRA	ATOR: GCAL	COMPANY:	Pace Analytic	cal (FKA GCAL)		COMMENTS:					
ADDRESS:	7979 GSRI Avenue	,			ELA 034978 PO						
CITY, STATE	Baton Rouge, LA 7	0820									
PHONE: (22	25) 769-4900 FAX: (225	) 767-5717 EMAI	L:								
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	20120773-010C	CCR-10	250HDPEHNO3	Aqueous	12/15/2020 10:10:00 AM	1		10			
10	6020_W_SUB (SW6020A)										
	20120773-011C	CCR-11	250HDPEHNO3	Aqueous	12/15/2020 9:20:00 AM	1		11			
11	6020_W_SUB (SW6020A)										
12	20120773-012C	CCR-12	250HDPEHNO3	Aqueous	12/15/2020 2:10:00 PM	1		12			
12	6020_W_SUB (SW6020A)				· · · · · · · · · · · · · · · · · · ·						
12	20120773-013C	CCR-13	250HDPEHNO3	Aqueous	12/15/2020 1:20:00 PM	1		13			
13	6020_W_SUB (SW6020A)										
14	20120773-014C	CCR-14	250HDPEHNO3	Aqueous	12/15/2020 12:05:00 PM	3	17.18	14			
14	6020_W_SUB (SW6020A)		***************************************	***************************************				Ţ			
15	20120773-015C	Dup	250HDPEHNO3	Aqueous	12/14/2020	1	15	75			
15	6020_W_SUB (SW6020A)							· N			
16	20120773-016C	FB 1	250HDPEHNO3	Aqueous	12/15/2020 2:20:00 PM	1	16	10 5			
16	6020_W_SUB (SW6020A)										

	( )			1 1		
Relinquished By Dhong of Indodeaux	Date: 17 20	Time:	Received By:	Date 7	Time:	REPORT TRANSMITTAL DESIRED:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
CX SNX	Date: 7 Z	Time:	Raceived By:    Section of the secti		Time: 78	FOR LAB USE ONLY  Temp of samples  Comments:  FOR LAB USE ONLY  Attempt to Cool?

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### **SAMPLE RECEIVING CHECKLIST**



SAMPLE DELIVERY GRO	UP 2201217	707	CHECKLIST	YES	NO	
Client PM JLM 4462 - Element Materials	Transport N	lethod	Samples received with proper thermal preservation	?	~	
Technology			Radioactivity is <1600 cpm? If no, record cpm valu	e in notes section.	~	
Profile Number 271810	Received By		COC relinquished and complete (including sample	~		
271010	Jenkins, Mark		All containers received in good condition and withi	~		
Line Item(s)	Receive Date	e(s)	All sample labels and containers received match t	he chain of custody?	~	
1 - Water	12/17/20		Preservative added to any containers?			~
			If received, was headspace for VOC water contained	ers < 6mm?	~	
			Samples collected in containers provided by Pace	~		
COOLERS		_	DISCREPANCIES	LAB PRESERVATIONS		
Airbill Thermome	eter ID: E34	Temp °C	None	None		
		0.7				
NOTES			_			

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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

	Chaire of Created Page 1																								
	1 of .							Chain			dy	R	ecor	d	111				Lab Nun			21	012	0173	
Client Na	me: Pivota	l Eng	gineer	ring	LLC		Proj	ect: CCR Assessme	ent Monitor	ring		serv.	of			1 0		Те	st Re	ques	sted				
Contact N	lame: Terr	y Eln	agga	r			Quo	te #: 5346			H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Type iner	Code	e e	metals		ry							
Phone/Fa	x: (504) 79	9-36					Sam	pler's Signature:	12		HNO <sub>3</sub>	H Na	Number / Typ Container	Matrix	Fluoride	*6010/**6020	20 Sub	7470 Mercury						Comn	nents /
Collection quantum San			Sam	ple l	dentification / Do		1	HCI	NaOH	Num	M	300: F	*6010	***6020	7470						Rem	arks			
12/14	1135	Х		С	С	R	-	1			None	/ HNO3	3 Plastic	Aq	Х	Х	Х	Х						*6010 Meta	
i	1040	Х		С	С	R	-	2			None	/ HNO3	3 Plastic	Aq	Х	Х	Х	Х						Be, Cd, Cr, Mo, Se	Co, Pb,
	955	Х		С	С	R	-	3			None	/ HNO3	3 Plastic	Aq	X	Х	Х	Х						**6020 Met	als: As,
	1225	Х		С	С	R	-	4			None	/ HNO3	3 Plastic	Aq	X	Х	Х	Х						Sb,TI	100
	1325	Х		С	С	R	-	5			None.	/ HNO3	3 Plastic	Aq	Х	Х	Х	Х						***6020 Su	b Metal:Li
	1415	Х		С	С	R	-	6			None	HNO3	3 Plastic	Aq	X	Х	X	Х							
	1505	Х		С	С	R	-	7			None	HNO3	3 Plastic	Aq	X	Х	X	X							
V,	1545	Х		С	С	R	-	8			None	HNO3	3 Plastic	Aq	Х	Х	X	Х							
12/15	1055	X		С	С	R	-	9			None	HNO3	3 Plastic	Aq	Х	Х	X	X							
2	1910	X		С	С	R	-	10			None	HNO3	3 Plastic	Aq	Х	Х	X	Х							Airborne land / Mail
								ology for analysis are aterials Technology r								the m	nater	ial re	emain	_	P.O. Num	ber			
Relinguishe	d by (Signati	1/2	2		Rece	ived by	:(Sign	ature)	Date 12/16	Time 7:150		quishe	d by: (Signa	iture)			Recei	ived b	y:(Sig	natur	e)			Date	Time
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	-	atrix						Container Types	Shipping (				Requeste												
DW = Drinking Water AQ = Aqueous LIQ = Liqui			G = Glass	Icedz,0			24-Hr. 72-Hr.				Thank-you for using Element Ma						erials								
GW = Ground Water O = Oil SLD = Solid			P = Plastic	Temp. 1.8 ☐ 48-Hr. ☑ Standa			ard	ard Technology																	
vvvv = vvas	Waste Water SO = Soil SL = Sludge V = Vial Ambient Other						11	100																	

thrus



8	312-375-0531 Fax 812-	-375-0531			201		344		37-233-6 <b>herida</b> r		OK 74145	
2	Industrial Rd., Fort 19-471-7000 Fax 219-	-471-7777							28-9977. 18-828-7	7/800324-5 7756	757	
Page 2 of 2 Chain Client Name: Pivotal Engineering LLC Project: CCR Assessi	of Custo	dy R	lecor	rd				Labor Numb	atory	206	207/13	
	ment Monitoring	Preserv					Te	st Requ			$\overline{}$	
Contact Name: Terry Elnaggar Quote #: 5346		H <sub>2</sub> SO <sub>4</sub>	pe r	de		tals			TI		7	
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All samples submitted to Element Materials Technology for analysis are with the client submitting the samples. Element Materials Technology	e accepted on a custo	ndial hasis	only Ow	oorobin	of 4h a				P.O.		/ Element	Hand / Mail
with the client submitting the samples. Element Materials Technology ( Received by: (Signature)  Received by: (Signature)	reserves the right to re	eturn unus	ed sample	portion	าร.	mater	iai ren	nains	Numbe	er		
the state of the s	Date Time	Relinquished	by: (Signat	ure)		Recei	ved by:	:(Signatu	_	-	Date	Time
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DW = Drinking Water AQ = Aqueous LIQ = Liquid	Shipping Conditions	ons Requested TAT						onor				
GW = Ground Water O = Oil SID = Solid D = District	Iced 3 Temp.2	☐ 24-Hr. ☐ 72-Hr. Thank-you for using Element Materials						erials				
WW = Waste Water SO = Soil SL = Sludge P = Plastic  V = Vial	- 48-Hr. Standard Technology											

2203 S. Madison St., Muncie, IN 47302



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



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

Website: www.element.com

Order No.: 20120775

December 29, 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

Dear Terry Elnaggar:

Element Materials Technology Lafayette received 16 sample(s) on 12/16/2020 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.

Where applicable, 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 2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Case Narrative** 

WO#: **20120775**Date: **12/29/2020** 

**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.

Exception: Total Dissolved Solids by Method M2540C

The method blank for TDS batch R95822 had a detection of 47 mg/L. Due to holding time constraints, re-analysis of the batch was not performed. All analytical result(s) associated with this method blank is reported with a "B" qualifier. The sample results appear to be consistent with history.

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#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/14/2020 11:35:00 AM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-001 Matrix: AQUEOUS

Client Sample ID CCR-1

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E	300.0	Analyst: <b>SGP</b>
Chloride	37.1	2.50	mg/L	10	12/17/2020 1:17:04 PM
Fluoride	0.236	0.0500	mg/L	1	12/17/2020 7:26:47 PM
Sulfate	2.99	0.250	mg/L	1	12/17/2020 7:26:47 PM
METALS IN WATER BY ICP, TOTALS			sw	6010B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/18/2020 2:54:55 PM
Calcium	26.2	0.500	mg/L	1	12/18/2020 2:54:55 PM
TOTAL DISSOLVED SOLIDS			SM	2540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	251	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



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**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/14/2020 10:40:00 AM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-002 Matrix: AQUEOUS

**Client Sample ID** CCR-2

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E	300.0	Analyst: <b>SGP</b>
Chloride	50.3	2.50	mg/L	10	12/17/2020 1:31:50 PM
Fluoride	0.307	0.0500	mg/L	1	12/17/2020 7:41:34 PM
Sulfate	1.30	0.250	mg/L	1	12/17/2020 7:41:34 PM
METALS IN WATER BY ICP, TOTALS			sw	/6010B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/18/2020 2:57:03 PM
Calcium	21.3	0.500	mg/L	1	12/18/2020 2:57:03 PM
TOTAL DISSOLVED SOLIDS			SM	12540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	212	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



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Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540

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**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/14/2020 9:55:00 AM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-003 Matrix: AQUEOUS

Client Sample ID CCR-3

Analyses	Result	RL Qı	ıal Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E 30	0.0	Analyst: <b>SGP</b>
Chloride	103	5.00	mg/L	20	12/17/2020 1:46:39 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 7:56:21 PM
Sulfate	3.61	0.250	mg/L	1	12/17/2020 7:56:21 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/18/2020 3:03:26 PM
Calcium	29.4	0.500	mg/L	1	12/18/2020 3:03:26 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	341	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



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**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/14/2020 12:25:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-004 Matrix: AQUEOUS

Client Sample ID CCR-4

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E.	300.0	Analyst: <b>SGP</b>
Chloride	37.6	2.50	mg/L	10	12/17/2020 2:01:27 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:11:08 PM
Sulfate	9.92	0.250	mg/L	1	12/17/2020 8:11:08 PM
METALS IN WATER BY ICP, TOTALS			sw	6010B	Analyst: STS
Boron	0.103	0.100	mg/L	1	12/18/2020 3:05:34 PM
Calcium	19.0	0.500	mg/L	1	12/18/2020 3:05:34 PM
TOTAL DISSOLVED SOLIDS			SM	2540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	212	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits



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**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**Collection Date:** 12/14/2020 1:25:00 PM

**CLIENT:** Pivotal Engineering LLC

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-005 Matrix: AQUEOUS

Client Sample ID CCR-5

Analyses	Result	RL (	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY I	С		E	300.0	Analyst: <b>SGP</b>
Chloride	54.8	5.00	mg/L	20	12/17/2020 2:16:14 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:25:55 PM
Sulfate	< 0.250	0.250	mg/L	1	12/17/2020 8:25:55 PM
METALS IN WATER BY ICP, TOTALS	5		sw	V6010B	Analyst: STS
Boron	0.107	0.100	mg/L	1	12/18/2020 3:07:42 PM
Calcium	32.4	0.500	mg/L	1	12/18/2020 3:07:42 PM
TOTAL DISSOLVED SOLIDS			SM	12540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	388	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits



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Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: **20120775** 

Date Reported: 12/29/2020

CLIENT: Pivotal Engineering LLC Collection Date: 12/14/2020 2:15:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-006 Matrix: AQUEOUS

**Client Sample ID** CCR-6

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	<b>;</b>		E	€ 300.0	Analyst: <b>SGP</b>
Chloride	74.2	2.50	mg/L	10	12/17/2020 2:31:02 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:40:43 PM
Sulfate	< 0.250	0.250	mg/L	1	12/17/2020 8:40:43 PM
METALS IN WATER BY ICP, TOTALS			SI	W6010B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/18/2020 3:09:50 PM
Calcium	28.8	0.500	mg/L	1	12/18/2020 3:09:50 PM
TOTAL DISSOLVED SOLIDS			SI	W2540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	282	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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(consolidated)

WO#: **20120775** 

Date Reported: 12/29/2020

**Collection Date:** 12/14/2020 3:05:00 PM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

Entergy: CCR Detection Monitoring

**Lab ID:** 20120775-007

Client Sample ID CCR-7

**Project:** 

Analyses	Result	RL Ç	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	70.8	2.50	mg/L	10	12/17/2020 2:45:49 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 8:55:30 PM
Sulfate	< 0.250	0.250	mg/L	1	12/17/2020 8:55:30 PM
METALS IN WATER BY ICP, TOTAL	s		SW60	)10B	Analyst: <b>STS</b>
Boron	< 0.100	0.100	mg/L	1	12/18/2020 3:11:59 PM
Calcium	46.0	0.500	mg/L	1	12/18/2020 3:11:59 PM
TOTAL DISSOLVED SOLIDS			SM25	540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	320	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits



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TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20120775**Date Reported: **12/29/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 12/14/2020 3:45:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-008 Matrix: AQUEOUS

Client Sample ID CCR-8

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	:		E 30	0.0	Analyst: <b>SGP</b>
Chloride	76.7	2.50	mg/L	10	12/17/2020 3:00:37 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 9:10:17 PM
Sulfate	0.926	0.250	mg/L	1	12/17/2020 9:10:17 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:15:06 PM
Calcium	11.4	0.500	mg/L	1	12/21/2020 5:15:06 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	255	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



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TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20120775** 

Date Reported: 12/29/2020

**Collection Date:** 12/15/2020 10:55:00 AM

**CLIENT:** Pivotal Engineering LLC

Entergy: CCR Detection Monitoring

Lab ID: 20120775-009 Matrix: AQUEOUS

Client Sample ID CCR-9

**Project:** 

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			ES	300.0	Analyst: <b>SGP</b>
Chloride	55.1	5.00	mg/L	20	12/17/2020 3:15:25 PM
Fluoride	0.518	0.0500	mg/L	1	12/17/2020 9:25:04 PM
Sulfate	5.68	0.250	mg/L	1	12/17/2020 9:25:04 PM
METALS IN WATER BY ICP, TOTALS			swe	6010B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:17:24 PM
Calcium	30.3	0.500	mg/L	1	12/21/2020 5:17:24 PM
TOTAL DISSOLVED SOLIDS			SM2	2540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	306	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



Element Materials Technology Lafayette
2417 W. Pinhook Road

2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20120775** 

Date Reported: 12/29/2020

**Collection Date:** 12/15/2020 10:10:00 AM

Matrix: AQUEOUS

**CLIENT:** Pivotal Engineering LLC

Entergy: CCR Detection Monitoring

**Lab ID:** 20120775-010

Client Sample ID CCR-10

**Project:** 

Filterable)

- · · · · · · · · · · · · · · · · · · ·					
Analyses	Result	RL (	Qual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY	IC		E 30	0.0	Analyst: <b>SGP</b>
Chloride	38.5	2.50	mg/L	10	12/17/2020 3:59:41 PM
Fluoride	0.552	0.0500	mg/L	1	12/17/2020 9:39:51 PM
Sulfate	7.94	0.250	mg/L	1	12/17/2020 9:39:51 PM
METALS IN WATER BY ICP, TOTAL	S		SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:19:42 PM
Calcium	27.1	0.500	mg/L	1	12/21/2020 5:19:42 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue,	298	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540

Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/15/2020 9:20:00 AM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-011 Matrix: AQUEOUS

Client Sample ID CCR-11

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E3	300.0	Analyst: <b>SGP</b>
Chloride	21.6	2.50	mg/L	10	12/17/2020 4:14:29 PM
Fluoride	0.605	0.0500	mg/L	1	12/17/2020 10:24:13 PM
Sulfate	2.99	0.250	mg/L	1	12/17/2020 10:24:13 PM
METALS IN WATER BY ICP, TOTALS			swe	6010B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:22:00 PM
Calcium	27.5	0.500	mg/L	1	12/21/2020 5:22:00 PM
TOTAL DISSOLVED SOLIDS			SM2	2540C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	207	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit

SDL Sample detection limit Sample container temperature is out of limit as specified at testcode Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540

Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/15/2020 2:10:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-012 Matrix: AQUEOUS

Client Sample ID CCR-12

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY I	С		E 30	0.0	Analyst: <b>SGP</b>
Chloride	14.8	1.25	mg/L	5	12/17/2020 4:29:17 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 10:39:00 PM
Sulfate	12.2	0.250	mg/L	1	12/17/2020 10:39:00 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:24:18 PM
Calcium	18.6	0.500	mg/L	1	12/21/2020 5:24:18 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	136	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20120775**Date Reported: **12/29/2020** 

CLIENT: Pivotal Engineering LLC Collection Date: 12/15/2020 1:20:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-013 Matrix: AQUEOUS

Client Sample ID CCR-13

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	;		E 30	0.0	Analyst: <b>SGP</b>
Chloride	10.4	1.25	mg/L	5	12/17/2020 4:44:04 PM
Fluoride	0.207	0.0500	mg/L	1	12/17/2020 10:53:47 PM
Sulfate	1.26	0.250	mg/L	1	12/17/2020 10:53:47 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:26:36 PM
Calcium	18.2	0.500	mg/L	1	12/21/2020 5:26:36 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	150	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



2417 W. Pinhook Road Lafayette, LA 70508-3344

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Website: www.element.com

**Analytical Report** 

(consolidated)

WO#: 20120775

Date Reported: 12/29/2020

**CLIENT:** Pivotal Engineering LLC **Collection Date:** 12/15/2020 12:05:00 PM

**Project:** Entergy: CCR Detection Monitoring

Lab ID: 20120775-014 Matrix: AQUEOUS

Client Sample ID CCR-14

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY I	<b>C</b>		E 30	0.0	Analyst: <b>SGP</b>
Chloride	10.1	1.25	mg/L	5	12/18/2020 8:32:10 AM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 11:08:35 PM
Sulfate	0.313	0.250	mg/L	1	12/17/2020 11:08:35 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:28:54 PM
Calcium	16.1	0.500	mg/L	1	12/21/2020 5:28:54 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	141	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Analyte detected in the associated Method Blank Qualifiers:

M Matrix Interference

RL Reporting Limit SDL Sample detection limit

Sample container temperature is out of limit as specified at testcode

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Analyte not detected



2417 W. Pinhook Road Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540 Website: www.element.com **Analytical Report** 

(consolidated)

WO#: **20120775** 

Date Reported: 12/29/2020

CLIENT: Pivotal Engineering LLC Collection Date: 12/14/2020

**Project:** Entergy: CCR Detection Monitoring

**Lab ID:** 20120775-015 **Matrix:** AQUEOUS

Client Sample ID DUP

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC	<b>;</b>		E 30	0.0	Analyst: <b>SGP</b>
Chloride	37.2	2.50	mg/L	10	12/17/2020 5:43:12 PM
Fluoride	< 0.0500	0.0500	mg/L	1	12/17/2020 11:23:22 PM
Sulfate	9.62	0.250	mg/L	1	12/17/2020 11:23:22 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	0.100	0.100	mg/L	1	12/21/2020 5:40:23 PM
Calcium	18.9	0.500	mg/L	1	12/21/2020 5:40:23 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	259	20.0	B mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

V Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



Element Materials Technology Lafayette
2417 W. Pinhook Road

2417 W. Pinhook Road Lafayette, LA 70508-3344

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**Analytical Report** 

(consolidated)

WO#: **20120775** 

Website: www.element.com Date Reported: 12/29/2020

**Collection Date:** 12/15/2020 2:20:00 PM

**CLIENT:** Pivotal Engineering LLC

Entergy: CCR Detection Monitoring

Lab ID: 20120775-016 Matrix: AQUEOUS

Client Sample ID FB-1

**Project:** 

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
INORGANIC ANIONS IN WATER BY IC			E 30	0.0	Analyst: <b>SGP</b>
Chloride	1.85	0.250	mg/L	1	12/17/2020 5:58:00 PM
Fluoride	0.0610	0.0500	mg/L	1	12/17/2020 5:58:00 PM
Sulfate	< 0.250	0.250	mg/L	1	12/17/2020 5:58:00 PM
METALS IN WATER BY ICP, TOTALS			SW60	10B	Analyst: STS
Boron	< 0.100	0.100	mg/L	1	12/21/2020 5:42:41 PM
Calcium	< 0.500	0.500	mg/L	1	12/21/2020 5:42:41 PM
TOTAL DISSOLVED SOLIDS			SM25	40C	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0	mg/L	1	12/17/2020 5:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

M Matrix Interference

RL Reporting Limit
SDL Sample detection limit

W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

U Analyte not detected



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: 3722

Project:	Entergy: CCR De	etection Monitoring							BatchID:	37229		
Sample ID Client ID:	MB-37229 PBW	SampType: MBLK Batch ID: 37229		de: 6010_W lo: SW6010B	Units: mg/L		Prep Date Analysis Date	e: <b>12/16/2</b> e: <b>12/18/2</b>		RunNo: 95		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		< 0.100 < 0.500	0.100 0.500									
Sample ID	LCS-37229	SampType: <b>LCS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>12/16/2</b>	2020	RunNo: 95	904	
Client ID:	LCSW	Batch ID: <b>37229</b>	TestN	lo: <b>SW6010B</b>			Analysis Date	e: <b>12/18/</b> 2	2020	SeqNo: 23	44730	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron		0.481	0.100	0.5000	0	96.2	80	120				
Calcium		49.1	0.500	50.00	0	98.2	80	120				
Sample ID	LCSD-37229	SampType: <b>LCSD</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>12/16/2</b>	2020	RunNo: 95	904	
Client ID:	LCSS02	Batch ID: <b>37229</b>	TestN	lo: <b>SW6010B</b>			Analysis Date	e: <b>12/18/</b> 2	2020	SeqNo: 23	44731	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron		0.474	0.100	0.5000	0	94.9	80	120	0.4808	1.36	20	
Calcium		48.3	0.500	50.00	0	96.5	80	120	49.12	1.75	20	
Sample ID	20120476-001EMS	SampType: <b>MS</b>	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>12/16/2</b>	2020	RunNo: 95	904	
Client ID:	ZZZZZZ	Batch ID: <b>37229</b>	TestN	lo: <b>SW6010B</b>			Analysis Date	e: <b>12/18/</b> 2	2020	SeqNo: 23	44733	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron		0.492	0.100	0.5000	0	98.4	75	125				
Ouglifians	B Analyte detected i	n the associated Method Blank		H Holding	g times for preparation or anal	vsis exceeded		М	Matrix Interference			

Qualifiers: B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: 37229

Sample ID <b>20120476-001EMS</b>	SampType: <b>MS</b>	TestCode: 6010_W		Units: mg/L		Prep Dat	te: <b>12/16/2</b>	020	RunNo: 959	004	
Client ID: ZZZZZZ	Batch ID: <b>37229</b>	TestNo: SW6010B			Analysis Date: 12/18/2020			SeqNo: <b>2344733</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.6	0.500	50.00	2.166	96.8	75	125				

Sample ID	20120476-001EMSD	SampType:	MSD	TestCod	le: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>12/16/2</b>	020	RunNo: 959	904	
Client ID:	ZZZZZZ	Batch ID:	37229	TestN	TestNo: SW6010B			Analysis Date: 12/18/2020			SeqNo: <b>2344734</b>		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron			0.480	0.100	0.5000	0	96.1	75	125	0.4922	2.44	20	
Calcium			50.0	0.500	50.00	2.166	95.6	75	125	50.56	1.18	20	

U Analyte not detected

S Spike Recovery outside accepted recovery limits



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: 37272

Sample ID <b>20120775-014BMS</b> Client ID: <b>CCR-14</b>	SampType: MS Batch ID: 37272		TestCode: 6010_W Units: mg/L TestNo: SW6010B			Prep Date: <b>12/18/2020</b> Analysis Date: <b>12/21/2020</b>				RunNo: <b>95967</b> SeqNo: <b>2346417</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron Calcium	0.514 63.1	0.100 0.500	0.5000 50.00	0 16.06	103 94.0	75 75	125 125					

Sample ID	20120775-014BMSD	SampType:	MSD	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/18/2</b>	2020	RunNo: 959	967	
Client ID:	CCR-14	Batch ID:	37272	TestN	No: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	2020	SeqNo: 234	46418	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron			0.522	0.100	0.5000	0	104	75	125	0.5143	1.57	20	
Calcium			64.1	0.500	50.00	16.06	96.0	75	125	63.06	1.57	20	

RL Reporting Limit

U Analyte not detected

S Spike Recovery outside accepted recovery limits

W Sample container temperature is out of limit as sp



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project:	Entergy: CCR De	etection Monitoring							BatchID:	37272		
Sample ID Client ID:	MB-37272 PBW	SampType: MBLK Batch ID: 37272		de: 6010_W do: SW6010B	Units: mg/L		Prep Date	e: 12/18/2 e: 12/21/2		RunNo: 95		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		< 0.100 < 0.500	0.100 0.500									
Sample ID Client ID:	LCS-37272 LCSW	SampType: LCS Batch ID: 37272		de: 6010_W do: SW6010B	Units: mg/L		Prep Date	e: 12/18/2 e: 12/21/2		RunNo: 95		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		0.475 48.4	0.100 0.500	0.5000 50.00	0	95.0 96.9	80 80	120 120				
Sample ID Client ID:	LCSD-37272 LCSS02	SampType: LCSD Batch ID: 37272		de: 6010_W do: SW6010B	Units: mg/L		Prep Date	e: 12/18/2 e: 12/21/2		RunNo: 95		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron Calcium		0.470 48.0	0.100 0.500	0.5000 50.00	0	94.0 96.0	80 80	120 120	0.4749 48.45	0.988 0.970	20 20	
Sample ID	20120773-014BMS	SampType: <b>MS</b>	TestCod	de: <b>6010_W</b>	Units: mg/L		Prep Date	e: <b>12/18/2</b>	2020	RunNo: 95	966	
Client ID:	ZZZZZZ	Batch ID: <b>37272</b>	TestN	lo: <b>SW6010B</b>			Analysis Date	e: <b>12/21/2</b>	2020	SeqNo: 23	46330	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron		0.514	0.100	0.5000	0	103	75	125		_		

Qualifiers: B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: 37272

Website: www.element.com

Sample ID <b>20120773-014BMS</b>	SampType: <b>MS</b>	TestCod	e: <b>6010_W</b>	Units: mg/L		Prep Da	te: <b>12/18/2</b>	020	RunNo: 959	966	
Client ID: ZZZZZZ	Batch ID: <b>37272</b>	TestN	o: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	020	SeqNo: 234	<b>46330</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	63.1	0.500	50.00	16.06	94.0	75	125				

Sample ID	20120773-014BMSD	SampType:	MSD	TestCoo	de: <b>6010_W</b>	Units: mg/L		Prep Dat	te: <b>12/18/2</b>	020	RunNo: 959	966	
Client ID:	ZZZZZZ	Batch ID:	37272	TestN	lo: <b>SW6010B</b>			Analysis Da	te: <b>12/21/2</b>	2020	SeqNo: 234	46331	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron			0.522	0.100	0.5000	0	104	75	125	0.5143	1.57	20	
Calcium			64.1	0.500	50.00	16.06	96.0	75	125	63.06	1.57	20	

RL Reporting Limit

U Analyte not detected

S Spike Recovery outside accepted recovery limits



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: R9582

Website: www.element.com

Project: Enter	gy: CCR Detection Monitorin	g					BatchID:	R95822		
Sample ID MB-R95 Client ID: PBW	822 SampType: MBL Batch ID: R958	_	•	Aı	Prep Date		2020	RunNo: 95 SeqNo: 23		
Analyte	Resu	ılt PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Soli Filterable)	ds (Residue, 47	0 20.0								
Sample ID LCS-R9	5822 SampType: LCS	TestCode: TDS_2540	OC Units: mg/L		Prep Date	e:		RunNo: 95	822	
Client ID: LCSW	Batch ID: R958	22 TestNo: <b>SM2540C</b>		Aı	nalysis Dat	e: <b>12/17/2</b>	2020	SeqNo: 23	44285	
Analyte	Resu	ılt PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solid Filterable)	ds (Residue, 93	9 20.0 1,000	0	93.9	85	115				В
Sample ID LCSD-R	95822 SampType: LCSI	TestCode: TDS_2540	OC Units: mg/L		Prep Date	e:		RunNo: 95	822	
Client ID: LCSS02	Batch ID: R958	22 TestNo: <b>SM2540C</b>		Aı	nalysis Dat	e: <b>12/17/2</b>	2020	SeqNo: 23	44286	
Analyte	Resu	ılt PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solid Filterable)	ds (Residue, 93	0 20.0 1,000	0	93.0	85	115	939.0	0.963	10	В
Sample ID <b>201207</b>	<b>'5-001ADUP</b> SampType: <b>DUP</b>	TestCode: TDS_2540	OC Units: mg/L		Prep Date	e:		RunNo: 95	822	
Client ID: CCR-1	Batch ID: R958	22 TestNo: <b>SM2540C</b>		Aı	nalysis Dat	e: <b>12/17/2</b>	2020	SeqNo: 23	44288	
Analyte	Resu	ılt PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

246

20.0

SDL Sample detection limit

Total Dissolved Solids (Residue,

Filterable)

Holding times for preparation or analysis exceeded

RL Reporting Limit

U Analyte not detected

M Matrix Interference

S Spike Recovery outside accepted recovery limits

251.0

W Sample container temperature is out of limit as sp

2.01

В

10



#### **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: R95822

Sample ID 20120775-001ADUP SampType: DUP TestCode: TDS\_2540C Units: mg/L Prep Date: RunNo: 95822

Client ID: CCR-1 Batch ID: R95822 TestNo: SM2540C Analysis Date: 12/17/2020 SeqNo: 2344288

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID 20120775-014ADUP			de: <b>TDS_2540</b> C	Units: mg/L		Prep Dat			RunNo: 958		
Client ID: CCR-14	Batch ID: <b>R95822</b>	Testi	No: <b>SM2540C</b>			Analysis Dat	te: <b>12/17/2</b>	2020	SeqNo: 234	44303	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	128	20.0						141.0	9.67	10	В

U Analyte not detected



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: R95872

Website: www.element.com

Sample ID MBLK Client ID: PBW	SampType: MBLK Batch ID: R95872	TestCode: <b>300.0</b> TestNo: <b>E 300.0</b>	Units: mg/L Prep Date: Analysis Date: 12/17/2020		RunNo: <b>95872</b> SeqNo: <b>2343860</b>
Analyte	Result	PQL SPK value	e 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: <b>LCS</b>	TestCode	e: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 958	372	
Client ID: LCSW	Batch ID: <b>R95872</b>	TestNo	D: E 300.0			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: 234	13861	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.76	0.250	10.00	0	97.6	90	110				
Fluoride	1.85	0.0500	2.000	0	92.4	90	110				
Sulfate	9.34	0.250	10.00	0	93.4	90	110				

Sample ID LCSD	SampType: <b>LCSD</b>	TestCod	de: <b>300.0</b>	Units: mg/L		Prep Da	te:		RunNo: 958	372	
Client ID: LCSS02	Batch ID: R95872	TestN	lo: <b>E 300.0</b>			Analysis Da	te: <b>12/17/2</b>	020	SeqNo: 234	13862	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.76	0.250	10.00	0	97.6	90	110	9.764	0.0909	15	
Fluoride	1.85	0.0500	2.000	0	92.6	90	110	1.848	0.188	15	
Sulfate	9.33	0.250	10.00	0	93.3	90	110	9.343	0.153	15	

Qualifiers: B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: R95872

Website: www.element.com

1 Tojecti	Emergy. Cert De	ciccion ivio	mornig							DutelliD.	R/30/2		
Sample ID	20120691-001BMS	SampType:	MS	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ıte:		RunNo: 95	872	
Client ID:	ZZZZZZ	Batch ID:	R95872	Testi	No: <b>E 300.0</b>			Analysis Da	ite: 12/17/2	2020	SeqNo: 23	43864	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qua
Chloride			53.5	2.50	50.00	5.867	95.3	80	120				
Fluoride			8.70	0.500	10.00	0.2982	84.1	80	120				
Sulfate			45.1	2.50	50.00	1.242	87.7	80	120				
Sample ID	20120691-001BMSD	SampType:	MSD	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ıte:		RunNo: 95	<del></del> 872	
Client ID:	ZZZZZZ	Batch ID:	R95872	Test	No: <b>E 300.0</b>			Analysis Da	ite: 12/17/2	2020	SeqNo: 23	43865	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qua
Chloride			53.4	2.50	50.00	5.867	95.0	80	120	53.54	0.313	15	
Fluoride			8.78	0.500	10.00	0.2982	84.8	80	120	8.705	0.891	15	
Sulfate			44.8	2.50	50.00	1.242	87.1	80	120	45.08	0.598	15	
Sample ID	20120775-014AMS	SampType:	MS	TestCo	de: <b>300.0</b>	Units: mg/L		Prep Da	ite:		RunNo: 95	<del></del> 872	
Client ID:	CCR-14	Batch ID:	R95872	Testi	No: <b>E 300.0</b>			Analysis Da	ite: 12/18/2	2020	SeqNo: 23	43913	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qua
Chloride			36.6	1.25	25.00	10.06	106	80	120				
Fluoride			4.99	0.250	5.000	0.1496	96.8	80	120				
Sulfate			23.9	1.25	25.00	0.4786	93.6	80	120				

Qualifiers: B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

SDL Sample detection limit

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 sp



# **QC SUMMARY REPORT**

WO#: **20120775** 

29-Dec-20

**Client:** Pivotal Engineering LLC

Project: Entergy: CCR Detection Monitoring BatchID: R95872

Website: www.element.com

Sample ID	20120775-014AMSD	SampType: MS	SD Tes	tCode: <b>300.</b> 0	)	Units: mg/L		Prep Dat	e:		RunNo: 958	372	
Client ID:	CCR-14	Batch ID: R95	5872	estNo: E 30	0.0			Analysis Dat	e: <b>12/18/2</b>	020	SeqNo: <b>23</b> 4	3914	
Analyte		Re	esult PC	QL SPK v	alue	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		3	36.3 1.3	25 2	5.00	10.06	105	80	120	36.64	0.918	15	
Fluoride		4	4.93 0.2	50 5	.000	0.1496	95.6	80	120	4.990	1.23	15	
Sulfate		2	23.8 1.:	25 2	5.00	0.4786	93.1	80	120	23.87	0.453	15	

U Analyte not detected



Element Materials Technology Lafayette 2417 W. Pinhook Road Lafayette, LA 70508-3344

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

#### Sample Log-In Check List

Clie	nt Name:	PIVOTAL_ENGINEERIN	Work Order Number	20120775		RcptNo: 1	
Log	ged by:	Tammy Thibodeaux	12/16/2020 7:00:00 A	M	Janes	& Throdeaux	
Con	npleted By:	Tammy Thibodeaux	12/16/2020 8:04:07 A	M	Janas	P Throdeaux	
Rev	iewed By:	Caitlin Duplantis	12/17/2020 8:22:04 A	M	Contlin Dupla	& Throdeaux & Throdeaux	
<u>Cha</u>	in of Cus	stody				_	
1.	Is Chain of	Custody complete?		Yes 🗌	No 🗸	Not Present	
2.	How was th	ne sample delivered?		Drop Off Box	<u>X</u>		
Log	In						
_	Coolers are	e present?		Yes 🗸	No 🗌	NA $\square$	
				_	_		
4.	Shipping co	ontainer/cooler in good cond	lition?	Yes 🗸	No 🗌		
	Custody se	eals intact on shipping conta	iner/cooler?	Yes L	No 📙	Not Present	
	No.	Seal Dat		Signed By:	$\Box$		
5.	Was an att	empt made to cool the sam	oles?	Yes 🗸	No 🗀	NA 📙	
6.	Were all sa	amples received at a temper	ature of >0° C to 6.0°C	Yes 🗸	No 🗌	NA $\square$	
7.	Sample(s)	in proper container(s)?		Yes 🗸	No 🗌		
8.	Sufficient s	ample volume for indicated	test(s)?	Yes 🗸	No $\square$		
9.	Are sample	es (except VOA and ONG) p	roperly preserved?	Yes 🗸	No $\square$		
10.	Was prese	rvative added to bottles?		Yes	No 🗸	NA 🗌	
11.	Is the head	Ispace in the VOA vials less	than 1/4 inch or 6 mm?	Yes	No 🗌	No VOA Vials <b>✓</b>	
12.	Were any s	sample containers received	broken?	Yes	No 🗸		
13.		rwork match bottle labels? epancies on chain of custoo	ly)	Yes 🗸	No 🗌		
14.	Are matrice	es correctly identified on Cha	ain of Custody?	Yes 🗸	No $\square$		
15.	Is it clear w	hat analyses were requeste	d?	Yes 🗸	No $\square$		
16.		olding times able to be met?  y customer for authorization		Yes 🗸	No $\square$		
Spe	•	dling (if applicable)	-,				
-		notified of all discrepancies	with this order?	Yes	No 🗌	NA 🗹	
	Perso	n Notified:	Date				
	By WI	hom:	Via:		Phone Fax	In Person	
	Regar						
	_	Instructions:					
1Ω	Additional r	-					
10.							

Incomplete custody signature(s) prior to receipt by Element personnel Added year of collection to COC as per samples received.

#### **Cooler Information**

Cooler No	Temp ºC	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Not Present			



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#### Sample Log-In Check List

Client Name: PIVOTAL\_ENGINEERIN Work Order Number: 20120775 RcptNo: 1

2	2.8	Good	Not Present		
3	4.1	Good	Not Present		



☐ 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															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  Client Name: Pivotal Engineering LLC Project: CCR Detection Monitoring Preserve Text Proj																	25											
Client N	lame: Pivo	tal En	gine	ering	LLC	2	Pro	ect: CCR Detect	Preserv.								Requ	701	701	10								
Contact Name: Terry Elnaggar								ote #: 5346			H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Type	Code		S04							1					
Phone/F	ax: (504) 7	99-30	653				San	pler's Signature:	00	1	HNO <sub>3</sub> 1	NaOH Na2	nber / Typ Container	rix (		E,	metals*											
Date	lection Time	Grab	Comp			San	nple	aple Identification / Description					Number / Conta	Matrix	TDS	300: CI,	6010 m						1,000,000	nments / marks				
12/14	1135	Х		С	С	R	-	1			HCI		2 Plastic	Aa	X		Х	+	+	+	$\vdash$	+	_					
	1040	Х		С	С	R	-	2										+	+	+	$\vdash$	_	-					
	955	Х		С	С	R	_	3		one/ HNO3 2 Plastic Aq X				X	+	+	+	$\vdash$	_	*6010 Metals: B, Ca								
	1225	Х		С	С	R	_	4		All Drivers and			X	X	X	+	+		$\vdash$	_								
	1325	Х		С	С	R		- 5					2 Plastic		X	Х	X	+	+				_					
	1415	Х		С	С	R		6					2 Plastic					-	+	$\perp$		4						
	1505	X		С	C	R							2 Plastic		X	X	X	_	-	$\sqcup$		$\perp$						
1	1545	X		С				7					2 Plastic		X	Χ	X	_		Ш								
1415	200				С	R	_	8			None/	ниоз	2 Plastic	Aq	Х	Х	Х											
1911)	1055	X		С	С	R	-	9			None/	ниоз	2 Plastic	Aq	Х	Χ	Х											
Il sample		X		С	С	R	-	10			None/	HNO3	2 Plastic	Aq	Х	Х	Х							X Airborne Hand / Mail				
	dilate to the second		the sa	ent IV ampl	/later es. l	ials I Eleme	echno ent Ma	logy for analysis a terials Technology	re accepted	on a cust	odial b	asis	only. Ow	nership	of th	ne m	ateria	l rema	ains	P.O.								
vith the client submitting the samples. Element leding dished by: (Signature) Received by:(Si						ived by	/:(Signa	ture)	Date 12/15	Time	Relinq	Relinquished by: (Signature)						Number Received by:(Signature)						Time				
elinquished by: (Signature) Received by:(						ived by	:(Signa	(Signature) Date Time			Relinquished by: (Signature)						Received by Laboratory (Signature)						Date	Time				
Matrix Codes  W = Drinking Water AQ = Aqueous LIQ = Liquid								Container Types	1 Educated A								Alloway Alloposi (100)											
W = Drinking Water AQ = Aqueous LIQ = Liqui W = Ground Water O = Oil SLD = Solid								G = Glass P = Plastic	☑ Iced Tem	28		24-Hr		72-Hr.	ard		Thank-you for using Element Materials											
W = Was	te Water S	SO = S	Soil		SL =	Sludge	е	P = Plastic Temp. ☐ 48-Hr. ✓ Sta  V = Vial ☐ Ambient ☐ Other ☐								e 31 of 32 Technology												
										1 0							_				_	-						

2203 S. Madison St., Muncie, IN 47302

765-747-9000/800-874-3563 Fax 765-747-0228

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812-375-0531 Fax 812-375-0531  5738 Industrial Rd., Fort Wayne, IN 46825 219-471-7000 Fax 219-471-7777													'201	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 Client Name: Pivotal Engineering LLC Project: CCR Detection Monitoring Preserv															Laboratory Number 2020715										
												serv.	Jo 3	0	L	_		Test	Requ	iested					
Contact Name:	Terry El	nagga	ar			Que	ote #: 5346				H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Type iner	Code		4									
Phone/Fax: (50-	4) 799-3	653				Son	laula Cian				3 H	la <sub>2</sub> S	1 ~ ~	Ü		804	*								
		055				Sain	npler's Sign	ature	106	122	HNO <sub>3</sub>		umber / Typ Container	atrix		正	metals*								
Collection		Comp			Sar	nnle	Identifies	tion / I	, ,			NaOH	C	Ma	0	O,							-	ments /	
Date Tin		ပိ	_		San	apic i	Identifica	lion / L	Jescripu	on	HCI	ž	Nu		TDS	300:	6010						Ker	narks	
12/15/92	O X		С	С	R	-	1 1				None/	/ HNO3	2 Plastic	Aq	X	X	X				$\vdash$				
141	X		С	С	R	-	1 2				None/	HNO3	2 Plastic	_	X		X	1		+	-	+			
132	OX		С	С	R	-	1 3							_				+	+	+	$\vdash$	+	*6010 Metals: B, Ca		
120			С	С	R	_	1 4						2 Plastic		X		X	+	+	+-	-				
1210			М		13			Α					2 Plastic		Х		Х	_	_	$\perp$					
1210			_	S			R- 14	_)			None/	HNO3	2 Plastic	Aq	Х	Х	Х								
1 10	- 1 ^	<u> </u>	M	S	D	(CC	R- 17	)			None/	ниоз	2 Plastic	Aq	Х	Х	Х								
12/14/	X		D	U	Р						None/	ниоз	2 Plastic	Aq	Х	Х	Х								
12/15/142	OX		F	В	1								2 Plastic		Х	Х	X	$\top$		+		+			
											-		/	7.4		^	$\uparrow$	+	+	+	-	-			
											<del>                                     </del>	-				-	-	+		+	+	-	UPS / FedE	Airborne	
all samples subr	nitted to	Flem	ant I	Actor	iolo T	achna														$\downarrow \downarrow$				Hand / Mail	
All samples subnit the client sul	bmitting	the sa	ampl	les. E	ais ⊤e Elem∈	ecnnoi ent Ma	logy for an	alysis are	reserves 1	d on a cust	odial b	asis	only. Ow	nership	of th	ne m	ateria	al rema	ains	P.O.				_	
elinquished by: (Sig	gnature)	2		Recei	ived by	y:(Signat	ture)	mology	Date	Time	Reling	unus	ed sampl by: (Signa	e portic	ins.	- I	Deceiv	ad by:(S	Cionatu	Num	ber				
elinquished by: (Sic	1/1								12/15	7:15pm		0				Received by:(Signature)							Date	Time	
elinquished by: (Signature)  Received by:(Signature)  Date  Time										Reling							Time								
Matrix Codes Container Types Shipping Conditions											1	Requested TAT							0/100						
W = Drinking Wate W = Ground Wate	er AQ = /	Aqueo			= Liquio		G = GI		1 Iced	d 3-0		24-Hr. 72-Hr. Thank-you for using Flement Materials								erials					
W = Waste Water					<ul><li>Solid</li><li>Sludge</li></ul>		P = Pla V = V		Tem	mp. 2 - V	100	☐ 48-Hr. ✓ Standard 32 of 32 Technology							oriale						
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