

Pit Closure Analytical Data



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

October 27, 2014

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX

RE: E. White Lake

Order No.: 14100542

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 17 sample(s) on 10/10/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads "Annie Reedy".

Annie Reedy
Manager, Analytical Services
2417 W. Pinhook Road
Lafayette, LA 70508-3344



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Case Narrative

WO#: 14100542
Date: 10/27/2014

CLIENT: Michael Pisani & Associates
Project: E. White Lake

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.



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Analytical Report

(consolidated)

WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 10/9/2014 11:15:00 AM

Project: E. White Lake

Lab ID: 14100542-001

Matrix: SOIL

Client Sample ID DEL-1 (0-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				29B/E273.1	29B	Analyst: MXT
Cation Exchange Capacity	64.0	0.1		meq/100g	1	10/22/2014 4:21:00 PM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				29B/E120.1		Analyst: MXT
Electrical Conductivity	1.62	0.10		mmhos/cm	1	10/20/2014 11:45:00 AM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				29B/E273.1	29B	Analyst: MXT
Exchangeable Sodium %	1.4	0.1		%	1	10/22/2014 4:21:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.31	0.05		% dry wt	1	10/22/2014 7:30:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				29B		Analyst: MXT
pH Measurement	3.67	1.68	C	S.U.	1	10/22/2014 9:45:00 AM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				SW9071B		Analyst: MXT
Percent Moisture	34.9	1.0		wt%	1	10/13/2014 3:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				29B/SW6010B	29B	Analyst: STS
Sodium Adsorption Ratio	6.31	0.100			1	10/20/2014
Soluble Calcium	2.22	1.00		meq/L	1	10/20/2014
Soluble Magnesium	2.29	1.00		meq/L	1	10/20/2014
Soluble Sodium	9.48	1.00		meq/L	1	10/20/2014
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE						
				SW7471A	SW7471A	Analyst: SXM
Mercury	0.19	0.10		mg/Kg	1	10/14/2014 9:44:20 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 10/9/2014 11:15:00 AM

Project: E. White Lake

Lab ID: 14100542-001

Matrix: SOIL

Client Sample ID DEL-1 (0-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	3.80	0.51		mg/Kg	1	10/16/2014 4:24:46 PM
Barium	581	0.51		mg/Kg	1	10/16/2014 4:24:46 PM
Cadmium	< 0.26	0.26		mg/Kg	1	10/16/2014 4:24:46 PM
Chromium	7.99	0.51		mg/Kg	1	10/16/2014 4:24:46 PM
Lead	10.7	0.51		mg/Kg	1	10/16/2014 4:24:46 PM
Selenium	< 1.02	1.02		mg/Kg	1	10/16/2014 4:24:46 PM
Silver	< 0.26	0.26		mg/Kg	1	10/16/2014 4:24:46 PM
Zinc	29.2	0.51		mg/Kg	1	10/16/2014 4:24:46 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					29B/SW6010B	Analyst: STS
True Total Barium	1,120	47		mg/Kg-dry	1	10/21/2014 10:04:27 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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	H Holding times for preparation or analysis exceeded	M Matrix Interference
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 11:20:00 AM
Project: E. White Lake
Lab ID: 14100542-002 **Matrix:** SOIL
Client Sample ID DEL-1 (3.5-4.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	2.58	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	34.9	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 11:25:00 AM
Project: E. White Lake
Lab ID: 14100542-003 **Matrix:** SOIL
Client Sample ID DEL-1 (4.5-5.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	1.05	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	41.2	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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WO#: 14100542

Date Reported: 10/27/2014

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 12:00:00 PM
Project: E. White Lake
Lab ID: 14100542-004 **Matrix:** SOIL
Client Sample ID DEL-2 (4-5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.47	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	41.3	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 12:05:00 PM
Project: E. White Lake
Lab ID: 14100542-005 **Matrix:** SOIL
Client Sample ID DEL-2 (6-7.25)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	2.75	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	56.2	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 1:20:00 PM
Project: E. White Lake
Lab ID: 14100542-006 **Matrix:** SOIL
Client Sample ID DEL-3 (3-4.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	1.15	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	55.2	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 1:45:00 PM
Project: E. White Lake
Lab ID: 14100542-007 **Matrix:** SOIL
Client Sample ID DEL-4 (4-5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.47	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	48.9	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 2:10:00 PM
Project: E. White Lake
Lab ID: 14100542-008 **Matrix:** SOIL
Client Sample ID DEL-5 (5-6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	1.23	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	58.7	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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WO#: 14100542

Date Reported: 10/27/2014

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 2:50:00 PM
Project: E. White Lake
Lab ID: 14100542-009 **Matrix:** SOIL
Client Sample ID DEL-6 (4-5.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.52	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE					SW9071B	Analyst: MXT
Percent Moisture	47.1	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 3:15:00 PM
Project: E. White Lake
Lab ID: 14100542-010 **Matrix:** SOIL
Client Sample ID SED-15 (4.5-5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.57	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	63.5	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 3:30:00 PM
Project: E. White Lake
Lab ID: 14100542-011 **Matrix:** SOIL
Client Sample ID SED-15 (0-4.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.35	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE					SW9071B	Analyst: MXT
Percent Moisture	63.5	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 3:40:00 PM
Project: E. White Lake
Lab ID: 14100542-012 **Matrix:** SOIL
Client Sample ID DEL-7 (4.5-5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.93	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	59.8	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
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WO#: 14100542

Date Reported: 10/27/2014

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 3:45:00 PM
Project: E. White Lake
Lab ID: 14100542-013 **Matrix:** SOIL
Client Sample ID DEL-7 (0-4.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.24	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	62.0	1.0		wt%	1	10/13/2014 3:00:00 PM

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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 4:10:00 PM
Project: E. White Lake
Lab ID: 14100542-014 **Matrix:** SOIL
Client Sample ID DEL-8 (0-4)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.23	0.05		% dry wt	1	10/22/2014 7:30:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	60.8	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
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WO#: **14100542**

Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 4:25:00 PM
Project: E. White Lake
Lab ID: 14100542-015 **Matrix:** SOIL
Client Sample ID DEL-9 (0-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.19	0.05		% dry wt	1	10/27/2014 8:00:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	66.7	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
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Date Reported: **10/27/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 10/9/2014 4:05:00 PM

Project: E. White Lake

Lab ID: 14100542-016

Matrix: SOIL

Client Sample ID DEL-8 (4-4.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.50	0.05		% dry wt	1	10/27/2014 8:00:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	62.0	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: 14100542

Date Reported: 10/27/2014

CLIENT: Michael Pisani & Associates **Collection Date:** 10/9/2014 4:20:00 PM
Project: E. White Lake
Lab ID: 14100542-017 **Matrix:** SOIL
Client Sample ID DEL-9 (3-3.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE				SW9071B		Analyst: MXT
HEM, Oil & Grease	0.26	0.05		% dry wt	1	10/27/2014 8:00:00 AM
PERCENT MOISTURE				SW9071B		Analyst: MXT
Percent Moisture	61.0	1.0		wt%	1	10/13/2014 3:00:00 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: 12982

Sample ID	MB-12982	SampType:	MBLK	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	10/13/2014	RunNo:	38340			
Client ID:	PBS	Batch ID:	12982	TestNo:	SW7471A	SW7471A		Analysis Date:	10/14/2014	SeqNo:	912203			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.10 0.10

Sample ID	LCS-12982	SampType:	LCS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	10/13/2014	RunNo:	38340			
Client ID:	LCSS	Batch ID:	12982	TestNo:	SW7471A	SW7471A		Analysis Date:	10/14/2014	SeqNo:	912204			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.85 0.10 0.83 0 102 80 120

Sample ID	LCSD-12982	SampType:	LCSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	10/13/2014	RunNo:	38340			
Client ID:	LCSS02	Batch ID:	12982	TestNo:	SW7471A	SW7471A		Analysis Date:	10/14/2014	SeqNo:	912205			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.86 0.10 0.83 0 104 80 120 0.85 1.32 20

Sample ID	14100542-001AMS	SampType:	MS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	10/13/2014	RunNo:	38340			
Client ID:	DEL-1 (0-3)	Batch ID:	12982	TestNo:	SW7471A	SW7471A		Analysis Date:	10/14/2014	SeqNo:	912207			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.91 0.10 0.82 0.19 88.1 75 125

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 12982

Sample ID	14100542-001AMSD	SampType:	MSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	10/13/2014	RunNo:	38340		
Client ID:	DEL-1 (0-3)	Batch ID:	12982	TestNo:	SW7471A	SW7471A		Analysis Date:	10/14/2014	SeqNo:	912208		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.91		0.10	0.81	0.19	87.7	75	125	0.91	0.75	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: 13004

Sample ID	MB-13004	SampType:	MBLK	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450		
Client ID:	PBS	Batch ID:	13004	TestNo:	SW6010B	SW3050B		Analysis Date:	10/16/2014	SeqNo:	914843		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.50		0.50									
Barium		< 0.50		0.50									
Cadmium		< 0.25		0.25									
Chromium		< 0.50		0.50									
Lead		< 0.50		0.50									
Selenium		< 1.00		1.00									
Silver		< 0.25		0.25									
Zinc		< 0.50		0.50									

Sample ID	LCS-13004	SampType:	LCS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450		
Client ID:	LCSS	Batch ID:	13004	TestNo:	SW6010B	SW3050B		Analysis Date:	10/16/2014	SeqNo:	914844		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		27.9		0.50	25.00	0	112	80	120				
Barium		28.0		0.50	25.00	0	112	80	120				
Cadmium		28.1		0.25	25.00	0	113	80	120				
Chromium		28.2		0.50	25.00	0	113	80	120				
Lead		28.1		0.50	25.00	0	113	80	120				
Selenium		28.0		1.00	25.00	0	112	80	120				
Silver		14.1		0.25	12.50	0	113	80	120				
Zinc		28.2		0.50	25.00	0	113	80	120				

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: 13004

Sample ID	LCSD-13004	SampType:	LCSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450											
Client ID:	LCSS02	Batch ID:	13004	TestNo:	SW6010B		SW3050B	Analysis Date:	10/16/2014	SeqNo:	914845											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
Arsenic		28.1		0.50		25.00		0		112		80		120		27.92		0.73		20		
Barium		28.1		0.50		25.00		0		112		80		120		28.03		0.09		20		
Cadmium		28.2		0.25		25.00		0		113		80		120		28.14		0.11		20		
Chromium		28.1		0.50		25.00		0		113		80		120		28.18		0.18		20		
Lead		28.0		0.50		25.00		0		112		80		120		28.13		0.46		20		
Selenium		28.4		1.00		25.00		0		113		80		120		28.04		1.10		20		
Silver		14.1		0.25		12.50		0		113		80		120		14.10		0.04		20		
Zinc		28.3		0.50		25.00		0		113		80		120		28.17		0.34		20		

Sample ID	14100772-002BMS	SampType:	MS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450											
Client ID:	ZZZZZZ	Batch ID:	13004	TestNo:	SW6010B		SW3050B	Analysis Date:	10/16/2014	SeqNo:	914850											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
Arsenic		33.7		0.51		25.63		0.15		131		75		125								S
Barium		44.5		0.51		25.63		9.81		135		75		125								S
Cadmium		32.9		0.26		25.63		0.02		128		75		125								S
Chromium		35.0		0.51		25.63		0.49		135		75		125								S
Lead		37.5		0.51		25.63		4.54		129		75		125								S
Selenium		31.5		1.03		25.63		0.14		123		75		125								
Silver		15.9		0.26		12.81		0		124		75		125								
Zinc		33.4		0.51		25.63		0.84		127		75		125								S

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: 13004

Sample ID	14100772-002BMSD	SampType:	MSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450
Client ID:	ZZZZZZ	Batch ID:	13004	TestNo:	SW6010B		SW3050B	Analysis Date:	10/16/2014	SeqNo:	914851
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	33.7	0.51	25.53	0.15	132	75	125	33.74	0.02	20	S
Barium	44.0	0.51	25.53	9.81	134	75	125	44.52	1.07	20	S
Cadmium	32.6	0.26	25.53	0.02	127	75	125	32.91	1.09	20	S
Chromium	34.6	0.51	25.53	0.49	134	75	125	34.99	1.06	20	S
Lead	37.7	0.51	25.53	4.54	130	75	125	37.55	0.39	20	S
Selenium	31.7	1.02	25.53	0.14	124	75	125	31.54	0.63	20	
Silver	15.8	0.26	12.76	0	124	75	125	15.86	0.55	20	
Zinc	33.1	0.51	25.53	0.84	126	75	125	33.44	1.07	20	S

NOTES:

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

Sample ID	14100542-001AMS	SampType:	MS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450
Client ID:	DEL-1 (0-3)	Batch ID:	13004	TestNo:	SW6010B		SW3050B	Analysis Date:	10/16/2014	SeqNo:	914851
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.7	0.51	25.71	3.80	120	75	125				
Barium	612	0.51	25.71	581.4	119	75	125				
Cadmium	29.7	0.26	25.71	0.13	115	75	125				
Chromium	38.5	0.51	25.71	7.99	119	75	125				
Lead	39.5	0.51	25.71	10.66	112	75	125				
Selenium	26.3	1.03	25.71	0	102	75	125				
Silver	11.9	0.26	12.85	0	92.7	75	125				
Zinc	58.6	0.51	25.71	29.20	114	75	125				

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 13004

Sample ID	14100542-001AMSD	SampType:	MSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	10/15/2014	RunNo:	38450
Client ID:	DEL-1 (0-3)	Batch ID:	13004	TestNo:	SW6010B		SW3050B	Analysis Date:	10/16/2014	SeqNo:	914862
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.8	0.51	25.63	3.80	121	75	125	34.70	0.19	20	
Barium	608	0.51	25.63	581.4	105	75	125	611.9	0.58	20	
Cadmium	29.5	0.26	25.63	0.13	115	75	125	29.71	0.55	20	
Chromium	38.2	0.51	25.63	7.99	118	75	125	38.47	0.60	20	
Lead	39.5	0.51	25.63	10.66	113	75	125	39.46	0.19	20	
Selenium	26.6	1.03	25.63	0	104	75	125	26.28	1.11	20	
Silver	11.8	0.26	12.81	0	92.0	75	125	11.92	1.11	20	
Zinc	58.3	0.51	25.63	29.20	113	75	125	58.57	0.50	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 13045

Sample ID	MB-13045	SampType:	MBLK	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	10/16/2014	RunNo:	38580			
Client ID:	PBS	Batch ID:	13045	TestNo:	29B/SW6010			Analysis Date:	10/21/2014	SeqNo:	920654			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50 50

Sample ID	LCS-13045	SampType:	LCS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	10/16/2014	RunNo:	38580			
Client ID:	LCSS	Batch ID:	13045	TestNo:	29B/SW6010			Analysis Date:	10/21/2014	SeqNo:	920657			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,520 50 5,000 0 90 75 125

Sample ID	LCSD-13045	SampType:	LCSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	10/16/2014	RunNo:	38580			
Client ID:	LCSS02	Batch ID:	13045	TestNo:	29B/SW6010			Analysis Date:	10/21/2014	SeqNo:	920658			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,540 50 5,000 0 91 75 125 4,523 0 20

Sample ID	14100509-028AMS	SampType:	MS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	10/16/2014	RunNo:	38580			
Client ID:	ZZZZZZ	Batch ID:	13045	TestNo:	29B/SW6010			Analysis Date:	10/21/2014	SeqNo:	920660			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,170 46 4,583 107 89 75 125

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 13045

Sample ID	14100509-028AMSD	SampType:	MSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	10/16/2014	RunNo:	38580		
Client ID:	ZZZZZZ	Batch ID:	13045	TestNo:	29B/SW6010	Analysis Date:	10/21/2014	SeqNo:	920661				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		4,170		46	4,600	107	88	75	125	4,165	0	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 13087

Sample ID	14100570-002ADUP	SampType:	DUP	TestCode:	SAR_S	Units:		Prep Date:	10/17/2014	RunNo:	38531
Client ID:	ZZZZZZ	Batch ID:	13087	TestNo:	29B/SW6010	29B		Analysis Date:	10/20/2014	SeqNo:	919907
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	25.7	0.100						25.96	0.869	20	*
Soluble Calcium	12.7	1.00						12.86	1.13	20	
Soluble Magnesium	4.82	1.00						4.789	0.651	20	
Soluble Sodium	76.2	1.00						77.13	1.19	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: 13118

Sample ID	14100570-002ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	10/21/2014	RunNo:	38597			
Client ID:	ZZZZZZ	Batch ID:	13118	TestNo:	29B/E273.1		29B	Analysis Date:	10/22/2014	SeqNo:	921746			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		18.2		0.1							17.1	5.9	20	*

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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

QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: 13121

Sample ID	14100570-002ADUP	SampType:	DUP	TestCode:	CEC	Units:	meq/100g	Prep Date:	10/21/2014	RunNo:	38596			
Client ID:	ZZZZZZ	Batch ID:	13121	TestNo:	29B/E273.1		29B	Analysis Date:	10/22/2014	SeqNo:	921723			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity		60.7		0.1							58.6	3.5	20	

Sample ID	lcs-13121	SampType:	LCS	TestCode:	CEC	Units:	meq/100g	Prep Date:	10/21/2014	RunNo:	38596			
Client ID:	LCSS	Batch ID:	13121	TestNo:	29B/E273.1		29B	Analysis Date:	10/22/2014	SeqNo:	921739			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity		20.9		0.1	25.0	0		83.5	76	124				

Sample ID	lcsd-13121	SampType:	LCSD	TestCode:	CEC	Units:	meq/100g	Prep Date:	10/21/2014	RunNo:	38596			
Client ID:	LCSS02	Batch ID:	13121	TestNo:	29B/E273.1		29B	Analysis Date:	10/22/2014	SeqNo:	921740			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity		22.3		0.1	25.0	0		89.2	76	124	20.9	6.6	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: R38429

Sample ID	14100542-002ADUP	SampType:	DUP	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	38429		
Client ID:	DEL-1 (3.5-4.5)	Batch ID:	R38429	TestNo:	SW9071B			Analysis Date:	10/13/2014	SeqNo:	914382		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		35.3		1.0						34.9	1.3	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: R38502

Sample ID	MB-R38502	SampType:	MBLK	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	38502
Client ID:	PBS	Batch ID:	R38502	TestNo:	29B/E120.1			Analysis Date:	10/20/2014	SeqNo:	918345
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		< 0.10		0.10							

Sample ID	R38502LCS1	SampType:	LCS1	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	38502
Client ID:	ZZZZZ	Batch ID:	R38502	TestNo:	29B/E120.1			Analysis Date:	10/20/2014	SeqNo:	918346
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.44		0.10	0.41	0	107	89.49	110.51		

Sample ID	R38502LCS2	SampType:	LCS2	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	38502
Client ID:	ZZZZZ	Batch ID:	R38502	TestNo:	29B/E120.1			Analysis Date:	10/20/2014	SeqNo:	918347
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		54.2		0.10	53.00	0	102	90	110		

Sample ID	14100440-001ADUP	SampType:	DUP	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	38502
Client ID:	ZZZZZ	Batch ID:	R38502	TestNo:	29B/E120.1			Analysis Date:	10/20/2014	SeqNo:	918354
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.64		0.10						0.71	10.5 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: R38562

Sample ID	MB-R38562	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38562
Client ID:	PBS	Batch ID:	R38562	TestNo:	SW9071B			Analysis Date:	10/22/2014	SeqNo:	923453
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R38562	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38562
Client ID:	LCSS	Batch ID:	R38562	TestNo:	SW9071B			Analysis Date:	10/22/2014	SeqNo:	923454
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.22 0.05 0.20 0 112 70 130

Sample ID	LCSD-R38562	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38562
Client ID:	LCSS02	Batch ID:	R38562	TestNo:	SW9071B			Analysis Date:	10/22/2014	SeqNo:	923455
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.22 0.05 0.20 0 108 70 130 0.22 3.64 40

Sample ID	14100542-002AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38562
Client ID:	DEL-1 (3.5-4.5)	Batch ID:	R38562	TestNo:	SW9071B			Analysis Date:	10/22/2014	SeqNo:	923456
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

3.27 0.05 0.31 2.58 227 70 130 S

NOTES:

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: R38562

Sample ID	14100542-002ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38562		
Client ID:	DEL-1 (3.5-4.5)	Batch ID:	R38562	TestNo:	SW9071B			Analysis Date:	10/22/2014	SeqNo:	923457		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		2.63		0.05						2.58	1.98	40	*

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: R38571

Sample ID	LCS-R38571	SampType:	LCS	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	38571
Client ID:	LCSS	Batch ID:	R38571	TestNo:	29B			Analysis Date:	10/22/2014	SeqNo:	920402
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
pH Measurement		7.03		1.68	7.00	0	100	97.14	102.86		

Sample ID	14100509-022ADUP	SampType:	dup	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	38571
Client ID:	ZZZZZ	Batch ID:	R38571	TestNo:	29B			Analysis Date:	10/22/2014	SeqNo:	920406
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
pH Measurement		6.76		1.68						6.71	0.74 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14100542
 27-Oct-14

Client: Michael Pisani & Associates

Project: E. White Lake

BatchID: R38602

Sample ID	MB-R38602	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38602
Client ID:	PBS	Batch ID:	R38602	TestNo:	SW9071B			Analysis Date:	10/27/2014	SeqNo:	925624
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R38602	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38602
Client ID:	LCSS	Batch ID:	R38602	TestNo:	SW9071B			Analysis Date:	10/27/2014	SeqNo:	925625
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.23 0.05 0.20 0 116 70 130

Sample ID	LCSD-R38602	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38602
Client ID:	LCSS02	Batch ID:	R38602	TestNo:	SW9071B			Analysis Date:	10/27/2014	SeqNo:	925626
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.23 0.05 0.20 0 113 70 130 0.23 2.63 40

Sample ID	14100570-002AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38602
Client ID:	ZZZZZZ	Batch ID:	R38602	TestNo:	SW9071B			Analysis Date:	10/27/2014	SeqNo:	925627
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.91 0.05 0.50 0.19 144 70 130 S

NOTES:

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: **14100542**
27-Oct-14

Client: Michael Pisani & Associates
Project: E. White Lake

BatchID: R38602

Sample ID	14100570-002ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	38602											
Client ID:	ZZZZZZ	Batch ID:	R38602	TestNo:	SW9071B			Analysis Date:	10/27/2014	SeqNo:	925628											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
HEM, Oil & Grease		0.20		0.05												0.19		8.34		40		

Qualifiers:




- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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 Website: www.element.com

Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14100542** RcptNo: **1**

Logged by:	Heather Delay	10/10/2014 7:00:00 AM	
Completed By:	Heather Delay	10/10/2014 8:48:59 AM	
Reviewed By:	Caitlin Duplantis	10/13/2014 3:26:24 PM	

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Drop Off Box

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Not Present			



Chain of Custody

Laboratory Number: **141005342**

Client Information: **Michael Pason & Associates** PO Number: **07-47** Project Name/Number: **E. White Lake** Page 1 of 2

Contact Name: **Lance Cooper** Quote Number: **Required QC Level** Matrix Code: **DW = Drinking Water, WW = Waste Water, GW = Ground Water, AQ = Aqueous, OT = Other, SL = Sludge, SOL = Solid, O = Oil, SO = Soil, F = Food, SW = Swab, NG = Natural Gas, NGL = Natural Gas Liquid, PW = Produced Water, CF = Completion Fluid**

Address: **1100 Rydals St MSD Energy Ctr** Bill Monthly: Yes No Shipping Method: **UPS / FedEx / Airborne**

City, State Zip: **New Orleans, LA 70163** Ext: **1600 per E npusa1.com**

Phone Number: **504.582.2468** Sampler's Signature: *[Signature]*

E-mail Address: **lcooper@npusa.com**

Sample ID/Description	Which Regulations Apply:		Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Collection Information		Container	Pres.	Requested Tests	Comments
	<input type="checkbox"/> RCRA	<input type="checkbox"/> POTW			<input type="checkbox"/> NPDES	<input type="checkbox"/> USDA/FDA				
DEL-1(0-3)	<input type="checkbox"/> Drinking Water	<input checked="" type="checkbox"/> Standard RUSH	10/9/14	11:15	G	501	2	G	HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₃	X Fall 29 B oil grease 9
DEL-1(3.5-4.5)	<input type="checkbox"/> Distribution	<input type="checkbox"/> 1 Day	11:20	11:25			1			
DEL-1(4.5-5.5)	<input type="checkbox"/> Special	<input type="checkbox"/> 2 Day	12:00	12:05						
DEL-2(4-5)	<input type="checkbox"/> State	<input type="checkbox"/> Other	13:20	13:45						
DEL-2(6-7.2.5)			14:10	14:50						
DEL-3(3-4.5)										
DEL-4(4-5)										
DEL-5(5-6)										
DEL-6(4-5.5)										

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
Lance Cooper	10/9/14 17:11	[Signature]	10-9-14 18:31	Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp: 2.6°C
Drop Box	10-10-14 7:00am	Daniel Halli	10-10-14 7:00am	

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.

9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109

629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731

2121 East Washington Boulevard Fort Wayne, IN 46803-1328 USA P 260-471-7000 F 260-471-7777

580 South Zimmer Road Warsaw, IN 46580-2368 USA P 574-267-3365 F 574-268-6569

3371 Cleveland Road, Suite 100A South Bend, IN 46628-8786 USA P 574-277-0707 F 574-273-5699

2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



Chain of Custody

Laboratory Number: **14100502**

Client Information: **Michael Pisoni & Associates**
 Contact Name: **Lance Cooper**
 Address: **1100 Boylston St**
1430 Energy Ctr
New Orleans, LA 70163
 City, State Zip: **504-582-2468** Ext:
 Phone Number:
 Fax Number:
 E-mail Address: **lcooper@mpisoni.com**

Billing Information:
 PO Number: **07-47**
 Quote Number:
 Required QC Level:

Project Name/Number: **E. White Lake**
 Sampler's Signature: *[Signature]*
 Shipping Method: **UPS / FedEx / Airborne**
DHL / Element / Hand / Mail

Page 2 of 2
Matrix Code
 DW = Drinking Water
 WW = Waste Water
 GW = Ground Water
 AQ = Aqueous
 OT = Other
 SL = Sludge
 O = Oil
 F = Food
 NG = Natural Gas
 NGL = Natural Gas Liquid
 PW = Produced Water
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Container Type P=Plastic, V=Vial	Pres. HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₈	Requested Tests	Comments
			(Rush turn times will incur a surcharge and must be pre-approved by lab.)					
			Date	Time				
SED-15 (4.5-5)		10/19/14	15:15	G	1	G		
SED-15 (0-4.5)			15:30					
DEL-7 (4.5-5)			15:40					
DEL-7 (0-4.5)			15:45					
DEL-8 (BARRY) (0-4')			16:10					
DEL-9 (0-3')			16:25					
DEL-8 (4-4.5)			16:05					
DEL-9 (3-3.5)			16:20					

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>[Signature]</i>	10/9/14 18:34	Drop Box	10-9-14 18:34	
Drop Box	10-10-14 7:00	D. Smith, Halli	10-10-14 9:00	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 26°C

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

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 F 765-378-4109

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 P 812-375-0531
 F 812-375-0731

2121 East Washington Boulevard
 Fort Wayne, IN 46803-1328 USA
 P 260-471-7000
 F 260-471-7777

560 South Zimmer Road
 Warsaw, IN 46603-2368 USA
 P 574-267-3305
 F 574-269-6569

3371 Cleveland Road, Suite 100A
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 P 574-277-0707
 F 574-273-5699

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 Lafayette, LA 70508-3344 USA
 P 337-235-0483
 F 337-233-6540



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

November 25, 2014

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: East White Lake 07-165

Order No.: 14110942

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 1 sample(s) on 11/21/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
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#: 14110942
Date: 11/25/2014

CLIENT: Michael Pisani & Associates
Project: East White Lake 07-165

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

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

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



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

Analytical Report

(consolidated)

WO#: **14110942**

Date Reported: **11/25/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/21/2014 10:00:00 AM
Project: East White Lake 07-165
Lab ID: 14110942-001 **Matrix:** SOIL
Client Sample ID N Bottom Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE		SW9071B			Analyst: MXT	
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	11/24/2014 8:13:00 AM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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QC SUMMARY REPORT

WO#: 14110942
 25-Nov-14

Client: Michael Pisani & Associates

Project: East White Lake 07-165

BatchID: R39415

Sample ID	MB-R39415	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	PBS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944782
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R39415	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944783
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.20 0.05 0.20 0 101 70 130

Sample ID	LCSD-R39415	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS02	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944784
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.20 0.05 0.20 0 102 70 130 0.20 0.98 40

Sample ID	14110858-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	ZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944785
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.26 0.05 0.23 0 110 70 130

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110942
 25-Nov-14

Client: Michael Pisani & Associates

Project: East White Lake 07-165

BatchID: R39415

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415		
Client ID:	ZZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944786		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		< 0.05		0.05						0	0	40	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14110942** RcptNo: **1**

Logged by:	Danielle Hollier	11/21/2014 12:20:00 PM	<i>Danielle Hollier</i>
Completed By:	Danielle Hollier	11/21/2014 12:29:14 PM	<i>Danielle Hollier</i>
Reviewed By:	Caitlin Duplantis	11/24/2014 9:47:32 AM	<i>Caitlin Duplantis</i>

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.7	Good	Not Present			



Chain of Custody

Laboratory Number: 14110942

Company Name: Michael Pisani & Associates
 Contact Name: Lance Cooper
 Address: 1100 Poydras St. Suite 1430
 City, State Zip: NOLA
 Phone Number: 504-582-2476
 Fax Number:
 E-mail Address: lcooper@mpisani.com

Client Information: Billing Information: PO Number: 07-16S
 Quote Number:
 Required QC Level
 Bill Monthly: Yes No
 Ext:
 Shipping Method: UPS / FedEx / Airborne
 DHL / Element Hand Mail

Project Name/Number: East White Lake
 Sampler's Signature: *Lance Cooper*
 Matrix Code: DW = Drinking Water
 WW = Waste Water
 GW = Ground Water
 AQ = Aqueous
 OT = Other
 SL = Sludge SOL = Solid
 O = Oil SO = Soil
 F = Food SW = Swab
 NG = Natural Gas
 NGL = Natural Gas Liquid
 PW = Produced Water
 CF = Completion Fluid

Page 1 of 1

Sample ID/Description	Which Regulations Apply:		Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container	Pres.	Requested Tests	Comments
	<input type="checkbox"/> RCRA	<input type="checkbox"/> Drinking Water						
N Bottom Comp	<input type="checkbox"/> POTW	<input type="checkbox"/> Distribution	Date: 11/21/14	Time: 1000	Quantity: 1	HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₃		
	<input type="checkbox"/> NPDES	<input type="checkbox"/> Special	Collection Information: Date: 11/21/14 Time: 1000 Matrix: Soil		Type: P=Plastic, V=Val			
	<input type="checkbox"/> USDA/FDA	<input type="checkbox"/> State						
	<input type="checkbox"/> RECAP/RISC	<input checked="" type="checkbox"/> Other 29-b						

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>Lance Cooper</i>	11/21/14 1220	<i>J. Dennis</i>	11/21/14 12:20PM	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4.7

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.

9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA
 P 765-378-4103 F 765-378-4109

629 Washington St. Suite 300 Columbus, IN 47201-6231 USA
 P 812-375-0531 F 812-375-0731

2121 East Washington Boulevard Fort Wayne, IN 46803-1328 USA
 P 260-471-7900 F 260-471-7777

568 South Zimmer Road Warsaw, IN 46580-2268 USA
 P 574-267-3305 F 574-269-6569

3371 Cleveland Road, Suite 100A South Bend, IN 46626-9780 USA
 P 574-277-0707 F 574-273-5699

2417 W. Pinhook Rd Lafayette, LA 70608-3344 USA
 P 337-235-0483 F 337-235-6540



Element Materials Technology Lafayette
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Lafayette, LA 70508-3344
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November 25, 2014

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: East White Lake 7-165

Order No.: 14110996

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 2 sample(s) on 11/24/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
2417 W. Pinhook Road
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Website: www.element.com

Case Narrative

WO#: 14110996
Date: 11/25/2014

CLIENT: Michael Pisani & Associates
Project: East White Lake 7-165

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

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

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



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

Analytical Report

(consolidated)

WO#: 14110996

Date Reported: 11/25/2014

CLIENT: Michael Pisani & Associates **Collection Date:** 11/22/2014 1:20:00 PM
Project: East White Lake 7-165
Lab ID: 14110996-001 **Matrix:** SOIL
Client Sample ID S. Bottom Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE		SW9071B			Analyst: MXT	
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	11/24/2014 8:13:00 AM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



Element Materials Technology Lafayette
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Analytical Report

(consolidated)

WO#: **14110996**

Date Reported: **11/25/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/22/2014 2:30:00 PM
Project: East White Lake 7-165
Lab ID: 14110996-002 **Matrix:** SOIL
Client Sample ID S Wall Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.22	0.05		% dry wt	1	11/24/2014 8:13:00 AM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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 Website: www.element.com

QC SUMMARY REPORT

WO#: 14110996
 25-Nov-14

Client: Michael Pisani & Associates
Project: East White Lake 7-165

BatchID: R39415

Sample ID	MB-R39415	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	PBS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944782
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R39415	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944783
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.20 0.05 0.20 0 101 70 130

Sample ID	LCSD-R39415	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS02	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944784
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.20 0.05 0.20 0 102 70 130 0.20 0.98 40

Sample ID	14110858-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	ZZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944785
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.26 0.05 0.23 0 110 70 130

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110996
 25-Nov-14

Client: Michael Pisani & Associates

Project: East White Lake 7-165

BatchID: R39415

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415		
Client ID:	ZZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944786		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		< 0.05		0.05						0	0	40	

Qualifiers:




- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14110996** RcptNo: **1**

Logged by:	Rhonda David	11/24/2014 7:00:00 AM	
Completed By:	Rhonda David	11/24/2014 7:29:08 AM	
Reviewed By:	Caitlin Duplantis	11/24/2014 9:23:37 AM	

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Drop Off Box

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

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



Chain of Custody

Laboratory Number: 14110996

Page 1 of 1

Client Information:
 Company Name: MGP SPANI ASSOC INC
 Contact Name: LARRY COOPER
 Address: 1100 POWERS ST
 STE 1430
 NEW BRUNSWICK NJ 08901
 City, State Zip: NEW BRUNSWICK NJ 08901
 Phone Number: 504 582 2408
 Fax Number:
 E-mail Address: LCooper@compagnie.com

Billing Information:
 Billing Information: SAME

Project Name/Number:
 Project Name/Number: E. WHITE LAKE
 Quote Number:
 Required QC Level:
 Bill Monthly: Yes No
 Shipping Method: UPS / FedEx / Airborne
 DHL / Element / Hand / Mail

Sampler's Signature:
 [Signature]

Matrix Code:
 DW = Drinking Water
 WW = Waste Water
 GW = Ground Water
 AQ = Aqueous
 OT = Other
 SL = Sludge
 SOL = Solid
 O = Oil
 SO = Soil
 F = Food
 SW = Swab
 NG = Natural Gas
 NGL = Natural Gas Liquid
 PW = Produced Water
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply:		Turn Time	Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container	Pres.	Requested Tests	Comments
	<input type="checkbox"/> RCRA	<input type="checkbox"/> POTW						
SBottom Comp	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Distribution	11-22 1330	can	SO	HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₈		
Swell Comp	<input type="checkbox"/> Special	<input checked="" type="checkbox"/> 1 Day	11-22 1430	can	SO	NONE		
	<input type="checkbox"/> State	<input type="checkbox"/> 2 Day						
	<input type="checkbox"/> Other	<input type="checkbox"/> Other						

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
[Signature]	11-24-14 0530	[Signature]	11/24/14 0700	Received at lab on ice?
drop box				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Temp: 3.50C

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 sample. Element Materials Technology reserves the right to return unused sample portions.

9301 Innovation Drive, Suite 115
 Daleville, IN 47334-0569 USA
 P 765-378-4103
 F 765-378-4109

629 Washington St. Suite 300
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 P 812-375-0531
 F 812-375-0731

2121 East Washington Boulevard
 Fort Wayne, IN 46603-1328 USA
 P 260-471-7000
 F 260-471-7777

560 South Zimmer Road
 Warsaw, IN 46680-2368 USA
 P 574-267-3305
 F 574-269-6569

3371 Cleveland Road, Suite 100A
 South Bend, IN 46626-9780 USA
 P 574-277-0707
 F 574-273-5699

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 Lafayette, LA 70508-3344 USA
 P 337-235-0483
 F 337-233-6540



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

November 26, 2014

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: E White Lake 7-165

Order No.: 14111018

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 3 sample(s) on 11/24/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
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Lafayette, LA 70508-3344
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Case Narrative

WO#: 14111018
Date: 11/26/2014

CLIENT: Michael Pisani & Associates
Project: E White Lake 7-165

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

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

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



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Analytical Report

(consolidated)

WO#: **14111018**

Date Reported: **11/26/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/24/2014 9:45:00 AM
Project: E White Lake 7-165
Lab ID: 14111018-001 **Matrix:** SOIL
Client Sample ID Canal Bott Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.62	0.05		% dry wt	1	11/25/2014 10:30:00 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **14111018**

Date Reported: **11/26/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/24/2014 10:48:00 AM
Project: E White Lake 7-165
Lab ID: 14111018-002 **Matrix:** SOIL
Client Sample ID Topsoil N Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.48	0.05		% dry wt	1	11/25/2014 10:30:00 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **14111018**

Date Reported: **11/26/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/24/2014 10:50:00 AM
Project: E White Lake 7-165
Lab ID: 14111018-003 **Matrix:** SOIL
Client Sample ID Topsoil S Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.31	0.05		% dry wt	1	11/25/2014 10:30:00 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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QC SUMMARY REPORT

WO#: 14111018
 26-Nov-14

Client: Michael Pisani & Associates

Project: E White Lake 7-165

BatchID: R39464

Sample ID	MB-R39464	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39464
Client ID:	PBS	Batch ID:	R39464	TestNo:	SW9071B			Analysis Date:	11/25/2014	SeqNo:	945670
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R39464	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39464
Client ID:	LCSS	Batch ID:	R39464	TestNo:	SW9071B			Analysis Date:	11/25/2014	SeqNo:	945671
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.22 0.05 0.20 0 108 70 130

Sample ID	LCSD-R39464	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39464
Client ID:	LCSS02	Batch ID:	R39464	TestNo:	SW9071B			Analysis Date:	11/25/2014	SeqNo:	945672
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.21 0.05 0.20 0 103 70 130 0.22 4.98 40

Sample ID	14111018-003AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39464
Client ID:	Topsoil S Comp	Batch ID:	R39464	TestNo:	SW9071B			Analysis Date:	11/25/2014	SeqNo:	945673
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.93 0.05 0.32 0.31 194 70 130 S

NOTES:

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14111018
 26-Nov-14

Client: Michael Pisani & Associates

Project: E White Lake 7-165

BatchID: R39464

Sample ID	14111018-003ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39464		
Client ID:	Topsoil S Comp	Batch ID:	R39464	TestNo:	SW9071B			Analysis Date:	11/25/2014	SeqNo:	945674		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		0.33		0.05						0.31	8.48	40	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14111018** RcptNo: **1**

Logged by:	Danielle Hollier	11/24/2014 12:36:00 PM	<i>Danielle Hollier</i>
Completed By:	Danielle Hollier	11/24/2014 1:01:29 PM	<i>Danielle Hollier</i>
Reviewed By:	Caitlin Duplantis	11/25/2014 8:24:35 AM	<i>Caitlin Duplantis</i>

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.5	Good	Not Present			



Chain of Custody

Laboratory Number: 1411019

Client Information: **Billing Information:** M. PISANI TASSO LLC SAME
 Company Name: LANCE COOPER
 Contact Name: 1100 PLYMOUTH ST
 Address: STE 1430
 City, State Zip: NEW ORLEANS LA 70163
 Phone Number: 504 882 2468 Ext:
 Fax Number:
 E-mail Address: LCooper@mpسانی.com

PO Number:
 Quote Number:
 Required QC Level
 Bill Monthly Yes No
 Shipping Method: UPS / FedEx / Airborne
 DHL / Element / Hand / Mail

Project Name/Number: G. WHITE LAKE
 Sampler's Signature: Ed Girchen
 Matrix Code: DW = Drinking Water, WW = Waste Water, GW = Ground Water, AQ = Aqueous, OT = Other, SL = Sludge, SOL = Solid, G = Oil, SO = Soil, F = Food, SW = Swab, NG = Natural Gas, NGL = Natural Gas Liquid, PW = Produced Water, CF = Completion Fluid

Sample ID/Description	Turn Time		Collection Information	Container	Pres.	Requested Tests	Comments
	Date	Time					
CANAL BOYS CAMP	11-24-14	0945	Camp	SO	HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₃		
TAPSAIL N CAMP	11-24-14	1048	Camp	SO			
TAPSAIL S CAMP	11-24-14	1050	Camp	SO			

Retrieved by	Date/Time	Received by	Date/Time	Field Notes
[Signature]	11-24-14 1236	Jay Samis	11-24-14 12:36pm	Received at lab on ice?
				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 5.5

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.

9301 Innovation Drive, Suite 115
 Dairville, IN 47334-0569 USA
 P 765-378-4103 F 765-378-4109

529 Washington St, Suite 300
 Columbus, IN 47201-6231 USA
 P 812-375-6531 F 812-375-0731

3121 East Washington Boulevard
 Fort Wayne, IN 46803-1326 USA
 P 260-471-7000 F 260-471-7777

560 South Zimmer Road
 Warsaw, IN 46580-2363 USA
 P 574-267-3305 F 574-269-6569

3371 Cleveland Road, Suite 100A
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December 01, 2014

J. Carlton Todd
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: EWL Closure 07-165

Order No.: 14110920

Dear J. Carlton Todd:

Element Materials Technology Lafayette, LLC received 7 sample(s) on 11/20/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
2417 W. Pinhook Road
Lafayette, LA 70508-3344



Element Materials Technology Lafayette
2417 W. Pinhook Road
Lafayette, LA 70508-3344
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Website: www.element.com

Case Narrative

WO#: 14110920
Date: 12/1/2014

CLIENT: Michael Pisani & Associates
Project: EWL Closure 07-165

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

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

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



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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/20/2014 10:40:00 AM
Project: EWL Closure 07-165
Lab ID: 14110920-001 **Matrix:** GROUNDWATER
Client Sample ID SW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TPH-D/O IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH DRO/ORO IN WATER BY SW8015					SW3510C	
TPH (Diesel Range)	< 0.13	0.13		mg/L	1	11/25/2014 6:55:00 PM
TPH (Oil Range)	< 0.12	0.12		mg/L	1	11/25/2014 6:55:00 PM
Surr: 4-Terphenyl-d14	58.4	36.8 - 128		%REC	1	11/25/2014 6:55:00 PM
TPH-GRO IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH (Gasoline Range)	< 0.15	0.15		mg/L	1	11/25/2014 2:37:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	88.4	70 - 130		%REC	1	11/25/2014 2:37:00 AM
METALS IN WATER BY ICP, TOTALS					SW6010B	Analyst: STS
Sodium	237	5.00		mg/L	1	11/24/2014 11:48:49 AM
CHLORIDES					SW9253	Analyst: SXP
Chlorides	483	40		mg/L	4	11/24/2014 9:38:00 AM
TOTAL DISSOLVED SOLIDS					SM2540C	Analyst: GXS
Total Dissolved Solids (Residue, Filterable)	825	100		mg/L	5	11/22/2014 9:59:00 AM
TOTAL SUSPENDED SOLIDS					SM2540D	Analyst: GXS
Suspended Solids (Residue, Non-Filterable)	130	5		mg/L	1	11/21/2014 9:21:17 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/20/2014 10:50:00 AM
Project: EWL Closure 07-165
Lab ID: 14110920-002 **Matrix:** GROUNDWATER
Client Sample ID SW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TPH-D/O IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH DRO/ORO IN WATER BY SW8015					SW3510C	
TPH (Diesel Range)	< 0.13	0.13		mg/L	1	11/25/2014 7:11:00 PM
TPH (Oil Range)	< 0.12	0.12		mg/L	1	11/25/2014 7:11:00 PM
Surr: 4-Terphenyl-d14	56.8	36.8 - 128		%REC	1	11/25/2014 7:11:00 PM
TPH-GRO IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH (Gasoline Range)	< 0.15	0.15		mg/L	1	11/25/2014 3:04:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	88.8	70 - 130		%REC	1	11/25/2014 3:04:00 AM
METALS IN WATER BY ICP, TOTALS					SW6010B	Analyst: STS
Sodium	244	5.00		mg/L	1	11/24/2014 11:50:45 AM
CHLORIDES					SW9253	Analyst: SXP
Chlorides	483	20		mg/L	2	11/24/2014 9:38:00 AM
TOTAL DISSOLVED SOLIDS					SM2540C	Analyst: GXS
Total Dissolved Solids (Residue, Filterable)	895	100		mg/L	5	11/22/2014 9:59:00 AM
TOTAL SUSPENDED SOLIDS					SM2540D	Analyst: GXS
Suspended Solids (Residue, Non-Filterable)	128	5		mg/L	1	11/21/2014 9:21:17 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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	PL Permit Limit	R RPD outside accepted recovery limits
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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/20/2014 11:00:00 AM
Project: EWL Closure 07-165
Lab ID: 14110920-003 **Matrix:** GROUNDWATER
Client Sample ID SW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TPH-D/O IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH DRO/ORO IN WATER BY SW8015					SW3510C	
TPH (Diesel Range)	< 0.13	0.13		mg/L	1	11/25/2014 7:27:00 PM
TPH (Oil Range)	< 0.12	0.12		mg/L	1	11/25/2014 7:27:00 PM
Surr: 4-Terphenyl-d14	59.0	36.8 - 128		%REC	1	11/25/2014 7:27:00 PM
TPH-GRO IN WATER BY SW8015					SW8015B	Analyst: MMV
TPH (Gasoline Range)	< 0.15	0.15		mg/L	1	11/25/2014 3:31:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	90.2	70 - 130		%REC	1	11/25/2014 3:31:00 AM
METALS IN WATER BY ICP, TOTALS					SW6010B	Analyst: STS
Sodium	237	5.00		mg/L	1	11/24/2014 11:52:42 AM
CHLORIDES					SW9253	Analyst: SXP
Chlorides	440	40		mg/L	4	11/24/2014 9:38:00 AM
TOTAL DISSOLVED SOLIDS					SM2540C	Analyst: GXS
Total Dissolved Solids (Residue, Filterable)	865	100		mg/L	5	11/22/2014 9:59:00 AM
TOTAL SUSPENDED SOLIDS					SM2540D	Analyst: GXS
Suspended Solids (Residue, Non-Filterable)	100	5		mg/L	1	11/21/2014 9:21:17 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 11/20/2014 11:50:00 AM
Project: EWL Closure 07-165
Lab ID: 14110920-004 **Matrix:** SOIL
Client Sample ID E-Wall Comp

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.51	0.05		% dry wt	1	11/24/2014 8:13:00 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:10:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-005

Matrix: SOIL

Client Sample ID Backfill-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING						
CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	16.1	0.1		meq/100g	1	11/24/2014 3:41:00 PM
LA STATEWIDE ORDER 29-B TESTING						
ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	0.16	0.10		mmhos/cm	1	11/24/2014 10:33:00 AM
LA STATEWIDE ORDER 29-B TESTING						
EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	1.5	0.1		%	1	11/24/2014 3:41:00 PM
HEM, OIL & GREASE						
SW9071B						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	11/24/2014 8:13:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PH MEASUREMENT						
pH Measurement	6.82	1.68		S.U.	1	11/24/2014 10:05:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PERCENT MOISTURE						
Percent Moisture	16.0	1.0		wt%	1	11/20/2014 4:15:00 PM
LA STATEWIDE ORDER 29-B TESTING						
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	1.49	0.100			1	11/24/2014
Soluble Calcium	< 1.00	1.00		meq/L	1	11/24/2014
Soluble Magnesium	< 1.00	1.00		meq/L	1	11/24/2014
Soluble Sodium	< 1.00	1.00		meq/L	1	11/24/2014
LA STATEWIDE ORDER 29-B TESTING						
MERCURY IN SOIL OR SLUDGE						
Mercury	< 0.10	0.10		mg/Kg	1	11/21/2014 3:05:20 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette
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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:10:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-005

Matrix: SOIL

Client Sample ID Backfill-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	3.29	0.52		mg/Kg	1	11/21/2014 9:49:36 PM
Barium	154	0.52		mg/Kg	1	11/21/2014 9:49:36 PM
Cadmium	< 0.26	0.26		mg/Kg	1	11/21/2014 9:49:36 PM
Chromium	9.65	0.52		mg/Kg	1	11/21/2014 9:49:36 PM
Lead	7.68	0.52		mg/Kg	1	11/21/2014 9:49:36 PM
Selenium	< 1.04	1.04		mg/Kg	1	11/21/2014 9:49:36 PM
Silver	< 0.26	0.26		mg/Kg	1	11/21/2014 9:49:36 PM
Zinc	28.6	0.52		mg/Kg	1	11/21/2014 9:49:36 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	196	47		mg/Kg-dry	1	11/24/2014 3:22:30 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:20:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-006

Matrix: SOIL

Client Sample ID Backfill-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING						
CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	22.7	0.1		meq/100g	1	11/24/2014 3:41:00 PM
LA STATEWIDE ORDER 29-B TESTING						
ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	0.10	0.10		mmhos/cm	1	11/24/2014 10:35:00 AM
LA STATEWIDE ORDER 29-B TESTING						
EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	1.7	0.1		%	1	11/24/2014 3:41:00 PM
HEM, OIL & GREASE						
SW9071B						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	11/24/2014 8:13:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PH MEASUREMENT						
pH Measurement	6.73	1.68		S.U.	1	11/24/2014 10:05:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PERCENT MOISTURE						
Percent Moisture	16.6	1.0		wt%	1	11/20/2014 4:15:00 PM
LA STATEWIDE ORDER 29-B TESTING						
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	1.94	0.100			1	11/24/2014
Soluble Calcium	< 1.00	1.00		meq/L	1	11/24/2014
Soluble Magnesium	< 1.00	1.00		meq/L	1	11/24/2014
Soluble Sodium	< 1.00	1.00		meq/L	1	11/24/2014
LA STATEWIDE ORDER 29-B TESTING						
MERCURY IN SOIL OR SLUDGE						
Mercury	< 0.10	0.10		mg/Kg	1	11/21/2014 3:07:43 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:20:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-006

Matrix: SOIL

Client Sample ID Backfill-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	4.84	0.50		mg/Kg	1	11/21/2014 10:04:35 PM
Barium	65.4	0.50		mg/Kg	1	11/21/2014 10:04:35 PM
Cadmium	< 0.25	0.25		mg/Kg	1	11/21/2014 10:04:35 PM
Chromium	8.85	0.50		mg/Kg	1	11/21/2014 10:04:35 PM
Lead	10.0	0.50		mg/Kg	1	11/21/2014 10:04:35 PM
Selenium	< 1.01	1.01		mg/Kg	1	11/21/2014 10:04:35 PM
Silver	< 0.25	0.25		mg/Kg	1	11/21/2014 10:04:35 PM
Zinc	27.8	0.50		mg/Kg	1	11/21/2014 10:04:35 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	165	46		mg/Kg-dry	1	11/24/2014 3:25:52 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:25:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-007

Matrix: SOIL

Client Sample ID Backfill-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING						
CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	21.9	0.1		meq/100g	1	11/24/2014 3:41:00 PM
LA STATEWIDE ORDER 29-B TESTING						
ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	0.41	0.10		mmhos/cm	1	11/24/2014 10:35:00 AM
LA STATEWIDE ORDER 29-B TESTING						
EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	1.0	0.1		%	1	11/24/2014 3:41:00 PM
HEM, OIL & GREASE						
SW9071B						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	11/24/2014 8:13:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PH MEASUREMENT						
pH Measurement	7.23	1.68		S.U.	1	11/24/2014 10:05:00 AM
LA STATEWIDE ORDER 29-B TESTING						
PERCENT MOISTURE						
Percent Moisture	19.2	1.0		wt%	1	11/20/2014 4:15:00 PM
LA STATEWIDE ORDER 29-B TESTING						
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	1.53	0.100			1	11/24/2014
Soluble Calcium	1.83	1.00		meq/L	1	11/24/2014
Soluble Magnesium	1.23	1.00		meq/L	1	11/24/2014
Soluble Sodium	1.90	1.00		meq/L	1	11/24/2014
LA STATEWIDE ORDER 29-B TESTING						
MERCURY IN SOIL OR SLUDGE						
Mercury	< 0.10	0.10		mg/Kg	1	11/21/2014 3:10:06 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: **14110920**

Date Reported: **12/1/2014**

CLIENT: Michael Pisani & Associates

Collection Date: 11/20/2014 2:25:00 PM

Project: EWL Closure 07-165

Lab ID: 14110920-007

Matrix: SOIL

Client Sample ID Backfill-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	6.42	0.53		mg/Kg	1	11/21/2014 10:08:14 PM
Barium	115	0.53		mg/Kg	1	11/21/2014 10:08:14 PM
Cadmium	< 0.27	0.27		mg/Kg	1	11/21/2014 10:08:14 PM
Chromium	10.3	0.53		mg/Kg	1	11/21/2014 10:08:14 PM
Lead	9.44	0.53		mg/Kg	1	11/21/2014 10:08:14 PM
Selenium	< 1.06	1.06		mg/Kg	1	11/21/2014 10:08:14 PM
Silver	< 0.27	0.27		mg/Kg	1	11/21/2014 10:08:14 PM
Zinc	25.3	0.53		mg/Kg	1	11/21/2014 10:08:14 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	545	46		mg/Kg-dry	1	11/24/2014 3:29:13 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13468

Sample ID	MB-13468	SampType:	MBLK	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39418			
Client ID:	PBS	Batch ID:	13468	TestNo:	SW6010B		SW3050B	Analysis Date:	11/21/2014	SeqNo:	944316			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.50		0.50										
Barium		< 0.50		0.50										
Cadmium		< 0.25		0.25										
Chromium		< 0.50		0.50										
Lead		< 0.50		0.50										
Selenium		< 1.00		1.00										
Silver		< 0.25		0.25										
Zinc		< 0.50		0.50										

Sample ID	LCS-13468	SampType:	LCS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39418			
Client ID:	LCSS	Batch ID:	13468	TestNo:	SW6010B		SW3050B	Analysis Date:	11/21/2014	SeqNo:	944319			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		27.2		0.50	25.00	0		109	80	120				
Barium		26.6		0.50	25.00	0		107	80	120				
Cadmium		27.0		0.25	25.00	0		108	80	120				
Chromium		26.5		0.50	25.00	0		106	80	120				
Lead		25.9		0.50	25.00	0		103	80	120				
Selenium		27.0		1.00	25.00	0		108	80	120				
Silver		13.1		0.25	12.50	0		105	80	120				
Zinc		27.1		0.50	25.00	0		108	80	120				

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13468

Sample ID	LCSD-13468	SampType:	LCSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39418
Client ID:	LCSS02	Batch ID:	13468	TestNo:	SW6010B	SW3050B		Analysis Date:	11/21/2014	SeqNo:	944320
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	27.0	0.50	25.00	0	108	80	120	27.16	0.61	20	
Barium	26.5	0.50	25.00	0	106	80	120	26.65	0.47	20	
Cadmium	26.9	0.25	25.00	0	108	80	120	27.00	0.30	20	
Chromium	26.4	0.50	25.00	0	106	80	120	26.54	0.38	20	
Lead	26.0	0.50	25.00	0	104	80	120	25.86	0.37	20	
Selenium	27.3	1.00	25.00	0	109	80	120	27.01	1.25	20	
Silver	13.0	0.25	12.50	0	104	80	120	13.10	0.46	20	
Zinc	27.0	0.50	25.00	0	108	80	120	27.07	0.44	20	

Sample ID	14110920-005AMS	SampType:	MS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39418
Client ID:	Backfill-1	Batch ID:	13468	TestNo:	SW6010B	SW3050B		Analysis Date:	11/21/2014	SeqNo:	944322
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.6	0.52	26.02	3.29	109	75	125				
Barium	182	0.52	26.02	153.9	106	75	125				
Cadmium	27.0	0.26	26.02	0.11	103	75	125				
Chromium	37.4	0.52	26.02	9.65	107	75	125				
Lead	33.4	0.52	26.02	7.68	99.0	75	125				
Selenium	18.7	1.04	26.02	0	71.8	75	125				S
Silver	11.9	0.26	13.01	0	91.6	75	125				
Zinc	55.3	0.52	26.02	28.59	103	75	125				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- PL Permit Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- C Value is below Minimum Compound Limit.
- M Matrix Interference
- P Second column confirmation exceeds
- RL Reporting Detection Limit



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13468

Sample ID	14110920-005AMSD	SampType:	MSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39418
Client ID:	Backfill-1	Batch ID:	13468	TestNo:	SW6010B		SW3050B	Analysis Date:	11/21/2014	SeqNo:	944323
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.2	0.52	25.94	3.29	108	75	125	31.62	1.30	20	
Barium	182	0.52	25.94	153.9	107	75	125	181.6	0.13	20	
Cadmium	27.1	0.26	25.94	0.11	104	75	125	27.04	0.13	20	
Chromium	37.2	0.52	25.94	9.65	106	75	125	37.40	0.56	20	
Lead	33.2	0.52	25.94	7.68	98.5	75	125	33.44	0.67	20	
Selenium	19.1	1.04	25.94	0	73.5	75	125	18.69	2.01	20	S
Silver	12.0	0.26	12.97	0	92.3	75	125	11.92	0.41	20	
Zinc	55.3	0.52	25.94	28.59	103	75	125	55.27	0.05	20	

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13470

Sample ID	MB-13470	SampType:	MBLK	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/21/2014	RunNo:	39432			
Client ID:	PBW	Batch ID:	13470	TestNo:	SW6010B			Analysis Date:	11/24/2014	SeqNo:	944621			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium < 5.00 5.00

Sample ID	LCS-13470	SampType:	LCS	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/21/2014	RunNo:	39432			
Client ID:	LCSW	Batch ID:	13470	TestNo:	SW6010B			Analysis Date:	11/24/2014	SeqNo:	944622			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 51.7 5.00 50.00 0 103 80 120

Sample ID	LCSD-13470	SampType:	LCSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/21/2014	RunNo:	39432			
Client ID:	LCSS02	Batch ID:	13470	TestNo:	SW6010B			Analysis Date:	11/24/2014	SeqNo:	944623			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 53.3 5.00 50.00 0 107 80 120 51.73 2.93 20

Sample ID	14110765-001CMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/21/2014	RunNo:	39432			
Client ID:	ZZZZZZ	Batch ID:	13470	TestNo:	SW6010B			Analysis Date:	11/24/2014	SeqNo:	944625			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 234 5.00 50.00 195.8 77.4 75 125

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: 13470

Sample ID	14110765-001CMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/21/2014	RunNo:	39432		
Client ID:	ZZZZZZ	Batch ID:	13470	TestNo:	SW6010B			Analysis Date:	11/24/2014	SeqNo:	944626		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		245		5.00	50.00	195.8	98.6	75	125	234.5	4.42	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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 Website: www.element.com

QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13473

Sample ID	MB-13473	SampType:	MBLK	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39403			
Client ID:	PBS	Batch ID:	13473	TestNo:	SW7471A	SW7471A		Analysis Date:	11/21/2014	SeqNo:	944084			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.10 0.10

Sample ID	LCS-13473	SampType:	LCS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39403			
Client ID:	LCSS	Batch ID:	13473	TestNo:	SW7471A	SW7471A		Analysis Date:	11/21/2014	SeqNo:	944085			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.86 0.10 0.83 0 103 80 120

Sample ID	LCSD-13473	SampType:	LCSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39403			
Client ID:	LCSS02	Batch ID:	13473	TestNo:	SW7471A	SW7471A		Analysis Date:	11/21/2014	SeqNo:	944086			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.87 0.10 0.83 0 105 80 120 0.86 1.34 20

Sample ID	14100337-023AMS	SampType:	MS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39403			
Client ID:	ZZZZZZ	Batch ID:	13473	TestNo:	SW7471A	SW7471A		Analysis Date:	11/21/2014	SeqNo:	944088			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.90 0.10 0.82 0.04 105 75 125 H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: 13473

Sample ID	14100337-023AMSD	SampType:	MSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	11/21/2014	RunNo:	39403		
Client ID:	ZZZZZZ	Batch ID:	13473	TestNo:	SW7471A	SW7471A		Analysis Date:	11/21/2014	SeqNo:	944089		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.89		0.10	0.82	0.04	105	75	125	0.90	0.85	20	H

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13483

Sample ID	MB-13483	SampType:	MBLK	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	11/22/2014	RunNo:	39448
Client ID:	PBS	Batch ID:	13483	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944915
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

True Total Barium < 50 50

Sample ID	LCS-13483	SampType:	LCS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	11/22/2014	RunNo:	39448
Client ID:	LCSS	Batch ID:	13483	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944916
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

True Total Barium 4,720 50 5,000 0 94 75 125

Sample ID	LCSD-13483	SampType:	LCSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	11/22/2014	RunNo:	39448
Client ID:	LCSS02	Batch ID:	13483	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944917
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

True Total Barium 4,760 50 5,000 0 95 75 125 4,725 0 20

Sample ID	14110858-001AMS	SampType:	MS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	11/22/2014	RunNo:	39448
Client ID:	ZZZZZZ	Batch ID:	13483	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944919
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

True Total Barium 6,830 47 4,713 48 144 75 125 S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: 13483

Sample ID	14110858-001AMSD	SampType:	MSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	11/22/2014	RunNo:	39448		
Client ID:	ZZZZZZ	Batch ID:	13483	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944922		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		6,570		48	4,753	48	137	75	125	6,828	4	20	S

NOTES:

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

Qualifiers:

- | | | |
|---|--|--|
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| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13487

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	11/22/2014	RunNo:	39449		
Client ID:	ZZZZZZ	Batch ID:	13487	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944948		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		0.4		0.1						0.6	45.3	20	R

NOTES:
 R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	11/22/2014	RunNo:	39449		
Client ID:	Backfill-3	Batch ID:	13487	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944952		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		1.0		0.1						1.0	3.0	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: 13488

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	CEC	Units:	meq/100g	Prep Date:	11/22/2014	RunNo:	39446
Client ID:	ZZZZZZ	Batch ID:	13488	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944874
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		10.4		0.1						10.6	1.7 20

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	CEC	Units:	meq/100g	Prep Date:	11/22/2014	RunNo:	39446
Client ID:	Backfill-3	Batch ID:	13488	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944903
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.2		0.1						21.9	1.5 20

Sample ID	Ics-13488	SampType:	LCS	TestCode:	CEC	Units:	meq/100g	Prep Date:	11/22/2014	RunNo:	39446
Client ID:	LCSS	Batch ID:	13488	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944904
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.5		0.1	25.0	0	86.1	76	124		

Sample ID	Icsd-13488	SampType:	LCSD	TestCode:	CEC	Units:	meq/100g	Prep Date:	11/22/2014	RunNo:	39446
Client ID:	LCSS02	Batch ID:	13488	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	11/24/2014	SeqNo:	944905
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.7		0.1	25.0	0	86.7	76	124	21.5	0.7 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13493

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	SAR_S	Units:		Prep Date:	11/23/2014	RunNo:	39433		
Client ID:	Backfill-3	Batch ID:	13493	TestNo:	LDNR 29-B	29B		Analysis Date:	11/24/2014	SeqNo:	944677		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		1.42		0.100						1.534	7.60	20	
Soluble Calcium		1.77		1.00						1.832	3.30	20	
Soluble Magnesium		1.19		1.00						1.234	3.19	20	
Soluble Sodium		1.73		1.00						1.899	9.22	20	

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	SAR_S	Units:		Prep Date:	11/23/2014	RunNo:	39433		
Client ID:	ZZZZZZ	Batch ID:	13493	TestNo:	LDNR 29-B	29B		Analysis Date:	11/24/2014	SeqNo:	944695		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		1.06		0.100						1.097	3.75	20	
Soluble Calcium		< 1.00		1.00						0	0	20	
Soluble Magnesium		< 1.00		1.00						0	0	20	
Soluble Sodium		< 1.00		1.00						0	0	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: 13503

Sample ID	LCS-D13503	SampType:	LCS	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	LCSW	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/25/2014	SeqNo:	945819			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		3.04		0.13	3.00	0		101	62.3	110				
Surr: 4-Terphenyl-d14		0.05			0.10			49.8	36.8	128				

Sample ID	LCSD-D13503	SampType:	LCSD	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	LCSS02	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/25/2014	SeqNo:	945820			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		2.84		0.13	3.00	0		94.8	62.3	110	3.04	6.60	14.1	
Surr: 4-Terphenyl-d14		0.04			0.10			44.6	36.8	128		0	40	

Sample ID	LCSD-M13503	SampType:	LCSD	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	LCSS02	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/25/2014	SeqNo:	945821			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		3.05		0.12	3.00	0		102	63.8	124	2.87	5.91	23.2	
Surr: 4-Terphenyl-d14		0.04			0.10			37.8	36.8	128		0	40	

Sample ID	MB-13503	SampType:	MBLK	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	PBW	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/25/2014	SeqNo:	945823			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.13		0.13										

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: 13503

Sample ID	MB-13503	SampType:	MBLK	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	PBW	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/25/2014	SeqNo:	945823			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	< 0.12	0.12												
Surr: 4-Terphenyl-d14	0.04		0.10		42.2	36.8	128							

Sample ID	LCS-M13503	SampType:	LCS	TestCode:	8015_DO_W	Units:	mg/L	Prep Date:	11/24/2014	RunNo:	39493			
Client ID:	LCSW	Batch ID:	13503	TestNo:	SW8015B	SW3510C		Analysis Date:	11/26/2014	SeqNo:	946613			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	3.08	0.12	3.00	0	103	63.8	124
Surr: 4-Terphenyl-d14	0.04		0.10		37.3	36.8	128

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39379

Sample ID	14110898-001BDUP	SampType:	DUP	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379			
Client ID:	ZZZZZZ	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943933			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filterable)		92		5							94	3	10	

Sample ID	14110899-001BDUP	SampType:	DUP	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379			
Client ID:	ZZZZZZ	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943935			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filterable)		92		5							91	0	10	

Sample ID	LCS	SampType:	LCS	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379			
Client ID:	LCSW	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943958			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filterable)		194		5	200	0		97	85	115				

Sample ID	LCSD	SampType:	LCSD	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379			
Client ID:	LCSS02	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943960			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filterable)		198		5	200	0		99	85	115	194	2	10	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: R39379

Sample ID	LCSD	SampType:	LCSD	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379
Client ID:	LCSS02	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943960
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	MBLK	SampType:	MBLK	TestCode:	TSS_2540D	Units:	mg/L	Prep Date:		RunNo:	39379
Client ID:	PBW	Batch ID:	R39379	TestNo:	SM2540D			Analysis Date:	11/21/2014	SeqNo:	943962
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Suspended Solids (Residue, Non-Filterable)

< 5 5

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



Element Materials Technology Lafayette
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 Website: www.element.com

QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39407

Sample ID	MB-R39407	SampType:	MBLK	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407											
Client ID:	PBW	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944660											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Total Dissolved Solids (Residue, Filterable) < 20 20

Sample ID	LCSD-R39407	SampType:	LCSD	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407											
Client ID:	LCSS02	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944661											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Total Dissolved Solids (Residue, Filterable) 987 20 1,000 0 99 85 115 969 2 10

Sample ID	LCS-R39407	SampType:	LCS	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407											
Client ID:	LCSW	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944662											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Total Dissolved Solids (Residue, Filterable) 969 20 1,000 0 97 85 115

Sample ID	14110896-001DDUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407											
Client ID:	ZZZZZZ	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944663											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Total Dissolved Solids (Residue, Filterable) 435 20 443 2 10

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - PL Permit Limit
 - S Spike Recovery outside accepted recovery limits
 - B Analyte detected in the associated Method Blank
 - H Holding times for preparation or analysis exceeded
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - C Value is below Minimum Compound Limit.
 - M Matrix Interference
 - P Second column confirmation exceeds
 - RL Reporting Detection Limit



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39407

Sample ID	14110896-001DDUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407			
Client ID:	ZZZZZZ	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944663			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	14110920-001ADUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	39407			
Client ID:	SW-1	Batch ID:	R39407	TestNo:	SM2540C			Analysis Date:	11/22/2014	SeqNo:	944665			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		825		100							825	0	10	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: R39415

Sample ID	MB-R39415	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	PBS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944782
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		< 0.05		0.05							

Sample ID	LCS-R39415	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944783
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.20		0.05	0.20	0	101	70	130		

Sample ID	LCSD-R39415	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	LCSS02	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944784
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.20		0.05	0.20	0	102	70	130	0.20	0.98 40

Sample ID	14110858-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415
Client ID:	ZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944785
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.26		0.05	0.23	0	110	70	130		

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: R39415

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39415		
Client ID:	ZZZZZZ	Batch ID:	R39415	TestNo:	SW9071B			Analysis Date:	11/24/2014	SeqNo:	944786		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		< 0.05		0.05						0	0	40	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39420

Sample ID MB-R39420	SampType: MBLK	TestCode: EC_S	Units: mmhos/cm	Prep Date:	RunNo: 39420						
Client ID: PBS	Batch ID: R39420	TestNo: LDNR 29-B		Analysis Date: 11/24/2014	SeqNo: 944428						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity < 0.10 0.10

Sample ID R39420LCS1	SampType: LCS1	TestCode: EC_S	Units: mmhos/cm	Prep Date:	RunNo: 39420						
Client ID: ZZZZZ	Batch ID: R39420	TestNo: LDNR 29-B		Analysis Date: 11/24/2014	SeqNo: 944428						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.51 0.10 0.47 0 107 89.87 110.12

Sample ID R39420LCS2	SampType: LCS2	TestCode: EC_S	Units: mmhos/cm	Prep Date:	RunNo: 39420						
Client ID: ZZZZZ	Batch ID: R39420	TestNo: LDNR 29-B		Analysis Date: 11/24/2014	SeqNo: 944430						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 56.5 0.10 53.00 0 107 90 110

Sample ID 14110858-001ADUP	SampType: DUP	TestCode: EC_S	Units: mmhos/cm	Prep Date:	RunNo: 39420						
Client ID: ZZZZZ	Batch ID: R39420	TestNo: LDNR 29-B		Analysis Date: 11/24/2014	SeqNo: 944431						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.10 0.10 0.09 8.40 20

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: **14110920**
01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: R39420

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	39420		
Client ID:	Backfill-3	Batch ID:	R39420	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944434		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity		0.41		0.10						0.41	0.24	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39423

Sample ID	MB-R39423	SampType:	MBLK	TestCode:	CL_W_9253	Units:	mg/L	Prep Date:		RunNo:	39423
Client ID:	PBW	Batch ID:	R39423	TestNo:	SW9253			Analysis Date:	11/24/2014	SeqNo:	944518
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	< 10	10									
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Sample ID	LCSD-R39423	SampType:	LCSD	TestCode:	CL_W_9253	Units:	mg/L	Prep Date:		RunNo:	39423
Client ID:	LCSS02	Batch ID:	R39423	TestNo:	SW9253			Analysis Date:	11/24/2014	SeqNo:	944519
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	114	10	100	0	114	80	120	106	6	20
-----------	-----	----	-----	---	-----	----	-----	-----	---	----

Sample ID	LCS-R39423	SampType:	LCS	TestCode:	CL_W_9253	Units:	mg/L	Prep Date:		RunNo:	39423
Client ID:	LCSW	Batch ID:	R39423	TestNo:	SW9253			Analysis Date:	11/24/2014	SeqNo:	944520
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	106	10	100	0	106	80	120			
-----------	-----	----	-----	---	-----	----	-----	--	--	--

Sample ID	14110958-004AMSD	SampType:	MSD	TestCode:	CL_W_9253	Units:	mg/L	Prep Date:		RunNo:	39423
Client ID:	ZZZZZZ	Batch ID:	R39423	TestNo:	SW9253			Analysis Date:	11/24/2014	SeqNo:	944536
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	163	10	100	64	99	80	120	160	2	20
-----------	-----	----	-----	----	----	----	-----	-----	---	----

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates

Project: EWL Closure 07-165

BatchID: R39423

Sample ID	14110958-004AMS	SampType:	MS	TestCode:	CL_W_9253	Units:	mg/L	Prep Date:		RunNo:	39423												
Client ID:	ZZZZZZ	Batch ID:	R39423	TestNo:	SW9253			Analysis Date:	11/24/2014	SeqNo:	944538												
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual	
Chlorides		160		10		100		64		96		80		120									

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39426

Sample ID	14110905-016ADUP	SampType:	DUP	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	39426		
Client ID:	ZZZZZZ	Batch ID:	R39426	TestNo:	LDNR 29-B			Analysis Date:	11/20/2014	SeqNo:	944484		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		52.6		1.0						52.8	0.4	20	

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	39426		
Client ID:	Backfill-3	Batch ID:	R39426	TestNo:	LDNR 29-B			Analysis Date:	11/20/2014	SeqNo:	944489		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		19.2		1.0						19.2	0.1	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39427

Sample ID	LCS-R39427	SampType:	LCS	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	39427
Client ID:	LCSS	Batch ID:	R39427	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944491
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
pH Measurement		6.98		1.68	7.00	0	99.7	97.14	102.86		

Sample ID	14110858-001ADUP	SampType:	DUP	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	39427
Client ID:	ZZZZZZ	Batch ID:	R39427	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944493
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
pH Measurement		4.19		1.68						4.24	1.19 20 C

Sample ID	14110920-007ADUP	SampType:	DUP	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	39427
Client ID:	Backfill-3	Batch ID:	R39427	TestNo:	LDNR 29-B			Analysis Date:	11/24/2014	SeqNo:	944497
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
pH Measurement		7.25		1.68						7.23	0.28 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 14110920
 01-Dec-14

Client: Michael Pisani & Associates
Project: EWL Closure 07-165

BatchID: R39455

Sample ID	GAS LCS	SampType:	LCS	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	39455			
Client ID:	LCSW	Batch ID:	R39455	TestNo:	SW8015B			Analysis Date:	11/24/2014	SeqNo:	945055			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range) 12.0 0.15 12.50 0 95.9 80 130

Sample ID	GAS LCSD	SampType:	LCSD	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	39455			
Client ID:	LCSS02	Batch ID:	R39455	TestNo:	SW8015B			Analysis Date:	11/24/2014	SeqNo:	945056			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range) 11.8 0.15 12.50 0 94.4 80 130 11.99 1.58 20

Sample ID	MB ACID	SampType:	MBLK	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	39455			
Client ID:	PBW	Batch ID:	R39455	TestNo:	SW8015B			Analysis Date:	11/24/2014	SeqNo:	945057			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range) < 0.15 0.15
 Surr: alpha, alpha-Trifluorotoluene 0.04 0.05 89.4 70 130

Qualifiers:




- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14110920** RcptNo: **1**

Logged by:	Rhonda David	11/20/2014 4:10:00 PM	
Completed By:	Rhonda David	11/20/2014 4:18:52 PM	
Reviewed By:	Caitlin Duplantis	11/21/2014 2:47:10 PM	

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:
 Improper error correction(s) made by client

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Not Present			



Chain of Custody

Laboratory Number: **1410920**

Client Information:
 Michael Pisani & Associates
 Lance Cooper
 1100 Poydras St
 Suite 1430
 New Orleans LA
 Phone Number: 504-582-2476 Ext: 5
 Fax Number: 504-582-2476
 E-mail Address: lcooper@mpisani.com

Project Name/Number:
 EWL-Closure
 Sampler's Signature: *[Signature]*
 Shipping Method: UPS / FedEx / Airborne
 DHL / Element (Hand / Mail)

Matrix Code:
 DW = Drinking Water
 WW = Waste Water
 GW = Ground Water
 AQ = Aqueous
 OT = Other
 SL = Sludge
 SOL = Solid
 O = Oil
 SO = Soil
 F = Food
 SW = Swab
 NG = Natural Gas
 NGL = Natural Gas Liquid
 PW = Produced Water
 CF = Completion Fluid

Sample ID/Description	Turn Time		Collection Information		Matrix	Quantity	Container Type	Pres.	Requested Tests	Comments
	Date	Time	Date	Time						
Sw-1	11/20/14	10:40	11/20/14	10:40	Wa	6	P, G	HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₈	OTG TDS, TS TPH (0.6, 0)	std turn
Sw-2	11/20/14	10:50	11/20/14	10:50	Wa	6	P, G			
Sw-3	11/20/14	11:00	11/20/14	11:00	Wa	6	P, G			
E-wall Comp	11/20/14	11:50	11/20/14	11:50	Comp So	1	G			
Backfill-1	11/20/14	14:10	11/20/14	14:10	So	2	G/P			
Backfill-2	11/20/14	14:20	11/20/14	14:20	So	2	G/P			
Backfill-3	11/20/14	14:25	11/20/14	14:25	So	2	G/P			

Relinquished by: *[Signature]* **Date/Time:** 11/20/14 1610
Received by: *[Signature]* **Date/Time:** 11-20-14 16:10
 Field Notes: Received at lab on ice? Yes No Temp: 4.8°C

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

9301 Innovation Drive, Suite 115 629 Washington St, Suite 300 2121 East Washington Boulevard 560 South Zimmer Road 3371 Cleveland Road, Suite 100A 2417 W. Pinhook Rd
 Dallas, TX Columbus, IN Fort Wayne, IN Warsaw, IN South Bend, IN Lafayette, LA
 47334-6569 USA 47201-6231 USA 46803-1328 USA 46580-2368 USA 46528-8780 USA 70508-3344 USA
 P 765-378-4103 P 812-375-0531 P 260-471-7000 P 574-267-3365 P 574-277-0707 P 337-235-0483
 F 765-378-4109 F 812-375-0731 F 260-471-7777 F 574-269-6589 F 574-273-5699 F 337-233-6540



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

December 03, 2014

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: East White Lake Remediation

Order No.: 14120025

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 1 sample(s) on 12/1/2014 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
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#: 14120025
Date: 12/3/2014

CLIENT: Michael Pisani & Associates
Project: East White Lake Remediation

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

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

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



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

Analytical Report

(consolidated)

WO#: **14120025**

Date Reported: **12/3/2014**

CLIENT: Michael Pisani & Associates **Collection Date:** 12/1/2014 10:45:00 AM
Project: East White Lake Remediation
Lab ID: 14120025-001 **Matrix:** SOIL
Client Sample ID NE Area Composite

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HEM, OIL & GREASE					SW9071B	Analyst: MXT
HEM, Oil & Grease	0.26	0.05		% dry wt	1	12/2/2014 7:00:00 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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 Website: www.element.com

QC SUMMARY REPORT

WO#: 14120025
 03-Dec-14

Client: Michael Pisani & Associates
Project: East White Lake Remediation

BatchID: R39555

Sample ID	MB-R39555	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39555
Client ID:	PBS	Batch ID:	R39555	TestNo:	SW9071B			Analysis Date:	12/2/2014	SeqNo:	947520
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R39555	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39555
Client ID:	LCSS	Batch ID:	R39555	TestNo:	SW9071B			Analysis Date:	12/2/2014	SeqNo:	947521
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.22 0.05 0.20 0 111 70 130

Sample ID	LCSD-R39555	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39555
Client ID:	LCSS02	Batch ID:	R39555	TestNo:	SW9071B			Analysis Date:	12/2/2014	SeqNo:	947522
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.25 0.05 0.20 0 124 70 130 0.22 11.0 40

Sample ID	14120025-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39555
Client ID:	NE Area Composite	Batch ID:	R39555	TestNo:	SW9071B			Analysis Date:	12/2/2014	SeqNo:	947523
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

1.04 0.05 0.42 0.26 184 70 130 S

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 14120025
 03-Dec-14

Client: Michael Pisani & Associates
Project: East White Lake Remediation

BatchID: R39555

Sample ID	14120025-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	39555		
Client ID:	NE Area Composite	Batch ID:	R39555	TestNo:	SW9071B			Analysis Date:	12/2/2014	SeqNo:	947524		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		0.28		0.05						0.26	8.14	40	

Qualifiers:




- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **14120025** RcptNo: **1**

Logged by:	Rhonda David	12/1/2014 1:30:00 PM	
Completed By:	Rhonda David	12/1/2014 1:35:32 PM	
Reviewed By:	Caitlin Duplantis	12/3/2014 8:29:39 AM	

Chain of Custody

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

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 Custody seals intact on shipping container/cooler? Yes No Not Present
 No. Seal Date: Signed By:
 5. Was an attempt made to cool the samples? Yes No NA
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA

Samples were collected the same day and chilled.

7. Sample(s) in proper container(s)? Yes No
 8. Sufficient sample volume for indicated test(s)? Yes No
 9. Are samples (except VOA and ONG) properly preserved? Yes No
 10. Was preservative added to bottles? Yes No NA
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes No No VOA Vials
 12. Were any sample containers received broken? Yes No
 13. Does paperwork match bottle labels? Yes No
 (Note discrepancies on chain of custody)
 14. Are matrices correctly identified on Chain of Custody? Yes No
 15. Is it clear what analyses were requested? Yes No
 16. Were all holding times able to be met? Yes No
 (If no, notify customer for authorization.)

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	10.8	Good	Not Present			

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 12/18/2014

GCAL Report 214121539



Deliver To Michael Pisani and Associates
13313 Southwest Freeway
Suite 221
Sugar Land, TX 77478
281-242-5700

Attn Dave Angle

Project EWL - Pit Closure 07-165



Laboratory Endorsement

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

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified LOQ
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
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates the result is between the MDL and LOQ
U	Indicates the compound was analyzed for but not detected
B	Indicates the analyte was detected in the associated Method Blank

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

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

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

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

Authorized Signature
GCAL Report 214121539

Case Narrative

Client: Michael Pisani & Associates **Report:** 214121539

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

VOLATILES MASS SPECTROMETRY

In the EPA 8260B analysis, samples 21412153901 (EWL-BOOM) and 21412153902 (EWL-RESIDUE) had to be diluted due to the presence of non-target background. This dilution is reflected in the elevated reporting limits.

METALS

In the EPA 6020A analysis, samples 21412153901 (EWL-BOOM) and 21412153902 (EWL-RESIDUE) had to be diluted in order to bracket the concentration within the calibration range of the instrument.

In the EPA 6020A analysis, a chemical or physical interference necessitated a dilution for samples 21412153901 (EWL-BOOM) and 21412153902 (EWL-RESIDUE). This is reflected in the elevated reporting limits.

In the EPA 6020A analysis for prep batch 547210, the MS and/or MSD recovery is outside the control limits for Selenium. The LCS recovery is within the control limits. This indicates the analysis is in control and the sample is affected by matrix interference. The MS/MSD recoveries and RPD are not applicable for Arsenic because the sample concentration is greater than four times the spike concentration.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21412153901	EWL-BOOM	Solid	12/15/2014 13:30	12/15/2014 16:30
21412153902	EWL-RESIDUE	Solid	12/15/2014 13:35	12/15/2014 16:30

Sample Results

EWL-BOOM	Collect Date	12/15/2014 13:30	GCAL ID	21412153901
	Receive Date	12/15/2014 16:30	Matrix	Solid

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	12/16/2014 11:37	LBH	547276

CAS#	Parameter	Result	LOQ	Reg Limit	Units
71-43-2	Benzene	ND	0.050	0.0510	mg/kg
100-41-4	Ethylbenzene	ND	0.250	19	mg/kg
108-88-3	Toluene	ND	0.250	20	mg/kg
1330-20-7	Xylene (total)	ND	0.500	18	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2.50	1.87	ug/Kg	75	62 - 127
1868-53-7	Dibromofluoromethane	2.50	2.3	ug/Kg	92	65 - 130
2037-26-5	Toluene d8	2.50	2.27	ug/Kg	91	71 - 132
17060-07-0	1,2-Dichloroethane-d4	2.50	2.5	ug/Kg	100	62 - 125

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 16:50	547210	EPA 3050B	90	12/16/2014 17:22	AWG	547283

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	3.60	12	mg/kg
7440-43-9	Cadmium	ND	3.60	3.90	mg/kg
7440-47-3	Chromium	13.9	3.60		mg/kg
7439-92-1	Lead	13.0	3.60	100	mg/kg
7782-49-2	Selenium	ND	3.60	20	mg/kg
7440-22-4	Silver	ND	3.60	39	mg/kg
7440-66-6	Zinc	ND	72.0	2300	mg/kg

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 16:50	547210	EPA 3050B	500	12/16/2014 16:22	AWG	547283

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-39-3	Barium	1140	20.0	550	mg/kg

EPA 7471B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 17:00	547240	EPA 7471B	1	12/16/2014 13:08	TAH	547272

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7439-97-6	Mercury	0.058	0.011	2.30	mg/kg

Sample Results

EWL-RESIDUE	Collect Date	12/15/2014 13:35	GCAL ID	21412153902
	Receive Date	12/15/2014 16:30	Matrix	Solid

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	12/16/2014 11:57	LBH	547276

CAS#	Parameter	Result	LOQ	Reg Limit	Units
71-43-2	Benzene	0.073	0.046	0.0510	mg/kg
100-41-4	Ethylbenzene	ND	0.230	19	mg/kg
108-88-3	Toluene	ND	0.230	20	mg/kg
1330-20-7	Xylene (total)	0.553	0.460	18	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2.30	1.99	ug/Kg	87	62 - 127
1868-53-7	Dibromofluoromethane	2.30	2.26	ug/Kg	98	65 - 130
2037-26-5	Toluene d8	2.30	2.19	ug/Kg	95	71 - 132
17060-07-0	1,2-Dichloroethane-d4	2.30	2.34	ug/Kg	102	62 - 125

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 16:50	547210	EPA 3050B	90	12/16/2014 17:25	AWG	547283

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	3.60	12	mg/kg
7440-43-9	Cadmium	ND	3.60	3.90	mg/kg
7440-47-3	Chromium	11.8	3.60		mg/kg
7439-92-1	Lead	10.8	3.60	100	mg/kg
7782-49-2	Selenium	ND	3.60	20	mg/kg
7440-22-4	Silver	ND	3.60	39	mg/kg
7440-66-6	Zinc	ND	72.0	2300	mg/kg

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 16:50	547210	EPA 3050B	500	12/16/2014 16:25	AWG	547283

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-39-3	Barium	642	20.0	550	mg/kg

EPA 7471B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
12/15/2014 17:00	547240	EPA 7471B	1	12/16/2014 13:10	TAH	547272

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7439-97-6	Mercury	0.063	0.010	2.30	mg/kg

GC/MS Volatiles Quality Control Summary

Analytical Batch 547276		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB547276 1391118 MB NA 12/16/2014 11:17 Solid	LCS547276 1391119 LCS NA 12/16/2014 07:08 Solid	LCSD547276 1391120 LCSD NA 12/16/2014 07:36 Solid							
EPA 8260B		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1-Dichloroethene	75-35-4	ND	0.250	2.50	2.11	84	68 - 129	2.50	2.13	85	1	20
Benzene	71-43-2	ND	0.050	2.50	2.47	99	73 - 128	2.50	2.41	96	2	20
Chlorobenzene	108-90-7	ND	0.250	2.50	2.42	97	75 - 121	2.50	2.40	96	1	20
Ethylbenzene	100-41-4	ND	0.250	2.50	2.40	96	74 - 130	2.50	2.31	92	4	30
Toluene	108-88-3	ND	0.250	2.50	2.43	97	74 - 121	2.50	2.38	95	2	20
Trichloroethene	79-01-6	ND	0.250	2.50	2.33	93	78 - 127	2.50	2.26	90	3	20
Xylene (total)	1330-20-7	ND	0.500	7.50	7.46	99	71 - 129	7.50	7.30	97	2	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	2620	105	2500	2510	100	62 - 125	2500	2520	101	0	NA
4-Bromofluorobenzene	460-00-4	2440	98	2500	2470	99	62 - 127	2500	2480	99	0	NA
Dibromofluoromethane	1868-53-7	2540	102	2500	2530	101	65 - 130	2500	2540	102	0	NA
Toluene d8	2037-26-5	2530	101	2500	2490	100	71 - 132	2500	2500	100	0	NA

Inorganics Quality Control Summary

Analytical Batch 547272	Client ID GCAL ID	MB547240 1391004	LCS547240 1391005				
Prep Batch 547240	Sample Type	MB	LCS				
Prep Method EPA 7471B	Prep Date Analysis Date	12/15/2014 17:00 12/16/2014 13:04	12/15/2014 17:00 12/16/2014 13:06				
	Matrix	Solid	Solid				
EPA 7471B		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.010	0.25	0.29	114	80 - 120

Analytical Batch 547272	Client ID GCAL ID	EWL-RESIDUE 21412153902	1390990MS 1391045		1390990MSD 1391046							
Prep Batch 547240	Sample Type	SAMPLE	MS		MSD							
Prep Method EPA 7471B	Prep Date Analysis Date	12/15/2014 17:00 12/16/2014 13:10	12/15/2014 17:00 12/16/2014 13:12		12/15/2014 17:00 12/16/2014 13:14							
	Matrix	Solid	Solid		Solid							
EPA 7471B		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Mercury	7439-97-6	0.063	0.010	0.25	0.33	106	80 - 120	0.25	0.36	118	9	20

Analytical Batch 547283	Client ID GCAL ID	MB547210 1390918	LCS547210 1390919				
Prep Batch 547210	Sample Type	MB	LCS				
Prep Method EPA 3050B	Prep Date Analysis Date	12/15/2014 16:50 12/16/2014 09:49	12/15/2014 16:50 12/16/2014 09:52				
	Matrix	Solid	Solid				
EPA 6020A		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.040	2.00	2.00	100	80 - 120
Barium	7440-39-3	ND	0.040	2.00	2.09	104	80 - 120
Cadmium	7440-43-9	ND	0.040	2.00	2.05	103	80 - 120
Chromium	7440-47-3	ND	0.040	2.00	2.09	104	80 - 120
Lead	7439-92-1	ND	0.040	2.00	2.11	105	80 - 120
Selenium	7782-49-2	ND	0.040	0.40	0.40	101	80 - 120
Silver	7440-22-4	ND	0.040	2.00	2.11	105	80 - 120
Zinc	7440-66-6	ND	0.80	40.0	39.3	98	80 - 120

Analytical Batch 547283	Client ID GCAL ID	S-WHE007-TI (7-8') 21412121301	1390137MS 1390920		1390137MSD 1390921							
Prep Batch 547210	Sample Type	SAMPLE	MS		MSD							
Prep Method EPA 3050B	Prep Date Analysis Date	12/15/2014 16:50 12/16/2014 09:56	12/15/2014 16:50 12/16/2014 10:00		12/15/2014 16:50 12/16/2014 10:03							
	Matrix	Solid	Solid		Solid							
EPA 6020A		Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Silver	7440-22-4	0.0	0.40	2.00	2.02	101	80 - 120	2.00	2.08	104	3	20



CHAIN OF CUSTODY RECORD

Client ID: 4271 - Michael Pisani & Associates

SDG: 214121539



Due Date: 12/16/14

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Report to: Client: <u>Michael Pisani & Assoc.</u> Address: <u>1108 Poydras St 1430 NOLA</u> Contact: <u>Lance Cooper</u> Phone: <u>504.582.2476</u> E-mail: _____				Bill to: Client: _____ Address: _____ Contact: _____ Phone: _____ E-mail: _____				Analytical Requests & Method BTEX Order 296 Metals				GCAL use only: Custody Seal used <input type="checkbox"/> yes <input type="checkbox"/> no intact <input type="checkbox"/> yes <input type="checkbox"/> no Temperature °C <u>5.5E22</u> <input type="checkbox"/> Dissolved Analysis Requested <input type="checkbox"/> Field filtered <input type="checkbox"/> Lab filtered			
P.O. Number <u>07-165</u>		Project Name/Number <u>EWL - Pit Closure</u>						Sampled By: <u>Lance Cooper</u>							
Matrix ¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	Preservative								
Soil	12/15/14	1330			EWL - Boom	2	✓	1	Note: Call Lance						
Solid	12/15/14	1335			EWL - Residue	2	✓	2	Cooper for potential Add'l analysis. 504.582.2476						
Air Bill No: <u>ASAP - Awaiting Disposal Info</u>															
Turn Around Time (Business Days): <input checked="" type="checkbox"/> 24h* <input type="checkbox"/> 48h* <input type="checkbox"/> 3 days* <input type="checkbox"/> 1 week* <input type="checkbox"/> Standard (Per Contract/Quote)															
Relinquished by: (Signature) <u>[Signature]</u>		Date: <u>12/15/14</u>		Time: <u>1630</u>		Received by: (Signature) <u>[Signature]</u>		Date: <u>12/15/14</u>		Time: <u>16:30</u>		Note:			
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Date:		Time:					
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Date:		Time:		By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.			

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 214121539		CHECKLIST	YES	NO	NA
Client 4271 - Michael Pisani & Associates	Transport Method CUST	Were all samples received using proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		When used, were all custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all samples received in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profile Number 255881	Received By Saucier, Charlotte M.	Were all samples received using proper chemical preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was preservative added to any container at the lab?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Were all containers received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 1 - SOIL	Receive Date(s) 12/15/14	Were all VOA vials received with no head space?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Do all sample labels match the Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Did the Chain of Custody list the sampling technician?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was the COC maintained i.e. all signatures, dates and time of receipt included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COOLERS		DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E22	Temp(°C)	None		
		5.5			
NOTES					

ICON Split Sampling Analytical Data

MICHAEL PISANI & ASSOCIATES

07-47 East White Lake

**STANDARD LEVEL IV
REPORT OF ANALYSIS**

WORK ORDER #15-01043-OR

February 4, 2015

**EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN**

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SECTION	DESCRIPTION	PAGE
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VII	Laboratory Technician's Notes	0032
VIII	Analytical Data (Radium-226)	0046
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STANDARD OPERATING PROCEDURE

Sample Receiving

MP-001, Rev. 13
Effective: 10/31/13
Page 14 of 15

Eberline Services – Oak Ridge Laboratory LABORATORY DATA SUPPORT CHECKLIST

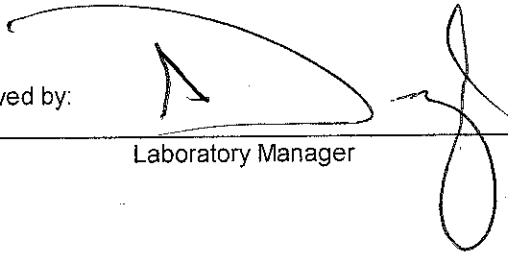
MP-001-3

Eberline Services Work Order # 15-01043

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		1/12/15	KC	Sample Log-In
		2/2/15	KBS	Data Compilation
		2-2-15	WLT	First Technical Data Review
		2/2/15	MSK	Second Technical Data Review
		2/3/15	E	Data Entry/Electronic Deliverable
		2/3/15	E	Case Narrative
		2/4/15	KBS	Electronic Deliverable Proof
		2/4/15	MSK	Samples Analyzed within Holding Time Yes? <input checked="" type="checkbox"/> No? <input type="checkbox"/>
		2/4/15	MSK	QA/QC Review
		02/02/15	ELJ	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by:  2/4/15
 Laboratory Manager Date

Copy No. _____

Radiochemistry Services

SECTION I
CHAIN OF CUSTODY & pH CHECK SHEET

Chain of Custody Record

№ 1604

Eberline Services
601 Scarborough Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax



Project Name: East White Lake Project Number: 07-47
 Send Report To: Lance Cooper Sampler (Print Name): A. Charles Jackson
 Address: 109 Lakes Street Suite 1430 Shipment Method: FedEx
New Orleans LA 70163
 Phone: 504.582.2476 Laboratory Receiving: _____
 Fax: 504.582.2470

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers
WL-6	1/7/15	1245	W	1

Purchase Order #: 15-01043
 Comments, Special Instructions, etc.: _____
 Lab Sample ID (to be completed by lab): _____
 Page ____ of ____

REC'D JAN 12 2015

Analysis Requested Ru 220/228

Relinquished by: (Signature)		Received by: (Signature)		Sample Custodian Remarks (Completed By Laboratory):	
<u>A. Charles Jackson</u>	<u>1/8/15</u>	<u>A. Charles Jackson</u>	<u>1/12/15</u>	QA/QC Level	Turnaround
<u>A. Charles Jackson</u>	<u>1/8/15</u>	<u>A. Charles Jackson</u>	<u>1/12/15</u>	Level I <input type="checkbox"/>	Level I <input checked="" type="checkbox"/>
				Level II <input type="checkbox"/>	Level II <input type="checkbox"/>
				Level III <input type="checkbox"/>	Level III <input type="checkbox"/>
				Other <input type="checkbox"/>	Other <input type="checkbox"/>
				Total # Containers Received?	Sample Receipt
				COC Seals Present?	COC Seals Present?
				COC Seals Intact?	COC Seals Intact?
				Received Containers Intact?	Received Containers Intact?
				Temperature?	Temperature?



Internal Chain of Custody

Work Order #	15-01043
Lab Deadline	1/26/2015
Analysis	Ra226 - Level 4
Sample Matrix	Water

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	43	MM1.4

	Location (circle one)						Initials	Date
Received by	<u>Sample Storage</u>	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	<u>Prep</u>	Separations	Count Room	JUDY B	1/15/15 0902	
Received by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room	JW	1/15/15 1630	
Relinquished by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room	ALCO RAY	1/16/15	
Received by	Sample Storage	Rough Prep	Prep	Separations	<u>Count Room</u>			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		1200 PM 1/20/15	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		1/20/15 205	
Received by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		1/20/15 0876	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room			



EBERLINE
SERVICES

Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

15-01043

Lab Deadline

1/26/2015

Analysis


Ra228 - Level 4

Sample Matrix

Water


Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	43	MM1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	1/15/15 0900
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	1/15/15 1630
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	acorn	1/16/15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	acorn	1/20/15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KBS	1/20/15 1205
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	0124
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	0900 PM 1/21/15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	0820 PM 1/22/15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JW	0820
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KBS	1/22/15 1049
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

 EBERLINE SERVICES Oak Ridge Laboratory	<h1>Internal Chain of Custody</h1>	Work Order #	15-01043
		Lab Deadline	1/26/2015
		Analysis	TDS - Level 4
		Sample Matrix	Water

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	43	MM1.4

	Location (circle one)					Initials	Date
	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1200 Tum	1/30/15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Mu	2 FEB 15 0850
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

	Sample Receiving Report (Volumes, pH, & CPM)	Internal Work Order
		15-01043
		Received By KCOULSTON

FR	ClientID	# Btls	Comments	Matrix	Storage	Rec Vol Ttl	CPM Max	
01	LCS	0		WA	MM1.4			
02	BLANK	0		WA	MM1.4			
03	DUP	0		WA	MM1.4			
04	WL-6 ✓	1		WA	MM1.4	4.00	43	
				Container Number	pH Orig	pH Final	Volume (L)	CPM
				1	7	7	4.0000	43

*WJ
01/12/15*

Received by: Kristen Coulston Date: 1/12/15



SECTION II
SAMPLE ACKNOWLEDGEMENT



Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST

MP-001-2

15 - 0 10 43

WORK ORDER # _____

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
If aqueous, properly preserved	<input checked="" type="radio"/> Y	<input type="radio"/> N	N/A

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Unbroken on outside of package?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Present on samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Unbroken on samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Was chain of custody present upon sample receipt?	<input checked="" type="radio"/> Y	<input type="radio"/> N

IF THE RESPONSE TO ANY OF THE ABOVE IS **NO**, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: Kristen Coulston DATE: 1/12/15

SECTION III
CASE NARRATIVE



EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-38579

February 4, 2015

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, 1430 Energy Center
New Orleans, LA 70163

CASE NARRATIVE
Work Order # 15-01043-OR

SAMPLE RECEIPT

This work order contains one water sample received 01/12/2015. This sample was analyzed for Radium-226/228 and Total Dissolved Solids.

CLIENT ID

LAB ID

WL-6

15-01043-04

ANALYTICAL METHODS

Radium-226 was analyzed using EPA Method 903.0 Modified. Radium-228 was analyzed using EPA Method 904.0. Total Dissolved Solids were performed using Standard Methods 2540C.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

RADIUM-226

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. This was followed by selective sulfate precipitations of the Radium. Sample was then mounted by semi-micro-precipitations onto micro-porous filters. Sample was counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Sample demonstrated acceptable results for all Radium-226 analyses. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated an acceptable result. Results for the Radium-226 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

ANALYTICAL RESULTS CONTINUED

RADIUM-228

Following alpha spectroscopy analysis of Radium-226, Barium/Radium Sulfate precipitates were redissolved and allowed for sufficient ingrowth of the Actinium-228 daughter. After ingrowth, Actinium-228 was selectively precipitated. Precipitates were filtered and beta emissions for Actinium-228 were then counted on a gas proportional counter. Chemical recovery was determined by the use of a Barium-133 tracer, the activity of which was determined by HPGe gamma spectroscopy and an elemental Yttrium carrier by gravimetric measurements. The product of these two recoveries was used to calculate chemical yield.

Sample demonstrated acceptable results for all Radium-228 analyses. Chemical recovery was acceptable for all samples. Due to a positive biased radiometric recovery, gravimetric recovery only was reported. The Radium-228 method blank demonstrated acceptable results. Results for the Radium-228 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-228 laboratory control sample demonstrated a low percent recovery.

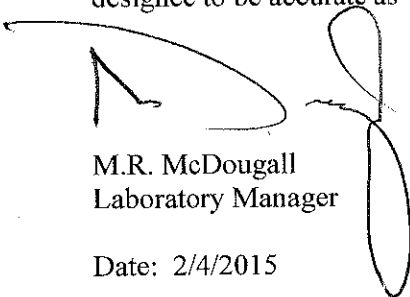
TOTAL DISSOLVED SOLIDS (TDS)

A volumetric aliquot of sample was filtered through a tared 0.45µm filter media into a tared 250ml beaker. Sample was then dried on a hot plate and was allowed to cool. The TDS content was determined by reweighing the tared beaker.

Sample demonstrated 31,198.0 mg/L of Total Dissolved Solids.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall
Laboratory Manager

Date: 2/4/2015

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit <http://www.eberlineservices.com/client.htm> to provide us with feedback on our services.

SECTION IV
ANALYTICAL RESULTS SUMMARY

Eberline Analytical Final Report of Analysis

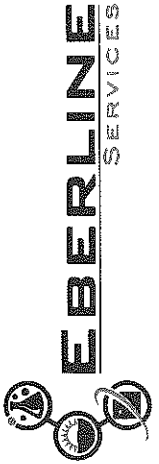
Lance Cooper
Michael Pisani & Associates
 1100 Poydras St, 1430 Energy Ctr
 New Orleans, LA 70163

Report To: **15-01043**
 SDG: **07-47 E White Lake**
 Project: **ENVIRONMENTAL**
 Analysis Category: **WA**
 Sample Matrix:

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
15-01043-01	LCS	KNOWN	01/12/15 00:00	1/12/2015	1/20/2015	15-01043	Radium-226	EPA 903.0 Modified	1.00E+01	4.62E-01			pCi/l
15-01043-01	LCS	SPIKE	01/12/15 00:00	1/12/2015	1/20/2015	15-01043	Radium-226	EPA 903.0 Modified	1.02E+01	1.38E+00	2.56E+00	2.17E-01	pCi/l
15-01043-02	MBL	BLANK	01/12/15 00:00	1/12/2015	1/20/2015	15-01043	Radium-226	EPA 903.0 Modified	-9.99E-04	1.06E-01	1.06E-01	3.15E-01	pCi/l
15-01043-03	DUP	WL-6	01/07/15 12:45	1/12/2015	1/20/2015	15-01043	Radium-226	EPA 903.0 Modified	1.28E+01	2.36E+00	3.60E+00	1.12E+00	pCi/l
15-01043-04	DO	WL-6	01/07/15 12:45	1/12/2015	1/20/2015	15-01043	Radium-226	EPA 903.0 Modified	1.39E+01	2.36E+00	3.77E+00	7.27E-01	pCi/l
15-01043-01	LCS	KNOWN	01/12/15 00:00	1/12/2015	1/26/2015	15-01043	Radium-228	EPA 904.0	8.66E+00	4.42E-01			pCi/l
15-01043-01	LCS	SPIKE	01/12/15 00:00	1/12/2015	1/26/2015	15-01043	Radium-228	EPA 904.0	5.78E+00	1.10E+00	1.71E+00	1.37E+00	pCi/l
15-01043-02	MBL	BLANK	01/12/15 00:00	1/12/2015	1/26/2015	15-01043	Radium-228	EPA 904.0	3.66E-01	5.97E-01	6.03E-01	1.24E+00	pCi/l
15-01043-03	DUP	WL-6	01/07/15 12:45	1/12/2015	1/26/2015	15-01043	Radium-228	EPA 904.0	8.05E+00	9.16E-01	2.04E+00	1.22E+00	pCi/l
15-01043-04	DO	WL-6	01/07/15 12:45	1/12/2015	1/26/2015	15-01043	Radium-228	EPA 904.0	1.06E+01	9.49E-01	2.59E+00	1.10E+00	pCi/l
15-01043-04	TRG	WL-6	01/07/15 12:45	1/12/2015	2/2/2015	15-01043	TDS	SM 2540C	3.12E+04				mg/l

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (2-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



EBERLINE
ANALYTICAL CORPORATION

601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

SECTION V
ANALYTICAL STANDARD



Ba-6
(f 6a)

National Institute of Standards & Technology Certificate

Standard Reference Material 4251C Barium-133 Radioactivity Standard

ORIGINAL

ORIGINAL

This Standard Reference Material (SRM) consists of radioactive barium-133 chloride, non-radioactive barium chloride, and hydrochloric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of ionization chambers and solid-state gamma-ray spectrometry systems.

Radiological Hazard

The SRM ampoule contains barium-133 with a total activity of approximately 2.5 MBq. Barium-133 decays by electron capture and during the decay process X-rays and gamma rays with energies from 4 to 400 keV are emitted. Most of these photons escape from the SRM ampoule and can represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]*. Appropriate shielding and/or distance should be used to minimize personnel exposure. The SRM should be used only by persons qualified to handle radioactive material.

Chemical Hazard

The SRM ampoule contains hydrochloric acid (HCl) with a concentration of 1 mole per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least June 2004.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M.R. Hutchinson, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group and D.B. Golas, Nuclear Energy Institute Research Associate.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by N.M. Trahey.

Gaithersburg, Maryland 20899
October 1994

Thomas E. Gills, Chief
Standard Reference Materials Program



QUALITY CONTROL PROGRAM
QCP-009

Rev.8; 11/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
QCP 009-1

SOLUTION REFERENCE # NIST SRM4251C CURRENT DATE 5/31/2014 0:00
SOLUTION # Ba-6

Principal Radionuclide ¹³³Barium Half Life, Years 1.048E+01 Half Life, Days 3.828E+03

Radionuclide ¹³³Barium Reference Date 9/1/1993 0:00
Certified Activity μCi
Certified Concentration 1.318E+01 $\mu\text{Ci per gram}$

Ampoule /Solution Gross	<u>9.3081</u>	Weight, Grams
Empty Ampoule	<u>4.2582</u>	Weight, Grams
Solution Net	<u>5.0499</u>	Weight, Grams
Total Activity in Ampoule	<u>66.5577</u>	μCi

Chemical Composition of Standard Solution

¹³³BaCl₂ in 1M HCl

Dilution Instructions: Dilution Solvent Used 1M HCl
Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 66.5577 μCi Which Equals 1.478E+08 dpm at the date listed above

And after dilution the activity of this solution is 1.478E+05 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: May 22, 2015

Verified & Approved By [Signature]

Date: 5/31/14

QC Approval [Signature]

Date: 6/2/14



QUALITY CONTROL PROGRAM
QCP-009

Rev.8; 11/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference #		QCP-009-1-A	Date	5/31/14
Solution #		NIST SRM4251C	Solution #	Ba-6a
Principal Radionuclide	Half Life, Years	Half Life, Days		
¹³³ Ba	1.048E+01	3.828E+03		
Radionuclide of Interest	Parent Solution Conc.	Reference Date		
¹³³ Ba	1.48E+05 dpm/ml	9/1/1993 0:00		
Chemical Composition of Standard Solution				
¹³³ BaCl ₂ in 1M HCl				

Dilution Instructions:	Dilution Solvent Used	1M HCl	
SECONDARY VOLUMETRIC DILUTION			
Vol. Parent Solution:	25.0000 ml	Final Activity Concentration:	3.6950E+03 dpm/ml
Total Activity:	3.6950E+06 dpm		
Final Volume:	1000.00 ml		
NOTES:	This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.		
	Expiration Date:	May 22, 2015	

Verified & Approved By [Signature] Date: 5/31/14
QC Approval [Signature] Date: 6/2/14

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

^{Ra-5}
QA/QC REVIEWED
Date 2/8/94 Initials WR

Radionuclide: Ra-226
Half Life: 1600 ± 7 years
Catalog No.: 7226
Source No.: 453-26

Customer: TMA EBERLINE
P.O.No.: VH1888
Reference Date: February 1 1994 12:00 PST.
Contained Radioactivity: (Ra-226) 1.001 μCi.
Contained Radioactivity: (Ra-226) 37.0 kBq.

Description of Solution

- a. Mass of solution: 5.1864 g (in a 5 ml Flame Sealed Ampoule)
b. Chemical form: Ra(NO₃)₂ in 1 N HNO₃
c. Carrier content: None added
d. Density: 1.0318 g/ml @ 20°C.

Radioimpurities

None detected (other than daughters)

Radioactive Daughters

Rn-222, Po-218, At-218, Pb-214, Bi-214, Po-214, Tl-210, Pb-210, Bi-210, Po-210 and Tl-206.

Radionuclide Concentration

(Ra-226) 0.1929 μCi/g.

Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry:

Energy peak(s) integrated under: 186 keV.

Branching ratio(s) used: 0.0351 gamma rays per decay.

Uncertainty of Measurement

- a. Systematic uncertainty in instrument calibration: ±3.4%
b. Random uncertainty in assay: ±3.1%
c. Random uncertainty in weighing(s): ±0.2%
d. Total uncertainty at the 99% confidence level: ±4.6%

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

Ana H. Kuen
QUALITY CONTROL

Feb. 3, 1994
Date Signed



QUALITY CONTROL PROGRAM
MP 009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

SOLUTION REFERENCE # IPL 453-26 **CURRENT DATE** 11/11/2014 0:00
SOLUTION # Ra-5

Principal Radionuclide ²²⁶Radium **Half Life, Years** 1.600E+03 **Half Life, Days** 5.844E+05

Radionuclide ²²⁶Radium **Reference Date** 2/1/1994 0:00
Certified Activity 1.001E+00 μ Ci
Certified Concentration μ Ci per gram

Ampoule /Solution Gross		Weight, Grams
Empty Ampoule		Weight, Grams
Solution Net		Weight, Grams
Total Activity in Ampoule	1.0010	μ Ci


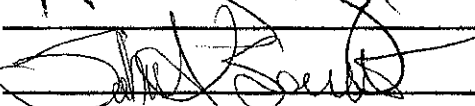
Chemical Composition of Standard Solution
²²⁶Ra(NO₃)₂ in 1M HNO₃

Dilution Instructions: **Dilution Solvent Used** 1M HNO₃
Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0010 μ Ci **Which Equals** 2.222E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.222E+03 dpm/ml This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: October 24, 2015

Verified & Approved By 
QC Approval 

Date: 11/11/2014
Date: 11/13/14



QUALITY CONTROL PROGRAM
MP 009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP 009 IPL-453-26 Date 11/11/2014 0:00
Solution # Ra-5b

Principal Radionuclide ²²⁶Radium Half Life, Years 1.600E+03 Half Life, Days 5.844E+05

Radionuclide of Interest ²²⁶Radium Reference Date 2/1/1994 0:00
Parent Solution Conc. 2.22E+03 dpm/ml

Chemical Composition of Standard Solution
²²⁶Ra(NO₃)₂ in 1M HNO₃

Dilution Instructions: Dilution Solvent Used 1M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 20.0000 ml
Total Activity: 4.4440E+04 dpm
Final Volume: 1000.00 ml
Final Activity Concentration: 4.4440E+01 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

NOTES:

Expiration Date: October 24, 2015

Verified & Approved By [Signature]
QC Approval [Signature]

Date: 11/11/2014 0:00
Date: 11/13/14

ANALYTICS

RA-11

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318 · U.S.A.

Phone (404) 352-8677
Fax (404) 352-2837

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

62680-416

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Ra-228
ACTIVITY (dps):	2.585 E3
HALF-LIFE:	5.75 years
CALIBRATION DATE:	November 7, 2001 12:00 EST
TOTAL UNCERTAINTY*:	4.0%
SYSTEMATIC:	3.0%
RANDOM:	1.0%

*99% Confidence Level

Impurities: γ -impurities (other than decay products) <0.1%

5.07198 grams 0.1M HCl solution with 50 μ g/g Ba carrier.

P O NUMBER 9508, Item 1 (Part #4339A)

SOURCE PREPARED BY:

M. D. Currie
M. D. Currie, Radiochemist

Q A APPROVED:

PCW 11/7/01

*New vial from the 6/11/01 shipment.
P.S. Different activity level 8/19/11*



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 1/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
RECERTIFICATION
MP 009

SOLUTION REFERENCE # Analytix 62680-416 CURRENT DATE 3/30/2014 0:00
SOLUTION # Ra-11

Principal Radionuclide ²²⁶Ra Half Life, Years 5.750E+00 Half Life, Days 2.100E+03

Radionuclide ²²⁶Ra Reference Date 11/7/2001 0:00
Certified Activity 6.986E-02 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross	<u>9.4982</u>	Weight, Grams
Empty Ampoule	<u>4.4895</u>	Weight, Grams
Solution Net	<u>5.0087</u>	Weight, Grams
Total Activity in Ampoule	<u>0.0699</u>	μCi


Chemical Composition of Standard Solution
²²⁶Ra(NO₃)₂ in 0.5 M HCl

Dilution Instructions: Dilution Solvent Used 0.5 M HCl
Dilute to a volume of 1000.00 milliliters

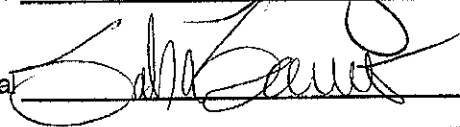
Certified Total Activity of 0.0699 μCi Which Equals 1.551E+05 dpm at the date listed above

And after dilution the activity of this solution is 1.551E+02 dpm/ml This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: March 11, 2015

Recertified By 

Date: 3/30/14

QC Approval 

Date: 3/31/14

SECTION VI
QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-01043	Ra226	1	pCi	I	Michael Pisani & Associates, Inc.

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
RA-226	0.12	101.51%	25.11%	100.00%	4.60%	1.00E+01	4.62E-01	1.02E+01	2.58E+00	Ra-5b	4.40E+01	4.60E+00	5.06E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

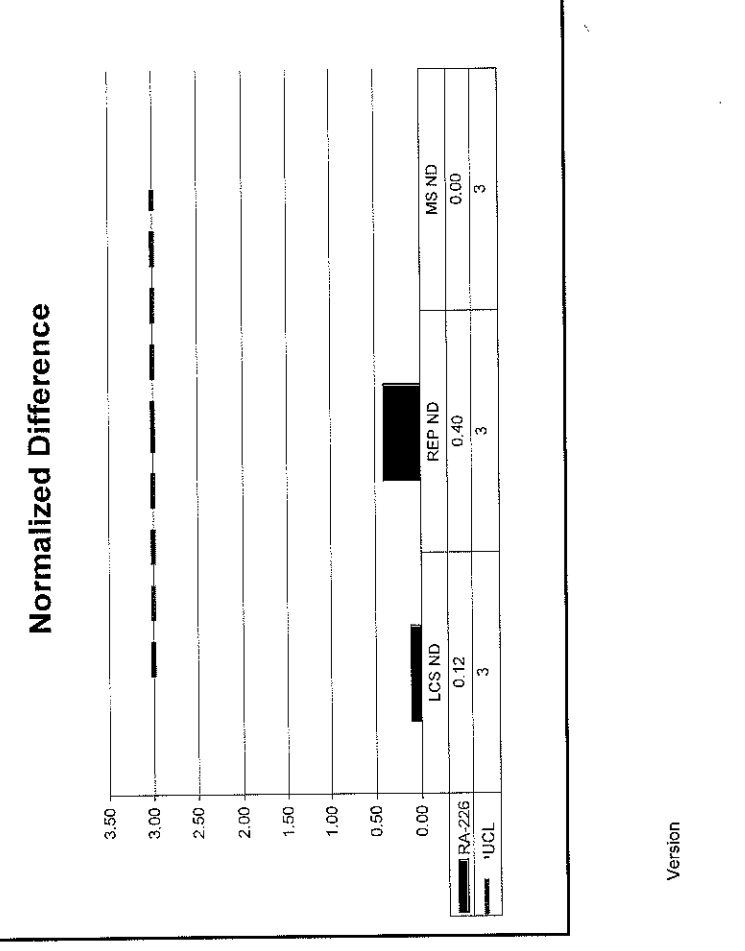
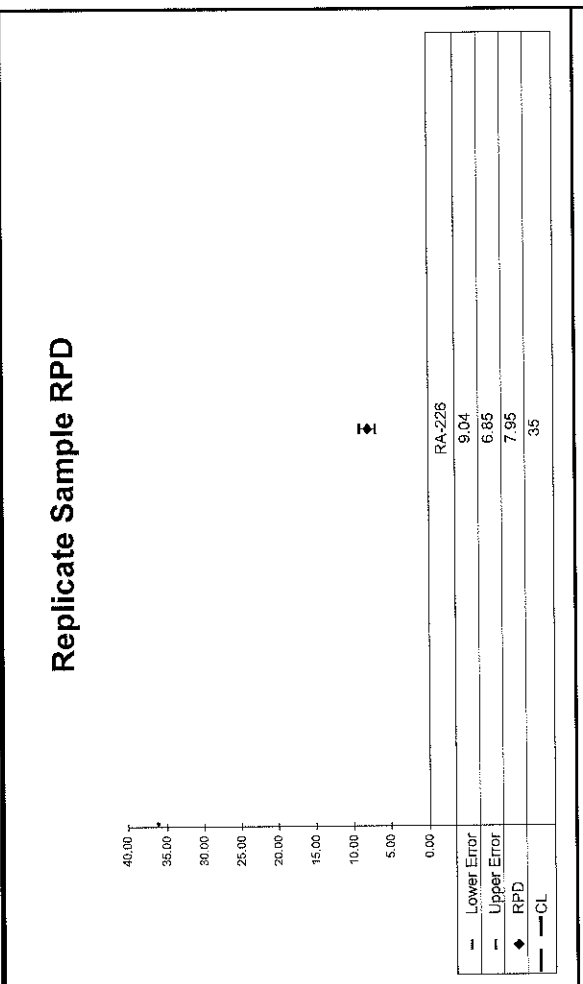
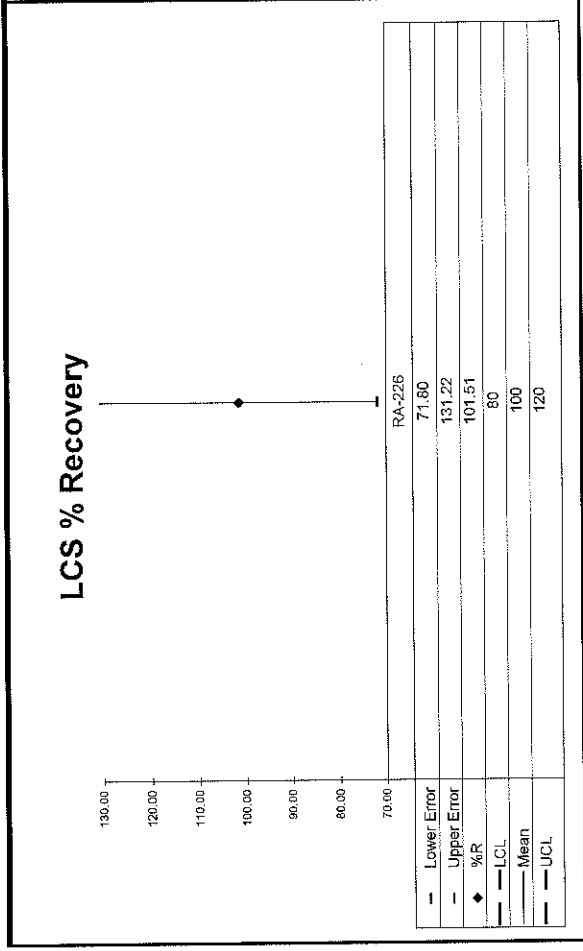
Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-226	0.40	7.95	1.39E+01	3.77E+00	1.28E+01	3.60E+00	1.02	OK	OK	OK	OK	OK	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-226	0.40	7.95	1.39E+01	3.77E+00	1.28E+01	3.60E+00	1.02	OK	OK	OK	OK	OK	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-01043	Ra226	1	pCi	I	Michael Pisani & Associates, Inc.



No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-01043	Ra228	1	pCi	I	Michael Pisani & Associates, Inc.

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
RA-228	3.25	66.73%	29.60%	100.00%	5.10%	8.66E+00	4.42E-01	5.78E+00	1.71E+00	Ra-11	3.16E+01	5.10E+00	6.08E-01

Matrix Spike Duplicate

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!									

Replicate Sample

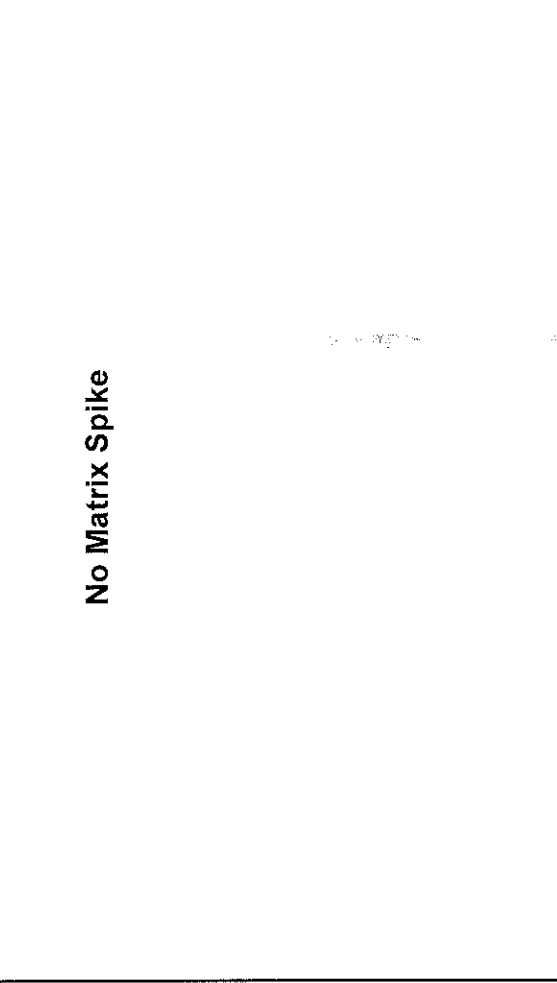
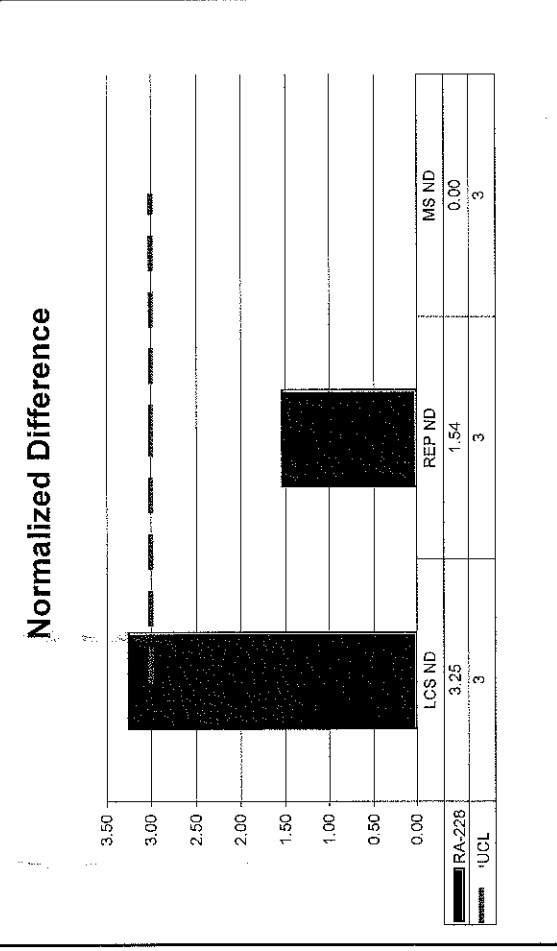
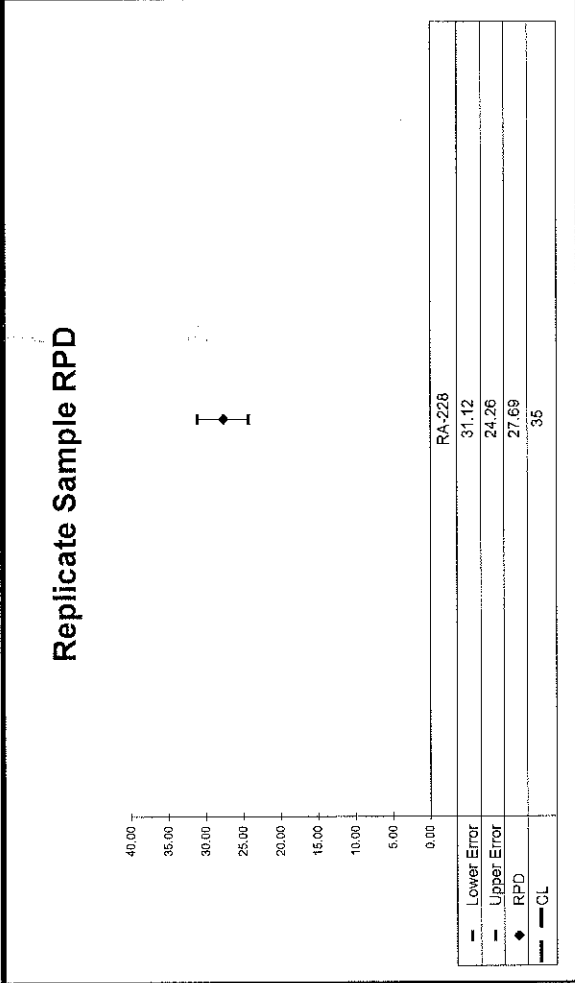
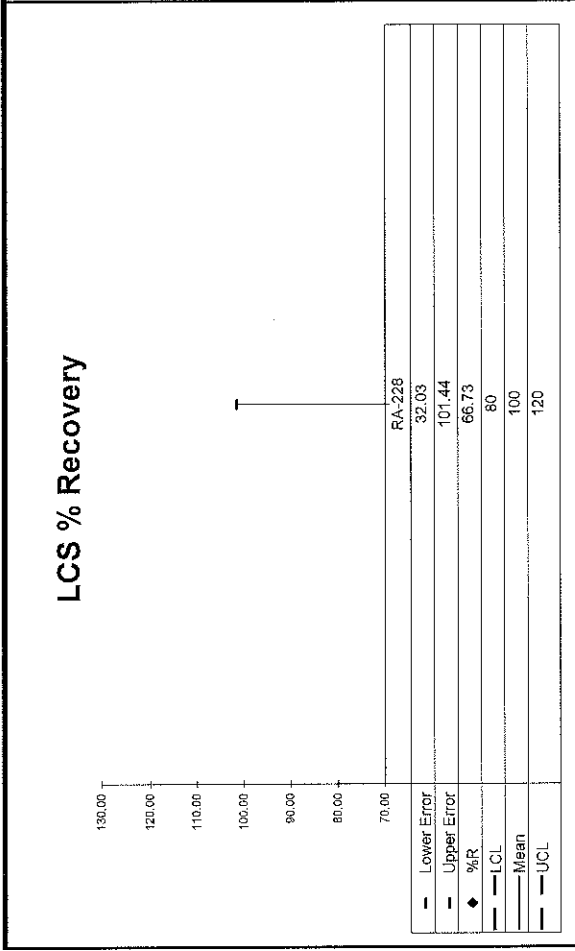
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-228	1.54	27.69	1.06E+01	2.59E+00	8.05E+00	2.04E+00	0.67	INV	INV	INV	INV	INV	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-228	1.54	27.69	1.06E+01	2.59E+00	8.05E+00	2.04E+00	0.67	INV	INV	INV	INV	INV	OK



WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-01043	Ra228	1	pCi	I	Michael Pisani & Associates, Inc.




SECTION VII
LABORATORY TECHNICIAN'S NOTES

RA-226 NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-01043
		Analysis Code	Ra226
		Run Number	1

#	Date	Dept	User	Notes
1	01/15/15 11:49	PREP	JWOLFE	ALIQOTED AND ADDED SPIKES AND TRACERS- PH'D SAMPLES- PRECIPITATED WITH BA AND PB CARRIERS AND AMMONIUM SULFATE- DECANTED SAMPLES AND CENTRIFUGED- SUBMITTED RADIUM PRECIP TO SEPARATIONS

JWOLFE
 1/15/15

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-01043
		Analysis Code	Ra226
		Run Number	1

#	Date	Dept	User	Notes
1	01/15/15 11:49	PREP	JWOLFE	ALIUQUOTED AND ADDED SPIKES AND TRACERS- PH'D SAMPLES- PRECIPITATED WITH BA AND PB CARRIERS AND AMMONIUM SULFATE- DECANTED SAMPLES AND CENTRIFUGED- SUBMITTED RADIUM PRECIP TO SEPARATIONS
2	01/16/15 09:54	CHEM	RMARTZ	ADDED EDTA TO SAMPLES AND LET SIT OVERNIGHT. SYRINGE FILTERED SAMPLES, ADDED AMMONIUM SILFIDE AND ACETIC ACID TO SAMPLES. FILTERED ONTO TARRED FILTER PAPERS, LET DRY UNDER HEAT LAMP, REWEIGHED, AND SUBMITTED TO COUNT.

RA
1/16/15



EBERLINE
SERVICES

Reagents Used in an Analysis

Internal Work Order

15-01043

Analysis Code

Run

Ra226


1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
015304P	Ammonium Hydroxide	Reagent Grade	JWOLFE	1/15/2015
015430D05	Ammonium Sulfate	200 mg/ml	JWOLFE	1/15/2015
015186D09	Barium Carrier	1 mg/ml	JWOLFE	1/15/2015
015203D01	Lead Carrier	166 mg/ml	JWOLFE	1/15/2015
015780P	Nitric Acid	Reagent Grade	JWOLFE	1/15/2015
013818P	Acetic Acid	Reagent Grade	RMARTZ	1/16/2015
014409D01	Ammonium Sulfate	200 mg/ml	RMARTZ	1/16/2015
015500S	EDTA	0.25M	RMARTZ	1/16/2015

Alphabet

Date	Sample #	Client	Product	CT	Time	Inspection	KB
1/20/15	150107SAC(1-9)	UOR	1117	2hr50m	UW	KB	
1/20/15	1501012A(1-5)	Isotek	1117	2hr50m	PU	KB	
1/20/15	1501012A(4,5)	Isotek	1119	2hr50m	PLNT	KB	
1/20/15	1501012A(1-5)	Isotek	1119	2hr50m	UW	KB	
1/20/15	1501012A(4-5)	Isotek	1120	2hr50m	UWNT	KB	
1/20/15	1501012A(1-5)	Isotek	1120	2hr50m	TH	KB	
1/20/15	1501012A(4-5)	Isotek	1415	2hr50m	THNT	KB	
1/20/15	1501024A(4-4)	Seacup	1416	2hr50m	Rab	KB	
1/20/15	1501064A(1-10)	MPA	1417	2hr50m	Rab	KB	
1/20/15	1501043A(1-4)	MPA	1644	2hr50m	Rab	KB	
1/20/15	1501063A(1-4)	UOR	1645	2hr50m	Rab	KB	

RA-228 NOTES

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-01043
		Analysis Code	Ra228
		Run Number	1

#	Date	Dept	User	Notes
1	01/15/15 11:49	PREP	JWOLFE	ALIUQUOTED AND ADDED SPIKES AND TRACERS- PH'D SAMPLES- PRECIPITATED WITH BA AND PB CARRIERS AND AMMONIUM SULFATE- DECANTED SAMPLES AND CENTRIFUGED- SUBMITTED RADIUM PRECIP TO SEPARATIONS

J Wolfe
1/15/15

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-01043
		Analysis Code	Ra228
		Run Number	1

#	Date	Dept	User	Notes
1	01/15/15 11:49	PREP	JWOLFE	ALIQUOTED AND ADDED SPIKES AND TRACERS- PH'D SAMPLES- PRECIPITATED WITH BA AND PB CARRIERS AND AMMONIUM SULFATE- DECANTED SAMPLES AND CENTRIFUGED- SUBMITTED RADIUM PRECIP TO SEPARATIONS
2	01/26/15 06:23	CHEM	RMARTZ	ADDED FILTER PAPERS FROM COUNT ROOM TO LABELED C-TUBES, FILLED WITH EDTA SOLUTION AND LET SIT OVERNIGHT. REMOVED FILTER FROM EDTA-ADDED 13 DROPS CONC HNO3, 2MLS YTTRIUM 9MG/ML CARRIER, 2MLS 1.5MG/ML PB CARRIER, 0.3 MLS AMMONIUM SULFITE, 25 DROPS OF 10M SODIUM HYDROXIDE, SHAKE SAMPLES, CENTRIFUGE, POUR SUPERNATE INTO CLEAN C-TUBE AND ADD 0.3MLS AMMONIUM SULFITE AND 2MLS 1.5MG/ML PB CARRIER, SHAKE SAMPLES, CENTRIFUGE, RINSE OTHER C-TUBES WITH DI-H2O THEN SYRINGE FILTER SUPERNATE BACK INTO RINSED C-TUBES. ADDED 18N NAOH TO SAMPLES AND RECORDED T1. HOT BATHED FOR 15 MIN, CENTRIFUGED AND DISCARDED SUPERNANT. ADDED 6N HNO3, DI WATER, AND 10N NAOH. HOT BATHED FOR 15 MIN, CENTRIFUGED AND DISCARDED SUPERNANT. ADDED 1N HNO3, DI WATER, AND AMMONIUM OXALATE. FILTERED ONTO TARRD FILTER PAPERS. LET DRY UNDER HEAT LAMP. REWEIGHED AND SUBMITTED TO COUNT.

RM
1/26/15



Reagents Used in an Analysis

Internal Work Order

15-01043

Analysis Code

Run

Ra228


1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
015304P	Ammonium Hydroxide	Reagent Grade	JWOLFE	1/15/2015
015430D05	Ammonium Sulfate	200 mg/ml	JWOLFE	1/15/2015
015186D09	Barium Carrier	1 mg/ml	JWOLFE	1/15/2015
015203D01	Lead Carrier	166 mg/ml	JWOLFE	1/15/2015
015780P	Nitric Acid	Reagent Grade	JWOLFE	1/15/2015
013818P	Acetic Acid	Reagent Grade	RMARTZ	1/26/2015
014530S	Ammonium Oxalate	5%	RMARTZ	1/26/2015
014409D01	Ammonium Sulfate	200 mg/ml	RMARTZ	1/26/2015
015500S	EDTA	0.25M	RMARTZ	1/26/2015
014594S	Nitric Acid	1N	RMARTZ	1/26/2015
014595S	Nitric Acid	6N	RMARTZ	1/26/2015
014370P	Nitric Acid	Reagent Grade	RMARTZ	1/26/2015
014591S	Sodium Hydroxide	10M	RMARTZ	1/26/2015
014456S	Sodium Hydroxide	18M	RMARTZ	1/26/2015
014466S	Yttrium Carrier	9 mg/ml	RMARTZ	1/26/2015

Date	Sample #	Class	Test Date	CY Time	Analysis	Site
1/24/15	WEEKLY BKGD	LAB	1144	12 hr	AB	AG
1/26	1140 ac	LAB	0516	6	LAB	C
1/26	677 ac	LAB	0626	74	LAB	C
1/26	1501172C(11-7.5A)	UCON	0772	74	1176	C
1/26	1501177AD(1-6)	UCON	0802	74	118	C
1/26	1501047(144)	LAB	0843	74	148	C

Date	Sample #	Client	Final Time	OT/Min	Analysis	Spec
1/22	EFZAC	LAB	0506	7L	LAB	✓
1/22	AKC02C	LAB	0528	6L	LAB	✓
1/22	150110AB(1)	Parsons	0873	3L	LAB	✓
1/22	1501067RA(14)	UCON	0901	2L	RT8	✓
1/22	1501076RA(7.5)	UCON	0901	2L	RT8	✓
1/22	1501125AB(1-3)	Tecoma	0911	2L	LAB	✓
1/22	1501125AB(4)	Tecoma	1114	2L	LAB	✓
1/23/15	150110AB(1-25)	Parsons	1130	8 km	LAB	10B
1/24/15	WEEKLY BROS	LAB	1145	12 HR	LAB	AG
1/26	EFZAC	LAB	0516	7L	LAB	✓
1/26	AKC02C	LAB	0511	6L	LAB	✓
1/26	1501066NPL(14)	Westech	0801	1L	NR72	✓
1/26	1501172NPL(1-46)	UCON	0807	1L	NR72	✓
1/26	1501109RA(1-4)	Enviro	0878	2L	RT8	✓
1/26	1501117RA(1-4)	End Enviro	0840	2L	RT8	✓
1/26	1501047RA(2-4)	MPA	0841	2L	RT8	✓

TDS NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-01043
		Analysis Code	TDS
		Run Number	1

#	Date	Dept	User	Notes
1	01/30/15 12:00	CHEM	RMARTZ	Filtered 100 mls of sample through Supor filter and dried sample in tarred beaker, reweighed and finished paperwork.

RA
 1/30/15

SECTION VIII
ANALYTICAL DATA (RADIUM-226)

Preliminary Data Report & Analytical Calculations
Work Order: 15-01043-Ra226-1

		1	
Run	Analysis Code	Eberline Services Work Order	15-01043
		Client	Michael Pisani & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	RA-226	LCS	01/20/15 16:44		A_Spec	Alpha_049	170	2.25 E+02	2.00 E-03	15.3
02	RA-226	MBL	01/20/15 16:44		A_Spec	Alpha_050	170	-2.00 E-02	6.00 E-03	14.3
03	RA-226	DUP	01/20/15 16:44		A_Spec	Alpha_051	170	1.23 E+02	3.00 E-02	15.2
04	RA-226	DO	01/20/15 16:44		A_Spec	Alpha_052	170	1.40 E+02	1.00 E-02	16.1

15-01043-Ra226-1 (pCi/l) in WA

Tracer ID: Ba-6a

Count Room Report
Client: Michael Pisani Associat

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	01/12/15 00:00	1.0000	1.0057	905.3935	477.0000	116.96	2.61	1.00
02	MBL	BLANK	01/12/15 00:00	1.0000	0.9983	898.7316	494.0000	122.03	2.69	1.00
03	DUP	WL-6	01/07/15 12:45	0.5000	1.0028	902.7827	476.0000	117.05	5.29	1.00
04	DO	WL-6	01/07/15 12:45	0.5000	1.0039	903.7730	499.0000	122.57	9.42	1.00

2554

00050


Internal Work Order		Run	Analysis Code		Date	Technician		Technician Initials		Witness Initials		
15-01043		1	Ra226		1/15/2015 11:29	JWOLFE		[Signature]		[Signature]		
LCS & Matrix Spikes												
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Error Estimate	LCS Error Estimate	MSD Error Estimate
Ra-226	Ra-5b	44.038	1/15/2015	0.500	0.5058				10.03	0.462	0.000	0.000
IC-99 MS IC-2a 22043.688 10/16/2013 0.1												
Tracers												
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Balance Printer Tapes					
01	Ba-133	Ba-6a	900.262	1/15/2015	1.0057	1.1300	Tracer					LCS
02	Ba-133	Ba-6a	900.262	1/15/2015	0.9983	1.1300	1.0057 g					
03	Ba-133	Ba-6a	900.262	1/15/2015	1.0028	1.1300	0.9983 g					
04	Ba-133	Ba-6a	900.262	1/15/2015	1.0039	1.1300	-1.0028 g					
							-1.0039 g					
							0.5058 g					
							0.6078 g					
							Matrix Spike					


Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-01043	1	Ra226	liters	1/26/2015	RMARTZ

Lab Fraction	Michael Pisani & Associates, Inc.		Sample Type	Muffle Data		Dilution Data			Aliquot Data			MS Aliquot Data		H-3 Solids Only		
	Client ID			Ratio Post/Pre	No of Dilis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq			
01	LCS		LCS			1.00E+00	1	1.0000E+00	1.0000E+00	1.0000E+00						
02	BLANK		MBL			1.00E+00		1.0000E+00	1.0000E+00	1.0000E+00						
03	WL-6		DUP			5.00E-01	1	1.0000E+00	1.0000E+00	5.0000E-01						
04	WL-6		DO			5.00E-01	1	1.0000E+00	1.0000E+00	5.0000E-01						

Comments


 Technician: _____ Date: 1/20/15

 EBERLINE <small>SERVICES</small>		Internal Work Order 15-01043
Dilution Worksheet		Fraction > 03 <
Analysis Code		Ra226
Run Number		1
Analyst		RMARTZ


Dilution Number	...	Amount Taken	Units	Diluted To	Units	Ratio
1	I took	10	ml	20	ml	0.5000
2	I took		ml		ml	
3	I took		ml		ml	
4	I took		ml		ml	
5	I took		ml		ml	

Dilutions Taken 1	Dilution Ratio 0.5
	Dilution Factor 2

[Handwritten Signature]

1/20/15

Diluted by: _____ Date: _____

 EBERLINE <small>SERVICES</small>		Internal Work Order 15-01043	
Dilution Worksheet		Fraction > 04 <	
Analysis Code Run Number Analyst		Ra226 1 RMARTZ	

Dilution Number	...	Amount Taken	Units	Diluted To	Units	Ratio
1	I took	10	ml	20	ml	0.5000
2	I took		ml		ml	
3	I took		ml		ml	
4	I took		ml		ml	
5	I took		ml		ml	

Dilutions Taken	1	Dilution Ratio	0.5
		Dilution Factor	2

RA

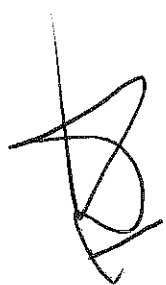
RA

Diluted by: _____ Date: 1/20/15

Gravimetric Worksheet

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
15-01043	1	Ra226			RMARTZ

TRetec Fraction	Michael Pisani & Associates, Inc. Client ID	Sample Type	Carrier Data			Filter Data			Gravimetric % Recovery	
			Carrier Added (ml)	Filter Tare (g)	Filter Final (g)	Filter Net (g)				
01	LCS	LCS		0.0217	0.0291		0.0074			
02	BLANK	MBL		0.0218	0.0295		0.0077			
03	DUP	DUP		0.0217	0.0355		0.0138			
04	WL-6	DO		0.0216	0.0386		0.0170			



 Date: 1/20/15

Technician: _____



C
1/20

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001079
 Batch Identification: 1501043A-RA
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: Ra

Detector Name: Alpha_049
 Chamber Serial Number: 10006121A
 Detector Serial Number: 49
 Env. Background: System Bkgd 107486
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 liter
 Generic Mult. Factor: 2.610E+000 Generic Div. Factor: 1.000E+000
 Sample Date/Time: 1/20/2015 3:40:46 PM
 Acquisition Date/Time: 1/20/2015 4:44:40 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Chem. Recovery Factor: 1.0000 +/- 0.0000
 Counting Efficiency: 0.1525 +/- 0.0027 on 12/13/2014 2:45:02 PM
 Effective Efficiency: 0.1525 +/- 0.0027

Control Certificate Name: Ra226_Ra-5b
 Chem. Recov. of Control: RA-226 0.388921 +/- 0.029320
 Peak Match Tolerance: 0.350 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
RA-224	5.527	300.47	11.34	1.53	0.00E+000	6.4
RA-226	4.563	224.66	13.09	0.34	0.00E+000	4.1

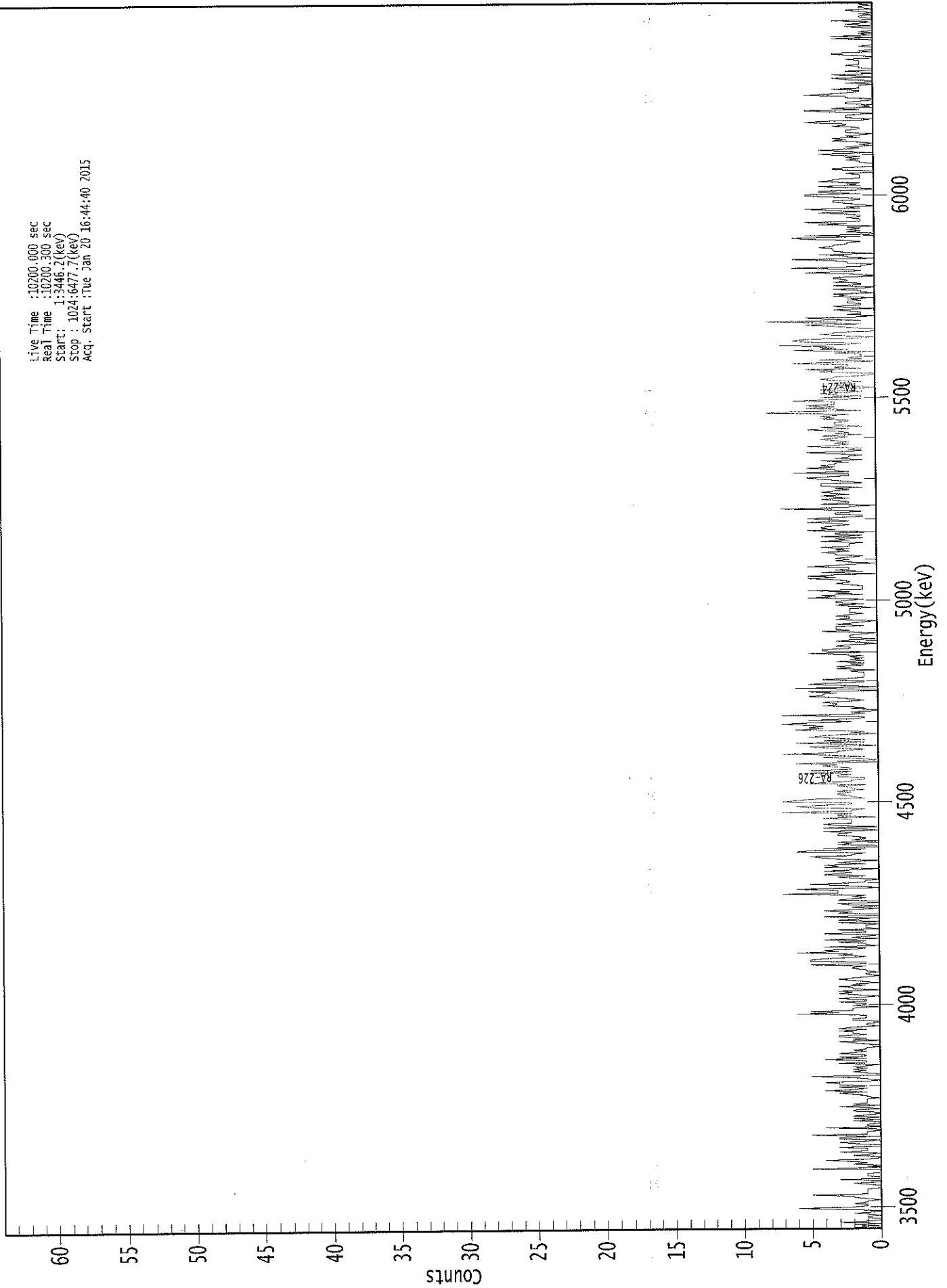
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/liter)	MDA (pCi/liter)
RA-224	0.968	5685.50*	1.43E+001 +/- 1.70E+000	3.39E-001 +/- 1.20E-002
RA-226	0.938	4785.00*	1.02E+001 +/- 1.38E+000	2.17E-001 +/- 7.65E-003

AG
1/21/15

0000107995.CNF

Live Time :10200.600 sec
Real Time :10200.300 sec
Start : 1:3446.2(keV)
Stop : 1024:6477.7(keV)
Acq. Start :Tue Jan 20 16:44:40 2015



ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 01

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	2	0	2	0	3	1	0	
9:	0	1	1	0	1	2	0	0	
17:	3	6	2	1	1	2	1	1	
25:	0	1	2	2	5	1	1	1	
33:	1	1	0	0	0	1	2	0	
41:	0	3	0	0	1	1	1	0	
49:	0	0	5	0	1	0	2	1	
57:	2	4	1	0	0	2	1	0	
65:	3	1	1	1	3	0	0	2	
73:	3	1	0	3	3	0	5	1	
81:	1	1	0	0	4	0	1	1	
89:	0	0	2	0	2	0	2	1	
97:	0	0	2	2	0	1	3	0	
105:	2	1	1	1	1	0	1	1	
113:	2	3	1	4	2	1	3	1	
121:	3	3	4	1	0	1	2	5	
129:	0	0	1	2	1	2	1	2	
137:	1	0	3	1	1	4	1	3	
145:	1	1	3	2	1	2	1	1	
153:	0	0	1	2	3	0	2	1	
161:	3	3	1	2	2	3	1	3	
169:	2	0	1	1	0	0	2	2	
177:	1	1	1	6	3	5	2	2	
185:	2	0	2	1	1	3	1	1	
193:	3	1	0	2	3	2	3	0	
201:	2	2	3	1	2	0	1	2	
209:	3	2	1	0	1	1	0	1	
217:	1	2	2	1	5	1	1	5	
225:	5	4	2	1	3	2	6	3	
233:	4	2	1	4	0	1	1	3	
241:	1	4	0	2	1	0	4	1	
249:	1	3	0	1	1	1	0	3	
257:	0	3	2	0	4	0	0	3	
265:	2	4	2	0	2	0	2	3	
273:	0	0	3	2	1	2	1	7	
281:	3	3	3	6	0	1	3	5	
289:	2	1	1	0	2	3	1	4	
297:	3	2	4	2	0	4	3	4	
305:	1	3	2	0	3	4	5	2	
313:	2	1	6	5	1	4	0	0	
321:	3	2	3	0	2	1	1	2	
329:	3	3	2	4	0	1	4	0	
337:	3	4	2	2	2	2	4	0	
345:	3	3	2	7	2	2	1	5	
353:	6	4	2	2	7	6	5	1	
361:	2	2	3	3	2	3	1	2	

369: 2 3 1 5 4 2 2 1

Sample Title: 01

Channel	1	2	3	4	5	6	7	8	9
377:	1	3	3	2	5	2	5	2	
385:	2	3	4	3	6	0	3	0	
393:	1	4	1	4	7	3	3	2	
401:	1	4	5	0	2	6	1	4	
409:	1	3	5	4	3	0	2	1	
417:	6	4	5	4	5	7	5	2	
425:	5	2	1	1	7	2	1	2	
433:	0	0	2	1	4	3	3	4	
441:	2	1	2	3	5	4	4	3	
449:	5	0	0	6	0	2	5	4	
457:	1	1	4	2	1	1	1	1	
465:	1	2	0	3	2	3	1	2	
473:	1	3	1	2	1	2	1	3	
481:	5	0	4	4	2	2	3	2	
489:	0	1	3	2	0	2	2	2	
497:	1	0	4	2	3	3	3	1	
505:	3	2	1	0	3	2	2	3	
513:	2	1	2	2	2	2	0	2	
521:	3	1	3	3	2	1	5	3	
529:	4	1	3	2	5	1	1	1	
537:	1	2	3	2	2	3	5	3	
545:	5	3	0	4	1	3	2	2	
553:	5	3	2	0	2	3	2	3	
561:	2	1	3	3	4	2	3	2	
569:	4	2	2	2	1	4	2	3	
577:	1	4	1	3	3	0	5	3	
585:	4	4	3	2	3	5	2	3	
593:	5	3	1	1	3	3	1	2	
601:	7	2	2	0	4	2	2	3	
609:	4	2	3	4	2	3	4	3	
617:	2	3	1	4	4	4	1	2	
625:	3	4	5	3	2	2	6	2	
633:	3	3	5	3	4	3	3	2	
641:	4	1	3	2	2	1	3	5	
649:	2	1	2	1	5	3	2	3	
657:	2	3	4	3	2	4	1	3	
665:	2	3	5	2	4	1	3	3	
673:	3	2	2	4	3	4	3	2	
681:	8	7	1	3	5	3	5	3	
689:	3	3	6	3	1	4	1	3	
697:	4	2	1	4	3	0	1	3	
705:	2	3	1	3	4	3	3	1	
713:	0	0	4	3	5	1	3	2	
721:	2	6	3	0	4	1	2	1	
729:	1	1	3	0	6	2	4	3	
737:	7	2	1	5	6	5	2	0	
745:	2	4	3	3	0	0	0	2	
753:	3	5	1	4	8	1	3	5	
761:	1	0	2	1	1	2	3	0	
769:	2	3	1	1	2	2	1	2	
777:	0	3	2	3	0	1	1	3	
785:	1	0	3	1	1	3	2	2	
793:	3	3	0	0	2	5	2	1	

801: 3 6 1 1 0 2 2 3

Sample Title: 01

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	6	0	2	2	4	0	2	3
817:	3	3	4	3	3	2	2	1
825:	2	5	6	1	5	0	0	2
833:	1	2	1	2	0	4	2	5
841:	1	1	1	2	1	1	2	4
849:	1	3	5	1	2	0	1	2
857:	3	3	1	1	3	5	5	1
865:	4	4	1	0	2	4	1	2
873:	1	4	3	3	1	1	1	1
881:	2	0	0	3	3	1	0	0
889:	0	1	1	2	1	2	1	3
897:	4	0	2	4	2	1	2	0
905:	1	0	1	3	2	3	1	2
913:	1	0	2	2	2	1	1	3
921:	2	2	5	4	1	0	2	2
929:	2	1	0	3	5	1	3	0
937:	1	0	2	2	1	0	0	2
945:	2	5	3	2	1	1	3	1
953:	1	1	0	2	0	0	2	3
961:	0	1	3	0	0	2	0	0
969:	1	1	2	1	1	1	1	2
977:	0	0	1	3	3	0	1	0
985:	0	0	1	0	0	0	0	0
993:	3	0	3	0	1	0	1	0
1001:	0	0	2	0	2	1	0	3
1009:	0	0	1	1	0	1	0	1
1017:	2	0	1	1	0	1	1	2



112

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001079
 Batch Identification: 1501043A-RA
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: Ra

Detector Name: Alpha_050
 Chamber Serial Number: 10006121B
 Detector Serial Number: 50
 Env. Background: System Bkgd 107487
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 liter
 Generic Mult. Factor: 2.690E+000 Generic Div. Factor: 1.000E+000
 Sample Date/Time: 1/20/2015 3:40:46 PM
 Acquisition Date/Time: 1/20/2015 4:44:42 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Chem. Recovery Factor: 1.0000 +/- 0.0000
 Counting Efficiency: 0.1428 +/- 0.0026 on 12/13/2014 2:43:59 PM
 Effective Efficiency: 0.1428 +/- 0.0026

Peak Match Tolerance: 0.350 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
RA-224	5.436	-0.36	604.11	1.36	0.00E+000	3.0
RA-226	4.444	-0.02	10615.	1.02	0.00E+000	3.0

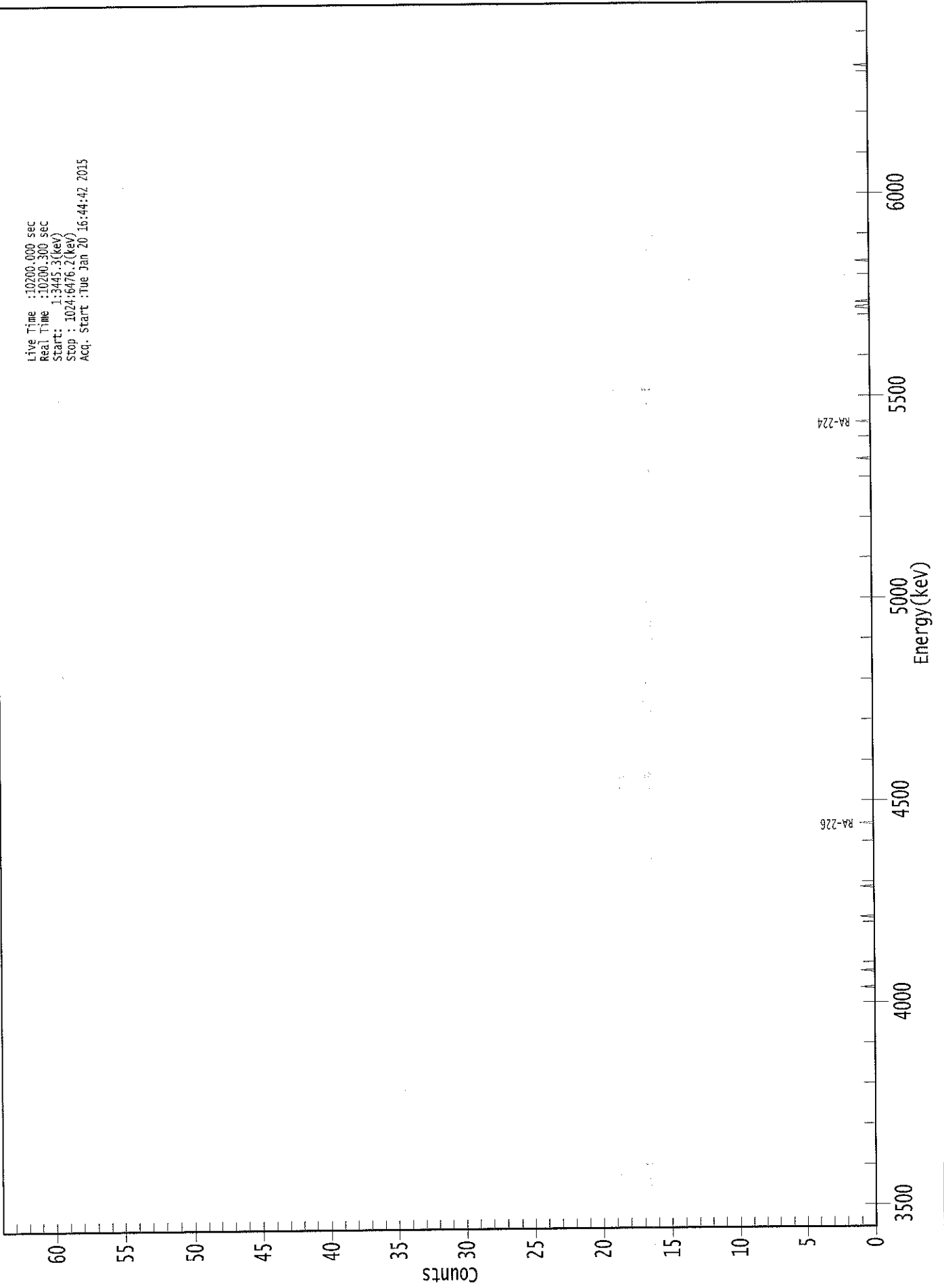
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/liter)	MDA (pCi/liter)
RA-224	0.922	5685.50*	-1.89E-002 +/- 1.14E-001	3.60E-001 +/- 1.27E-002
RA-226	0.859	4785.00*	-9.99E-004 +/- 1.06E-001	3.15E-001 +/- 1.11E-002

AG
 1/21/15

0000107987.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3445.3(rev)
Stop : 1024:6476.2(kev)
Acq. Start : Tue Jan 20 16:44:42 2015



ROI Type: 1

***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 02

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	1	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	1	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0

Sample Title: 02

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	0	0	0	0
425:	0	0	0	0	0	0	0	0	0
433:	0	0	0	0	0	0	0	0	0
441:	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	1	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	1
769:	1	0	0	0	0	1	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 1 0

Sample Title: 02

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	1	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



✓
1/2

Sample Description: WL-6 DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001079
 Batch Identification: 1501043A-RA
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: Ra

Detector Name: Alpha_051
 Chamber Serial Number: 10006123A
 Detector Serial Number: 51
 Env. Background: System Bkgd 107488
 Reagent Blank: <not performed>

Sample Size: 5.000E-001 +/- 0.000E+000 liter
 Generic Mult. Factor: 3.000E+000 Generic Div. Factor: 1.000E+000
 Sample Date/Time: 1/7/2015 3:40:46 PM
 Acquisition Date/Time: 1/20/2015 4:44:44 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Chem. Recovery Factor: 1.0000 +/- 0.0000
 Counting Efficiency: 0.1524 +/- 0.0027 on 12/13/2014 2:42:37 PM
 Effective Efficiency: 0.1524 +/- 0.0027

Peak Match Tolerance: 0.350 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
RA-224	5.550	19.52	53.39	7.48	0.00E+000	4.5
RA-226	4.587	122.90	18.10	5.10	0.00E+000	3.3

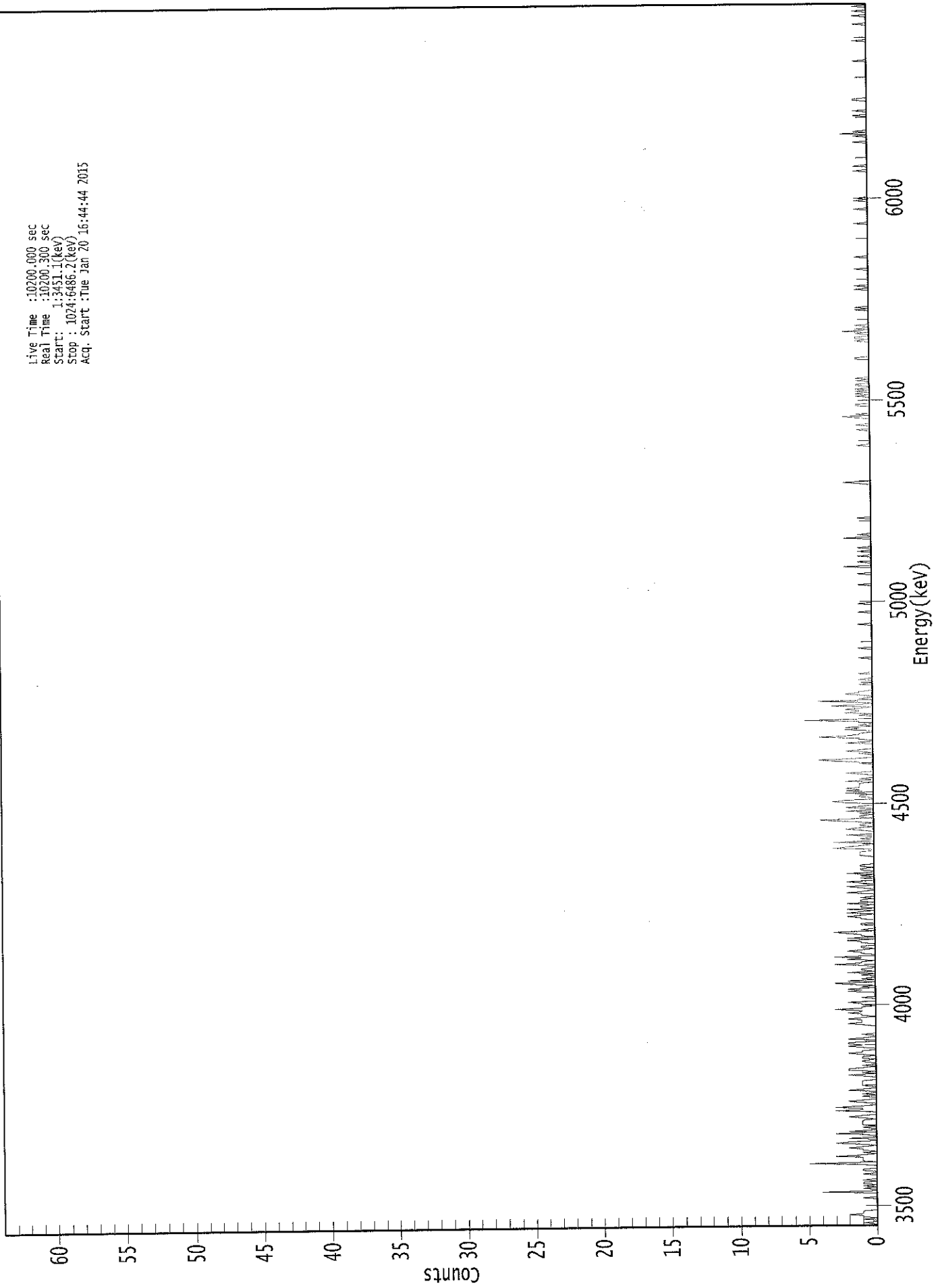
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/liter)	MDA (pCi/liter)
RA-224	0.976	5685.50*	2.15E+000 +/- 1.15E+000	1.37E+000 +/- 4.82E-002
RA-226	0.950	4785.00*	1.28E+001 +/- 2.36E+000	1.12E+000 +/- 3.94E-002

AG
1/21/15

0000107988.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:34:51.1(keV)
Stop : 1024:6486.2(keV)
Acq. Start : Tue Jan 20 16:44:44 2015



ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 03

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	0	1	0	0	1	0	1
1:	1	0	1	0	0	1	0	1
9:	1	2	1	1	1	0	0	0
17:	0	0	0	0	0	0	0	1
25:	0	0	0	0	4	0	0	1
33:	0	1	0	1	1	0	1	0
41:	0	0	0	1	0	0	1	1
49:	0	0	0	1	5	0	1	1
57:	1	1	3	1	0	1	0	1
65:	1	2	1	0	1	3	2	0
73:	0	2	0	0	1	3	0	2
81:	0	0	1	0	1	1	1	1
89:	1	0	1	2	1	0	0	0
97:	3	1	1	3	1	0	0	1
105:	2	1	0	0	1	0	1	0
113:	0	2	1	0	0	1	1	1
121:	1	1	0	0	0	1	2	0
129:	1	0	2	2	1	0	1	0
137:	0	1	1	0	1	1	0	1
145:	2	1	1	0	0	1	2	1
153:	2	2	0	0	2	1	0	0
161:	1	0	0	0	0	0	0	0
169:	1	2	1	1	1	2	1	0
177:	1	1	2	1	1	3	1	1
185:	0	1	1	2	0	0	0	1
193:	0	0	0	0	2	1	2	0
201:	1	0	2	3	0	2	0	1
209:	0	0	1	0	2	0	1	1
217:	0	0	1	3	1	1	0	2
225:	1	3	0	0	1	1	2	1
233:	0	1	1	0	0	1	1	2
241:	0	2	0	1	1	2	3	0
249:	1	0	0	0	1	1	0	0
257:	0	1	1	2	1	0	2	1
265:	0	2	0	1	1	0	2	0
273:	1	1	0	1	0	0	0	2
281:	1	0	0	1	2	0	0	1
289:	2	0	0	1	0	1	0	2
297:	0	0	1	1	0	1	1	0
305:	0	0	0	0	0	0	1	1
313:	1	1	0	0	3	2	1	0
321:	0	3	0	0	1	0	0	2
329:	0	0	0	1	2	1	0	1
337:	1	0	1	3	4	0	1	1
345:	0	1	0	2	0	0	2	1
353:	0	0	2	3	2	0	0	1
361:	1	0	2	0	2	1	2	1

369: 1 1 1 0 2 0 1 0

Sample Title: 03

Channel	1	2	3	4	5	6	7	8
377:	0	0	1	2	0	0	0	0
385:	0	0	0	1	1	3	4	1
393:	0	0	0	1	0	2	1	0
401:	0	0	0	0	2	0	0	1
409:	1	4	2	1	1	0	0	2
417:	1	2	0	1	0	1	1	5
425:	0	0	0	1	0	2	1	1
433:	2	1	0	3	1	0	1	4
441:	0	1	0	0	1	2	1	1
449:	0	0	0	0	0	1	0	0
457:	0	1	0	0	0	0	1	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	1	0	0	0	0
481:	0	0	0	1	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	1
505:	0	0	0	0	0	0	0	0
513:	0	1	0	0	0	0	0	0
521:	1	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	1	0	0	0	0	0	0	0
545:	0	1	0	0	0	0	0	2
553:	0	0	0	1	0	0	0	0
561:	1	0	0	0	1	0	0	1
569:	0	0	0	0	0	0	0	2
577:	0	0	1	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	1	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	1	2	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	1	0	0	0	1	0
673:	0	0	0	0	1	2	0	1
681:	0	0	0	0	0	0	1	1
689:	0	0	0	0	0	0	1	0
697:	1	0	1	0	1	0	0	1
705:	1	0	0	1	0	1	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	1	1	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	1	0	1	1
745:	0	0	1	0	2	0	1	0
753:	0	1	0	0	0	0	0	0
761:	0	0	0	0	0	0	1	0
769:	1	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	1
785:	0	0	1	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 1 0 0 0 0 0 0 0 0

Sample Title: 03

Channel	1	2	3	4	5	6	7	8	9
809:	0	0	1	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	1	0
841:	0	0	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	0	0	0
857:	0	1	0	1	0	0	0	0	0
865:	0	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0	0
881:	0	0	1	0	0	0	0	1	0
889:	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0
905:	0	0	1	0	0	0	0	0	1
913:	0	2	0	1	0	0	0	0	0
921:	0	0	0	0	0	0	0	0	0
929:	1	0	0	0	1	0	0	0	0
937:	0	0	0	0	0	1	0	1	0
945:	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	1	0
977:	0	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0	1
993:	0	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	1	0	0	0
1009:	0	0	0	0	1	0	0	0	0
1017:	1	0	0	0	1	0	0	0	0



Handwritten mark

Sample Description: WL-6
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001079
 Batch Identification: 1501043A-RA
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: Ra

Detector Name: Alpha_052
 Chamber Serial Number: 10006123B
 Detector Serial Number: 52
 Env. Background: System Bkgd 107489
 Reagent Blank: <not performed>

Sample Size: 5.000E-001 +/- 0.000E+000 liter
 Generic Mult. Factor: 3.000E+000 Generic Div. Factor: 1.000E+000
 Sample Date/Time: 1/7/2015 3:40:46 PM
 Acquisition Date/Time: 1/20/2015 4:44:46 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Chem. Recovery Factor: 1.0000 +/- 0.0000
 Counting Efficiency: 0.1607 +/- 0.0029 on 12/13/2014 2:40:57 PM
 Effective Efficiency: 0.1607 +/- 0.0029

Peak Match Tolerance: 0.350 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
RA-224	5.549	15.32	51.36	0.68	0.00E+000	2.9
RA-226	4.572	140.30	16.66	1.70	0.00E+000	3.9

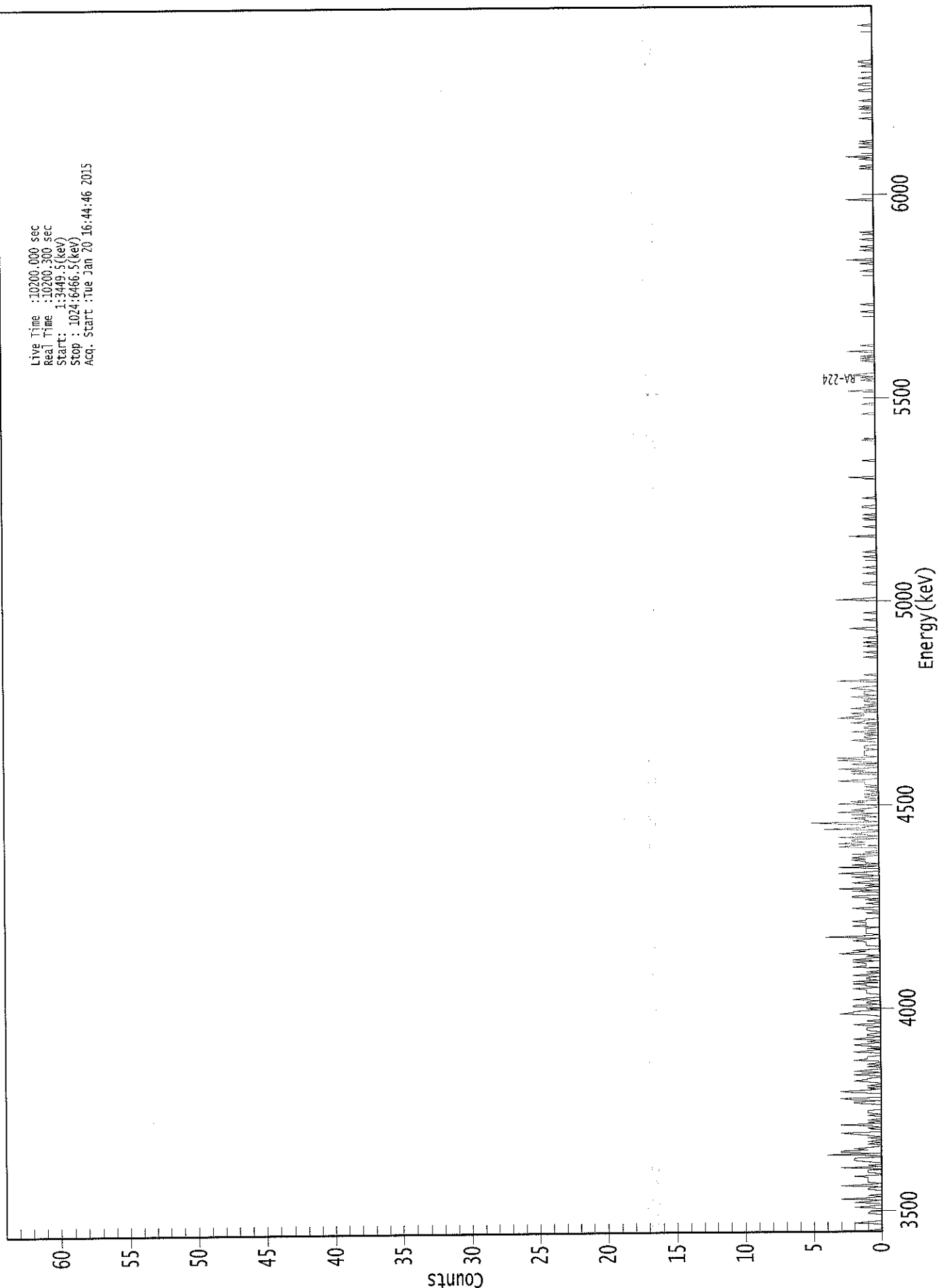
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/liter)	MDA (pCi/liter)
RA-224	0.976	5685.50*	1.60E+000 +/- 8.24E-001	5.89E-001 +/- 2.06E-002
RA-226	0.943	4785.00*	1.39E+001 +/- 2.36E+000	7.27E-001 +/- 2.54E-002

AG
 1/21/15

0000107989.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3449.5(kev)
Stop : 1024:6466.5(kev)
Acq. Start :Tue Jan 20 16:44:46 2015



ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 04

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	1	1	0	0	0	0	0	0	2
9:	1	0	0	0	0	0	0	0	1
17:	1	0	0	0	2	1	0	0	0
25:	2	1	0	3	1	0	1	0	0
33:	0	0	0	1	1	0	3	1	1
41:	0	1	1	1	1	1	2	0	0
49:	0	1	1	1	0	3	0	1	1
57:	0	0	1	2	2	2	0	0	0
65:	4	0	3	3	1	2	1	0	0
73:	0	1	0	1	0	0	1	0	0
81:	1	2	3	0	0	0	1	0	0
89:	1	3	0	1	0	1	0	0	0
97:	0	1	0	1	1	1	0	0	0
105:	0	0	0	2	2	0	2	3	3
113:	0	0	0	0	2	3	1	0	0
121:	1	0	1	0	0	1	2	1	1
129:	1	0	0	2	1	0	2	1	1
137:	0	0	1	0	1	0	0	2	2
145:	1	1	1	0	0	0	2	1	1
153:	0	1	0	1	2	1	0	1	1
161:	0	2	1	0	1	1	0	0	0
169:	1	1	1	0	1	2	0	0	0
177:	1	0	0	0	0	1	3	2	2
185:	2	0	1	0	2	2	0	1	1
193:	1	0	2	1	0	0	0	1	1
201:	1	1	1	2	0	1	1	2	2
209:	0	2	0	1	1	0	2	1	1
217:	0	1	0	0	0	2	1	1	1
225:	1	2	0	2	1	0	1	0	0
233:	3	2	1	2	0	0	0	1	1
241:	1	1	1	2	1	0	4	1	1
249:	0	1	1	1	1	1	0	2	2
257:	1	1	1	2	1	1	0	0	0
265:	0	0	1	0	0	1	2	0	0
273:	0	0	1	0	0	1	0	2	2
281:	2	0	0	0	2	0	3	1	1
289:	0	1	0	2	1	0	0	1	1
297:	2	0	1	3	1	0	0	0	0
305:	3	0	2	0	1	1	2	1	1
313:	2	1	0	2	0	1	0	0	0
321:	0	3	2	1	3	1	2	2	2
329:	0	3	0	1	2	1	0	0	0
337:	4	1	1	0	2	5	0	1	1
345:	1	2	0	1	2	0	3	1	1
353:	2	1	0	0	1	3	1	2	2
361:	0	0	1	1	0	1	0	0	0

369: 1 0 0 1 0 1 1 1

Sample Title: 04

Channel	1	2	3	4	5	6	7	8
377:	3	1	0	0	0	0	2	0
385:	2	1	3	0	0	1	2	0
393:	1	3	1	3	0	1	1	1
401:	1	1	0	1	1	1	0	0
409:	0	1	2	0	1	1	0	1
417:	0	2	0	0	1	1	0	0
425:	2	1	1	0	3	2	1	1
433:	2	0	1	0	2	1	0	1
441:	0	0	1	1	0	1	2	0
449:	1	1	1	0	1	2	1	0
457:	0	0	0	3	0	0	0	0
465:	1	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	1	0	0	0	0
489:	1	0	0	1	0	0	0	1
497:	0	0	0	0	0	0	1	2
505:	0	0	0	0	0	0	1	0
513:	0	0	0	0	1	0	0	0
521:	0	0	0	0	0	0	0	3
529:	1	0	0	0	0	0	0	0
537:	0	0	0	0	1	1	0	0
545:	0	0	0	0	0	1	0	0
553:	0	0	1	0	0	0	0	0
561:	0	0	0	1	0	0	0	1
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	2	0	0	0
585:	0	0	0	0	1	0	0	0
593:	0	0	0	1	0	0	1	0
601:	0	0	0	0	1	1	0	0
609:	0	0	0	0	1	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	2	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	1	0	0	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	0	0	2	0	0
705:	0	0	0	0	0	0	1	0
713:	1	0	2	1	0	0	0	0
721:	0	0	0	0	0	0	1	0
729:	1	0	1	0	0	0	2	0
737:	0	0	0	1	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	1
769:	0	0	0	0	0	1	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 1 0 0 0 0 0 0 1

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	2	0	0	0	0	0
817:	0	0	1	0	0	1	0	0
825:	0	0	0	1	0	0	0	0
833:	0	1	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	2	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	1	0
889:	1	0	0	0	0	0	1	0
897:	2	0	0	0	0	0	0	0
905:	1	0	0	1	0	1	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	1	0	0	0	0	0	0	0
937:	1	0	1	0	0	0	0	1
945:	0	0	0	0	0	0	0	1
953:	1	0	0	0	1	1	0	0
961:	0	0	1	0	0	0	0	0
969:	0	0	0	0	1	0	0	1
977:	1	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	1	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 1/20/2015
Time : 5:49:20 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	1/20/2015 5:19:32 AM
Alpha 004	21f	ALL	Passed	1/20/2015 5:19:33 AM
Alpha 005	21f	ALL	Not Done	
Alpha 006	21f	ALL	Not Done	
Alpha 007	21f	ALL	Not Done	
Alpha 008	21f	ALL	Not Done	
Alpha 009	21f	ALL	Not Done	
Alpha 010	21f	ALL	Passed	1/20/2015 5:19:34 AM
Alpha 011	21f	ALL	Passed	1/20/2015 5:19:35 AM
Alpha 012	21f	ALL	Passed	1/20/2015 5:19:35 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	1/20/2015 5:19:36 AM
Alpha 015	21f	Peak FWHM	Action	1/20/2015 5:19:37 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:38 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:40 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:41 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:43 AM
Alpha 037	Alpha Analyst100DC	Peak FWHM	Action	1/20/2015 5:19:44 AM
Alpha 038	Alpha Analyst100DC	Peak Energy	Action	1/20/2015 5:19:46 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:48 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:50 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:52 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:54 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:56 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:19:58 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:01 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:04 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:06 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:09 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:11 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:14 AM
Alpha 051	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:16 AM
Alpha 052	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:19 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:22 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:24 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:27 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:30 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:33 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:35 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:38 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	1/20/2015 5:20:41 AM

APPROVED BY: _____ ✓

APPROVAL DATE: 1/20

***** LIBRARY LISTING REPORT *****

Nuclide Library Title: Radium

Nuclide Library Description: Ra-226, Po-218, Rn-222

Nuclide Name	Half-Life (Seconds)	Energy (keV)	Energy Uncert. (keV)	Yield (%)	Yield Uncert. (Abs.+)
PO-218	5.049E+010	6003.000*	0.000	99.9800	0.0000
RN-222	5.049E+010	5490.000*	0.000	99.9200	0.0000
RA-226	5.049E+010	4785.000*	0.000	100.0000	0.0000

* = key line

TOTALS: 3 Nuclides 3 Energy Lines

SECTION IX
ANALYTICAL DATA (RADIUM-228)

Work Order	15-01043
Analysis Code	Ra228
Run	1
Date Received	1/12/2015
Lab Deadline	1/26/2015
Client	Michael Pisani & Associates, Inc.
Project	07-47 E White Lake
Report Level	4
Activity Units	pCi
Aliquot Units	I
Matrix	WA
Method	EPA 904.0
Instrument Type	Alpha/Beta GPC
Radiometric Tracer	Ba-133
Radiometric Sol#	Ba-6a
Tracer Act (dpm/g)	900.262
Carrier	Yttrium
Carrier Conc (mg/ml)	40.8593

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		01/12/15 00:00	1.0000E+00
02	MBL	BLANK		01/12/15 00:00	1.0000E+00
03	DUP	WL-6	43	01/07/15 12:45	1.0000E+00
04	DO	WL-6	43	01/07/15 12:45	1.0000E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
 ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.



15-01043
Ra228
Run 1

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS			01/15/15 11:30	JWOLFE	01/16/15 12:30	RMARTZ	01/26/15 06:15	RMARTZ
02	MBL			01/15/15 11:30	JWOLFE	01/16/15 12:30	RMARTZ	01/26/15 06:15	RMARTZ
03	DUP			01/15/15 11:30	JWOLFE	01/16/15 12:30	RMARTZ	01/26/15 06:15	RMARTZ
04	DO			01/15/15 11:30	JWOLFE	01/16/15 12:30	RMARTZ	01/26/15 06:15	RMARTZ

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
 ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Spike and Tracer Worksheet

Internal Work Order		Run	Analysis Code		Date	Technician		Technician Initials		Witness Initials		
15-01043		1	Ra228		1/15/2015 11:30	JWOLFE						
LCS & Matrix Spikes												
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCS Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Error Estimate	LCSD Error Estimate	MSD Error Estimate
Ra-228	Ra-11	31.631	1/15/2015	0.630	0.6078		8.66		0.442	0.00	0.00	0.00
IC-99 MS C-2a 22043.688 10/16/2013 0.1												
Tracers												
fraction	isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer					LCS
01	Ba-133	Ba-6a	900.262	1/15/2015	1.0057	1.1300						
02	Ba-133	Ba-6a	900.262	1/15/2015	0.9983	1.1300						
03	Ba-133	Ba-6a	900.262	1/15/2015	1.0028	1.1300						
04	Ba-133	Ba-6a	900.262	1/15/2015	1.0039	1.1300						
Matrix Spike												

Gravimetric Worksheet

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
15-01043	1	Ra228	Yttrium	40.8593	RMARTZ

TRetek Fraction	Michael Pisani & Associates, Inc.		Sample Type	Carrier Data		Filter Data			Gravimetric % Recovery	
	Client ID			Carrier Added (ml)		Filter Tare (g)	Filter Final (g)	Filter Net (g)		
01	LCS		LCS	2.0000	0.0940	0.1589		0.0649		79.42
02	BLANK		MBL	2.0000	0.0964	0.1565		0.0601		73.55
03	DUP		DUP	2.0000	0.0965	0.1544		0.0579		70.85
04	WL-6		DO	2.0000	0.0937	0.1547		0.0610		74.65

Date: 1/26/15

Technician: _____

AG
1/26/15
(R)

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
B1	1501043-02	9	195	120	1400	1/26/15 10:42
B3	1501043-03	6	635	120	1400	1/26/15 10:42
B4	1501043-04	8	821	120	1400	1/26/15 10:42

GPC Detector Report
(ALL Backgrounds)

Detector	Alpha/Beta	Calibration Date	Count Date	Bkg CPM	PFW	LCL	Mean	UCL
LB4110A - A1	Alpha	11/18/2007	1/26/2015	5.00E-02	P	-1.92E+01	2.38E-01	1.96E+01
LB4110A - A2	Alpha	11/18/2007	1/26/2015	0.00E+00	P	-1.63E+01	2.14E-01	1.67E+01
LB4110A - A3	Alpha	11/18/2007	1/26/2015	0.00E+00	P	-1.58E+01	1.87E-01	1.62E+01
LB4110A - A4	Alpha	11/18/2007	1/26/2015	5.00E-02	P	-1.68E+01	1.99E-01	1.72E+01
LB4110A - B1	Alpha	11/18/2007	1/26/2015	1.67E-02	P	-9.07E-02	7.23E-02	2.35E-01
LB4110A - B2	Alpha	11/18/2007	1/26/2015	3.33E-02	P	-7.07E-02	7.37E-02	2.18E-01
LB4110A - B3	Alpha	11/18/2007	1/26/2015	6.67E-02	P	-6.26E-02	5.58E-02	1.74E-01
LB4110A - B4	Alpha	11/18/2007	1/26/2015	8.33E-02	P	-1.27E-01	7.70E-02	2.81E-01
LB4110A - C1	Alpha	11/18/2007	1/26/2015	5.00E-02	P	-1.36E-01	8.79E-02	3.11E-01
LB4110A - C2	Alpha	11/18/2007	1/26/2015	3.33E-02	P	-1.64E-01	7.95E-02	3.23E-01
LB4110A - C3	Alpha	11/18/2007	1/26/2015	5.00E-02	P	-1.60E-01	9.33E-02	3.47E-01
LB4110A - C4	Alpha	11/18/2007	1/26/2015	0.00E+00	P	-6.48E-02	6.91E-02	2.03E-01
LB4110A - D1	Alpha	11/18/2007	1/26/2015	1.67E-02	P	-5.42E-02	7.95E-02	2.13E-01
LB4110A - D2	Alpha	11/18/2007	1/26/2015	6.67E-02	P	-6.89E-02	6.01E-02	1.89E-01
LB4110A - D3	Alpha	11/18/2007	1/26/2015	8.33E-02	P	-5.09E-02	6.66E-02	1.84E-01
LB4110A - D4	Alpha	11/18/2007	1/26/2015	5.00E-02	P	-6.60E-02	6.97E-02	2.05E-01
LB4110R - A1	Alpha	11/24/2006	1/26/2015	6.67E-02	P	-9.15E-02	9.76E-02	2.87E-01
LB4110R - A2	Alpha	11/24/2006	1/26/2015	1.67E-02	P	-8.44E-02	7.19E-02	2.28E-01
LB4110R - A3	Alpha	11/24/2006	1/26/2015	5.00E-02	P	-6.98E-02	8.16E-02	2.33E-01
LB4110R - A4	Alpha	11/24/2006	1/26/2015	1.67E-02	P	-5.15E-02	6.89E-02	1.89E-01
LB4110R - B1	Alpha	11/24/2006	1/26/2015	1.67E-02	P	-8.85E-02	6.18E-02	2.12E-01
LB4110R - B2	Alpha	11/24/2006	1/26/2015	8.33E-02	P	-6.77E-02	6.00E-02	1.88E-01
LB4110R - B3	Alpha	11/24/2006	1/26/2015	8.33E-02	P	-6.50E-02	7.19E-02	2.09E-01
LB4110R - B4	Alpha	11/24/2006	1/26/2015	5.00E-02	P	-6.04E-02	6.83E-02	1.97E-01
LB4110R - C1	Alpha	11/24/2006	1/26/2015	5.00E-02	P	-7.45E-02	7.24E-02	2.19E-01
LB4110R - C2	Alpha	11/24/2006	1/26/2015	0.00E+00	P	-7.48E-02	6.73E-02	2.09E-01
LB4110R - C3	Alpha	11/24/2006	1/26/2015	0.00E+00	P	-8.12E-02	8.41E-02	2.49E-01
LB4110R - C4	Alpha	11/24/2006	1/26/2015	6.67E-02	P	-5.94E-02	7.79E-02	2.15E-01
LB4110R - D1	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-1.06E-01	6.70E-02	2.40E-01
LB4110R - D2	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.23E-02	6.65E-02	2.15E-01
LB4110R - D3	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.71E-02	6.63E-02	2.20E-01
LB4110R - D4	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.04E-02	7.08E-02	2.22E-01
LB5100 - 1	Alpha	7/10/2006	10/26/2007	5.00E-02	P	-1.56E-02	9.58E-02	2.07E-01

✓
1/26

GPC Detector Report
(ALL Backgrounds)

12w

Detector	Alpha/Beta	Calibration Date	Count Date	Bkg CPM	PFW	LCL	Mean	UCL
LB4110A - A1	Beta	11/18/2007	1/26/2015	1.10E+00	P	-2.59E+02	6.93E+00	2.73E+02
LB4110A - A2	Beta	11/18/2007	1/26/2015	1.55E+00	P	-2.71E+01	2.67E+00	3.24E+01
LB4110A - A3	Beta	11/18/2007	1/26/2015	2.00E+00	P	-4.50E+01	2.55E+00	5.00E+01
LB4110A - A4	Beta	11/18/2007	1/26/2015	7.17E+00	F	-2.86E+01	3.94E+00	3.64E+01
LB4110A - B1	Beta	11/18/2007	1/26/2015	1.98E+00	P	-9.32E+00	2.98E+00	1.53E+01
LB4110A - B2	Beta	11/18/2007	1/26/2015	1.58E+00	P	-6.76E+00	1.90E+00	1.06E+01
LB4110A - B3	Beta	11/18/2007	1/26/2015	1.50E+00	P	-3.61E-01	1.41E+00	3.17E+00
LB4110A - B4	Beta	11/18/2007	1/26/2015	1.42E+00	P	-6.72E+00	1.90E+00	1.05E+01
LB4110A - C1	Beta	11/18/2007	1/26/2015	2.10E+00	F	-4.78E+00	1.99E+00	8.76E+00
LB4110A - C2	Beta	11/18/2007	1/26/2015	1.08E+00	P	3.83E-01	1.28E+00	2.17E+00
LB4110A - C3	Beta	11/18/2007	1/26/2015	1.70E+00	P	4.44E-01	1.53E+00	2.61E+00
LB4110A - C4	Beta	11/18/2007	1/26/2015	1.30E+00	P	-1.58E+00	1.97E+00	5.52E+00
LB4110A - D1	Beta	11/18/2007	1/26/2015	1.75E+00	P	-2.21E+00	2.47E+00	7.15E+00
LB4110A - D2	Beta	11/18/2007	1/26/2015	5.08E+00	F	-3.79E+00	2.06E+00	7.91E+00
LB4110A - D3	Beta	11/18/2007	1/26/2015	2.08E+00	F	5.73E-01	4.25E+00	7.93E+00
LB4110A - D4	Beta	11/18/2007	1/26/2015	6.20E+00	F	-7.57E+00	2.06E+00	1.17E+01
LB4110R - A1	Beta	11/24/2006	1/26/2015	1.38E+00	P	-5.54E+01	3.27E+00	6.20E+01
LB4110R - A2	Beta	11/24/2006	1/26/2015	1.30E+00	P	-4.39E+01	1.92E+00	4.77E+01
LB4110R - A3	Beta	11/24/2006	1/26/2015	1.23E+00	P	-4.07E+01	2.51E+00	4.57E+01
LB4110R - A4	Beta	11/24/2006	1/26/2015	1.52E+00	P	-4.04E+01	2.01E+00	4.44E+01
LB4110R - B1	Beta	11/24/2006	1/26/2015	1.43E+00	P	-4.26E+01	1.92E+00	4.64E+01
LB4110R - B2	Beta	11/24/2006	1/26/2015	8.73E+00	F	-4.77E+01	3.40E+00	5.45E+01
LB4110R - B3	Beta	11/24/2006	1/26/2015	1.27E+00	P	-4.25E+01	2.45E+00	4.74E+01
LB4110R - B4	Beta	11/24/2006	1/26/2015	1.17E+00	P	-4.27E+01	1.82E+00	4.63E+01
LB4110R - C1	Beta	11/24/2006	1/26/2015	1.22E+00	P	-4.26E+01	2.69E+00	4.80E+01
LB4110R - C2	Beta	11/24/2006	1/26/2015	1.80E+00	P	-4.25E+01	2.54E+00	4.76E+01
LB4110R - C3	Beta	11/24/2006	1/26/2015	1.28E+00	P	-4.30E+01	2.34E+00	4.76E+01
LB4110R - C4	Beta	11/24/2006	1/26/2015	1.33E+00	P	-4.85E+01	2.70E+00	5.39E+01
LB4110R - D1	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.36E+01	5.31E+00	5.43E+01
LB4110R - D2	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.67E+01	1.79E+00	5.03E+01
LB4110R - D3	Beta	11/24/2006	11/1/2014	0.00E+00	P	-5.02E+01	5.28E+00	6.07E+01
LB4110R - D4	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.64E+01	2.13E+00	5.07E+01
LB5100 - 1	Beta	7/10/2006	10/26/2007	4.52E+00	F	-3.19E-01	1.58E+00	3.48E+00

GPC Detector Report
(ALL Efficiencies)

JRW

Detector	Alpha/Beta	Calibration Date	Count Date	Eff	PFW	LCL	Mean	UCL
LB4110A - A1	Alpha	11/18/2007	1/26/2015	0.2316	P	0.0130	0.2191	0.4252
LB4110A - A2	Alpha	11/18/2007	1/26/2015	0.2037	P	-0.0241	0.1792	0.3825
LB4110A - A3	Alpha	11/18/2007	1/26/2015	0.2021	P	-0.0456	0.1704	0.3864
LB4110A - A4	Alpha	11/18/2007	1/26/2015	0.2302	P	-0.0245	0.1912	0.4069
LB4110A - B1	Alpha	11/18/2007	1/26/2015	0.2258	P	0.1954	0.2234	0.2515
LB4110A - B2	Alpha	11/18/2007	1/26/2015	0.2068	P	0.1885	0.2186	0.2487
LB4110A - B3	Alpha	11/18/2007	1/26/2015	0.2393	P	0.1387	0.2327	0.3266
LB4110A - B4	Alpha	11/18/2007	1/26/2015	0.2308	P	0.2057	0.2341	0.2625
LB4110A - C1	Alpha	11/18/2007	1/26/2015	0.2123	P	0.1978	0.2199	0.2419
LB4110A - C2	Alpha	11/18/2007	1/26/2015	0.2205	P	0.1991	0.2249	0.2507
LB4110A - C3	Alpha	11/18/2007	1/26/2015	0.2492	P	0.2243	0.2488	0.2733
LB4110A - C4	Alpha	11/18/2007	1/26/2015	0.2243	P	0.1983	0.2248	0.2514
LB4110A - D1	Alpha	11/18/2007	1/26/2015	0.2216	P	0.1798	0.2300	0.2803
LB4110A - D2	Alpha	11/18/2007	1/26/2015	0.2432	P	0.2020	0.2555	0.3090
LB4110A - D3	Alpha	11/18/2007	1/26/2015	0.2546	P	0.2058	0.2609	0.3161
LB4110A - D4	Alpha	11/18/2007	1/26/2015	0.1914	P	0.1491	0.1971	0.2452
LB4110R - A1	Alpha	11/24/2006	1/26/2015	0.2302	P	0.2004	0.2375	0.2747
LB4110R - A2	Alpha	11/24/2006	1/26/2015	0.2138	P	0.1848	0.2184	0.2520
LB4110R - A3	Alpha	11/24/2006	1/26/2015	0.2172	P	0.1923	0.2228	0.2534
LB4110R - A4	Alpha	11/24/2006	1/26/2015	0.2414	P	0.2132	0.2445	0.2757
LB4110R - B1	Alpha	11/24/2006	1/26/2015	0.2181	P	0.1691	0.2222	0.2753
LB4110R - B2	Alpha	11/24/2006	1/26/2015	0.1960	P	0.1644	0.2136	0.2629
LB4110R - B3	Alpha	11/24/2006	1/26/2015	0.2338	P	0.1951	0.2428	0.2905
LB4110R - B4	Alpha	11/24/2006	1/26/2015	0.2002	P	0.1785	0.2278	0.2771
LB4110R - C1	Alpha	11/24/2006	1/26/2015	0.2077	P	0.1795	0.2136	0.2477
LB4110R - C2	Alpha	11/24/2006	1/26/2015	0.2128	P	0.1896	0.2226	0.2556
LB4110R - C3	Alpha	11/24/2006	1/26/2015	0.2251	P	0.2033	0.2378	0.2723
LB4110R - C4	Alpha	11/24/2006	1/26/2015	0.2061	P	0.1775	0.2191	0.2608
LB4110R - D1	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0281	0.1904	0.4089
LB4110R - D2	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0314	0.2165	0.4644
LB4110R - D3	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0308	0.2127	0.4562
LB4110R - D4	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0260	0.1714	0.3689
LB5100 - 1	Alpha	7/10/2006	10/26/2007	0.3368	P	0.3332	0.3455	0.3578

GPC Detector Report
(ALL Efficiencies)

Detector	Alpha/Beta	Calibration Date	Count Date	Eff	PFW	LCL	Mean	UCL
LB4110A - A1	Beta	11/18/2007	1/26/2015	0.5615	P	0.2471	0.5628	0.8784
LB4110A - A2	Beta	11/18/2007	1/26/2015	0.4660	P	0.1949	0.4676	0.7403
LB4110A - A3	Beta	11/18/2007	1/26/2015	0.4892	P	0.1320	0.4636	0.7952
LB4110A - A4	Beta	11/18/2007	1/26/2015	0.5670	P	0.1824	0.5041	0.8258
LB4110A - B1	Beta	11/18/2007	1/26/2015	0.5404	P	0.4673	0.5336	0.5998
LB4110A - B2	Beta	11/18/2007	1/26/2015	0.5207	P	0.4682	0.5271	0.5860
LB4110A - B3	Beta	11/18/2007	1/26/2015	0.5951	P	0.3396	0.5428	0.7461
LB4110A - B4	Beta	11/18/2007	1/26/2015	0.5705	P	0.4957	0.5560	0.6163
LB4110A - C1	Beta	11/18/2007	1/26/2015	0.5349	P	0.4374	0.5121	0.5868
LB4110A - C2	Beta	11/18/2007	1/26/2015	0.5471	P	0.4006	0.5168	0.6330
LB4110A - C3	Beta	11/18/2007	1/26/2015	0.6170	P	0.5265	0.5983	0.6700
LB4110A - C4	Beta	11/18/2007	1/26/2015	0.5764	P	0.4532	0.5337	0.6142
LB4110A - D1	Beta	11/18/2007	1/26/2015	0.7056	P	0.3840	0.5679	0.7518
LB4110A - D2	Beta	11/18/2007	1/26/2015	0.6641	P	0.4365	0.5932	0.7499
LB4110A - D3	Beta	11/18/2007	1/26/2015	0.6559	P	0.4821	0.6166	0.7510
LB4110A - D4	Beta	11/18/2007	1/26/2015	0.4883	P	0.3532	0.4718	0.5905
LB4110R - A1	Beta	11/24/2006	1/26/2015	0.5760	P	0.4827	0.5702	0.6576
LB4110R - A2	Beta	11/24/2006	1/26/2015	0.5343	P	0.4245	0.5117	0.5990
LB4110R - A3	Beta	11/24/2006	1/26/2015	0.5350	P	0.4575	0.5385	0.6196
LB4110R - A4	Beta	11/24/2006	1/26/2015	0.6173	P	0.5108	0.5957	0.6805
LB4110R - B1	Beta	11/24/2006	1/26/2015	0.5356	P	0.4286	0.5390	0.6495
LB4110R - B2	Beta	11/24/2006	1/26/2015	0.5019	P	0.4087	0.5163	0.6238
LB4110R - B3	Beta	11/24/2006	1/26/2015	0.6000	P	0.4824	0.5957	0.7090
LB4110R - B4	Beta	11/24/2006	1/26/2015	0.5153	P	0.4421	0.5472	0.6523
LB4110R - C1	Beta	11/24/2006	1/26/2015	0.4889	P	0.4145	0.5014	0.5883
LB4110R - C2	Beta	11/24/2006	1/26/2015	0.5232	P	0.4346	0.5355	0.6365
LB4110R - C3	Beta	11/24/2006	1/26/2015	0.5774	P	0.4832	0.5744	0.6656
LB4110R - C4	Beta	11/24/2006	1/26/2015	0.5238	P	0.4325	0.5258	0.6191
LB4110R - D1	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0678	0.4553	0.9785
LB4110R - D2	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0756	0.5116	1.0989
LB4110R - D3	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0736	0.4969	1.0674
LB4110R - D4	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0630	0.4090	0.8811
LB5100 - 1	Beta	7/10/2006	10/26/2007	0.4428	F	0.4555	0.4731	0.4906

SECTION X
BARIUM-133 ANALYTICAL TRACER DATA

KS
1/20/15

Analysis Report for 1501043-01
SPIKE

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1501043-01
 Sample Description : SPIKE
 Sample Type : RA RECOVERY

 Sample Size : 1.000E+00 units
 Facility : Countroom

 Sample Taken On : 1/20/2015 12:10:15PM
 Acquisition Started : 1/20/2015 2:32:08PM

 Procedure : BAFIL
 Operator : Administrator
 Detector Name : GE5
 Geometry : BAFIL
 Live Time : 900.0 seconds
 Real Time : 901.2 seconds

 Dead Time : 0.14 %

 Peak Locate Threshold : 2.50
 Peak Locate Range (in channels) : 1 - 4096
 Peak Area Range (in channels) : 33 - 4096
 Identification Energy Tolerance : 1.000 keV

 Energy Calibration Used Done On : 10/25/2014
 Efficiency Calibration Used Done On : 10/26/2014
 Efficiency Calibration Description :

 Sample Number : 17577

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/20/2015 2:47:12PM
 Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
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Analysis Report for 1501043-01

SPIKE

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	10.35	99 -	118	107.69	2.86E+01	17.91	3.61E+01	0.79
	2	20.72	197 -	217	206.96	6.36E+01	40.42	1.51E+02	0.71
	3	30.78	289 -	316	303.12	2.04E+03	102.90	2.15E+02	0.82
M	4	34.94	332 -	362	342.91	4.22E+02	49.42	7.70E+01	0.74
m	5	35.78	332 -	362	351.00	8.11E+01	50.28	5.30E+01	0.80
M	6	51.98	496 -	527	506.00	5.03E+01	19.75	4.46E+01	0.84
m	7	53.13	496 -	527	517.00	3.87E+01	22.92	2.20E+01	0.84
M	8	59.70	566 -	613	579.83	4.90E+01	29.73	6.05E+01	1.38
m	9	61.65	566 -	613	598.50	1.89E+02	39.70	7.39E+01	0.84
	10	65.89	622 -	655	638.99	1.01E+02	42.80	1.35E+02	1.12
M	11	79.55	759 -	792	769.71	5.09E+01	27.50	4.20E+01	1.20
m	12	80.99	759 -	792	783.48	7.88E+02	58.67	3.60E+01	0.68
M	13	83.67	804 -	821	809.14	1.97E+01	11.48	1.60E+01	0.84
m	14	84.28	804 -	821	815.00	3.70E+01	15.93	2.54E+01	0.90
	15	111.78	1058 -	1097	1078.03	2.15E+02	42.61	7.71E+01	0.93
	16	160.74	1533 -	1555	1546.42	2.80E+01	15.72	1.80E+01	1.21
	17	209.33	1997 -	2021	2011.40	1.39E+01	15.13	2.42E+01	0.39
	18	276.61	2643 -	2665	2655.16	4.40E+01	16.35	1.40E+01	0.52
	19	302.93	2891 -	2918	2906.97	1.19E+02	23.72	1.12E+01	0.83
	20	307.24	2934 -	2958	2948.23	1.90E+01	16.91	3.00E+01	0.79
	21	333.71	3185 -	3213	3201.52	3.85E+01	20.54	3.31E+01	0.57
	22	356.18	3401 -	3429	3416.56	3.91E+02	42.29	2.86E+01	0.80
	23	383.97	3667 -	3693	3682.49	6.52E+01	20.51	2.16E+01	0.49
	24	387.11	3697 -	3725	3712.51	1.38E+02	26.25	1.78E+01	0.89
	25	391.09	3735 -	3759	3750.65	2.09E+01	16.79	2.41E+01	0.92
	26	414.92	3966 -	3989	3978.69	2.98E+01	12.29	4.44E+00	0.73

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 1/20/2015 2:47:12PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000017516.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	10.35	2.86E+01	17.91	4.30E-01	1.16E+00	2.82E+01	1.79E+01
	2	20.72	6.36E+01	40.42			6.36E+01	4.04E+01
	3	30.78	2.04E+03	102.90			2.04E+03	1.03E+02

Analysis Report for 1501043-01

SPIKE

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	4	34.94	4.22E+02	49.42			4.22E+02	4.94E+01
m	5	35.78	8.11E+01	50.28			8.11E+01	5.03E+01
M	6	51.98	5.03E+01	19.75			5.03E+01	1.97E+01
m	7	53.13	3.87E+01	22.92			3.87E+01	2.29E+01
M	8	59.70	4.90E+01	29.73	3.54E+00	6.31E-01	4.55E+01	2.97E+01
m	9	61.65	1.89E+02	39.70			1.89E+02	3.97E+01
	10	65.89	1.01E+02	42.80			1.01E+02	4.28E+01
M	11	79.55	5.09E+01	27.50			5.09E+01	2.75E+01
m	12	80.99	7.88E+02	58.67			7.88E+02	5.87E+01
M	13	83.67	1.97E+01	11.48			1.97E+01	1.15E+01
m	14	84.28	3.70E+01	15.93			3.70E+01	1.59E+01
	15	111.78	2.15E+02	42.61			2.15E+02	4.26E+01
	16	160.74	2.80E+01	15.72			2.80E+01	1.57E+01
	17	209.33	1.39E+01	15.13			1.39E+01	1.51E+01
	18	276.61	4.40E+01	16.35			4.40E+01	1.64E+01
	19	302.93	1.19E+02	23.72			1.19E+02	2.37E+01
	20	307.24	1.90E+01	16.91			1.90E+01	1.69E+01
	21	333.71	3.85E+01	20.54			3.85E+01	2.05E+01
	22	356.18	3.91E+02	42.29			3.91E+02	4.23E+01
	23	383.97	6.52E+01	20.51			6.52E+01	2.05E+01
	24	387.11	1.38E+02	26.25			1.38E+02	2.62E+01
	25	391.09	2.09E+01	16.79			2.09E+01	1.68E+01
	26	414.92	2.98E+01	12.29			2.98E+01	1.23E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/units)	Activity Uncertainty
SN-113	0.88	255.12	1.93		
		391.69 *	61.90	2.74E+01	2.23E+01
I-125	0.98	35.49 *	6.49	1.48E+02	9.17E+01
BA-133	0.99	30.80 *	97.60	2.29E+02	2.02E+01
		81.00 *	33.00	4.65E+02	7.77E+01
		302.84 *	17.80	4.14E+02	1.19E+02

Analysis Report for 1501043-01

SPIKE

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/units)	Activity Uncertainty
BA-133	0.99	356.01 *		60.00	4.77E+02	8.78E+01
		383.85 *		8.70	5.95E+02	4.57E+02
PA-234	0.67	9.89 *		89.00	2.39E+00	1.52E+00
		21.72 *		64.90	9.07E+00	5.77E+00
		37.93		23.75		
		131.42		20.40		
AM-241	0.99	59.54 *		35.90	2.01E+01	1.32E+01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/units)	Wt mean Activity Uncertainty	Comments
	SN-113	0.886	2.74E+01	2.23E+01	
	I-125	0.987	1.48E+02	9.17E+01	
X	I-129	0.477			
	BA-133	0.998	2.59E+02	1.88E+01	
X	PB-210	0.578			
	PA-234	0.670	2.83E+00	1.47E+00	
	AM-241	0.996	2.01E+01	1.32E+01	

? = nuclide is part of an undetermined solution

X = nuclide rejected by the interference analysis

@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1501043-01

SPIKE

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/20/2015 2:47:12PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 4	34.94	4.68872E-01	5.86	Tol.	I-125
M 6	51.98	5.58833E-02	19.63	Sum	
m 7	53.13	4.30500E-02	29.58		
m 9	61.65	2.09496E-01	10.53	Sum	
10	65.89	1.12590E-01	21.12	Sum	
M 11	79.55	5.65594E-02	27.02	Sum	
M 13	83.67	2.19013E-02	29.12	Tol.	TH-231
m 14	84.28	4.11289E-02	21.52	Tol.	TH-231
15	111.78	2.39405E-01	9.89	Sum	
16	160.74	3.11111E-02	28.08		
17	209.33	1.54444E-02	54.43		
18	276.61	4.88845E-02	18.59		
20	307.24	2.11111E-02	44.50		
21	333.71	4.27434E-02	26.70	Sum	
24	387.11	1.53463E-01	9.50	Sum	
26	414.92	3.30903E-02	20.63	Sum	

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

Analysis Report for 1501043-01

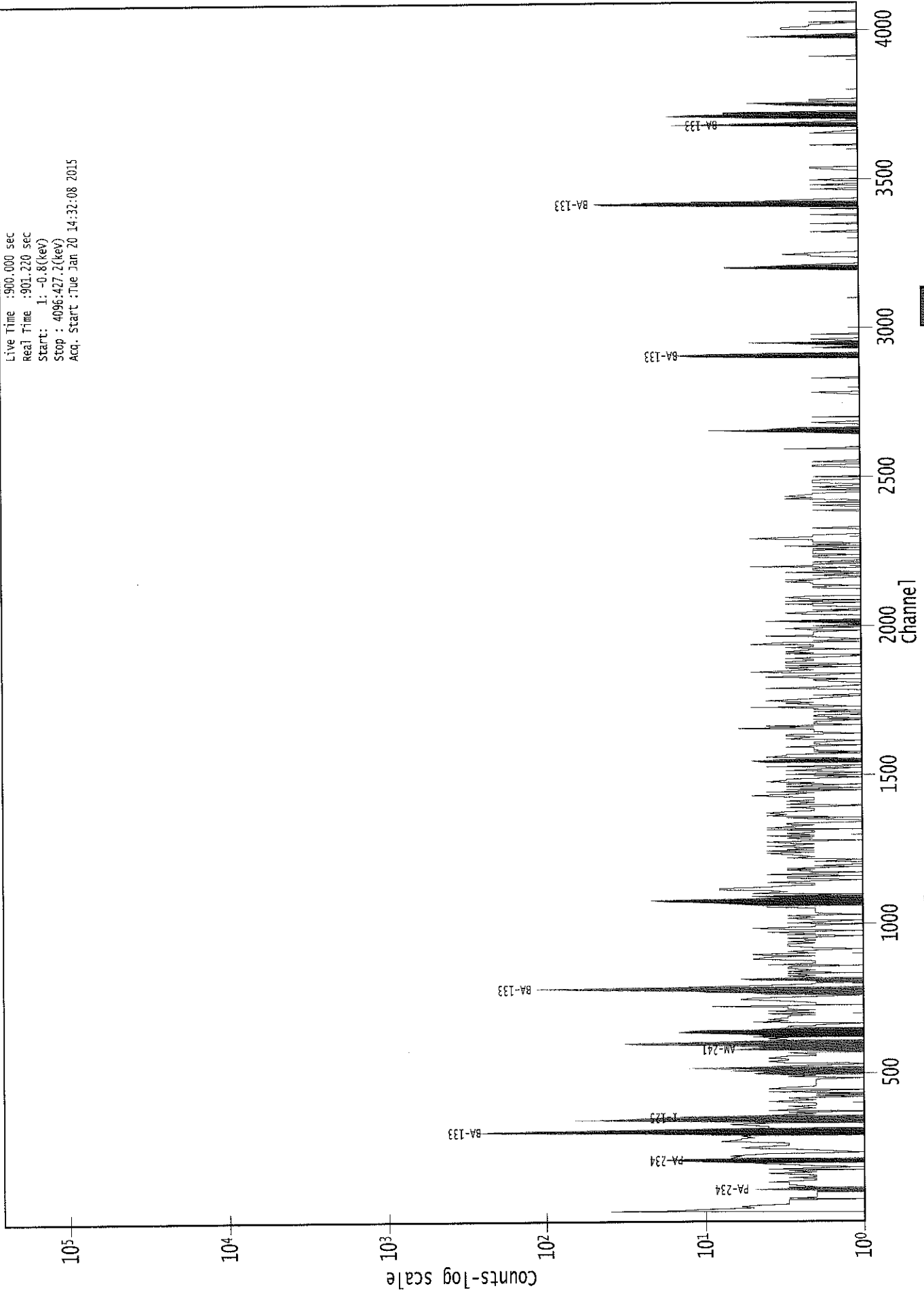
SPIKE

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/units)	Nuclide MDA (pCi/units)	Activity (pCi/units)	Dec. Level (pCi/units)
FE-55	5.89	24.50	9.46E+00	9.46E+00	-3.75E+00	4.35E+00
CO-57	122.06	85.51	9.04E+00	9.04E+00	-5.66E-01	4.10E+00
	136.48	10.60	8.22E+01		-2.68E+01	3.74E+01
NI-59	6.92	29.80	6.90E+00	6.90E+00	-3.90E-01	3.13E+00
MO-93	16.59	52.90	5.14E+00	5.14E+00	2.17E+00	2.35E+00
	18.60	10.00	2.83E+01		-2.76E+00	1.29E+01
NB-93M	16.57	9.43	2.88E+01	2.88E+01	1.22E+01	1.32E+01
CD-109	88.03	3.72	1.75E+02	1.75E+02	6.95E+01	7.97E+01
+ SN-113	255.12	1.93	6.03E+02	3.39E+01	-2.28E+02	2.65E+02
	391.69	*	61.90		2.74E+01	1.52E+01
SN-119M	23.87	16.10	1.86E+01	1.68E+01	-2.75E+01	8.49E+00
	25.10	22.70	1.68E+01		1.33E+01	7.80E+00
+ I-125	35.49	*	6.49	1.08E+02	1.48E+02	5.13E+01
I-129	29.78	*	57.00	1.61E+01	3.92E+02	7.80E+00
	33.60		5.64E+01		-3.17E+01	2.70E+01
	39.58		4.37E+01		-1.39E+01	1.96E+01
+ BA-133	30.80	*	97.60	9.41E+00	2.29E+02	4.55E+00
	81.00	*	33.00		4.65E+02	1.24E+01
	302.84	*	17.80		4.14E+02	2.63E+01
	356.01	*	60.00		4.77E+02	1.51E+01
	383.85	*	8.70		5.95E+02	9.50E+01
CE-139	165.85	80.35	1.18E+01	1.18E+01	2.71E+00	5.30E+00
CE-144	133.54	10.80	8.43E+01	8.43E+01	2.21E+01	3.86E+01
HG-203	279.19	77.30	1.38E+01	1.38E+01	-1.88E+01	5.93E+00
PB-210	10.80	*	9.57	2.61E+01	2.22E+01	1.20E+01
	46.50		9.56E+01		5.40E+01	4.35E+01
PA-231	9.28	42.00	5.18E+00	5.18E+00	1.59E-01	2.35E+00
	10.11	20.20	1.17E+01		3.19E-01	5.33E+00
	283.67	1.60	6.01E+02		2.14E+02	2.52E+02
	302.67	2.30	1.47E+03		3.12E+03	6.97E+02
TH-231	25.64	14.70	2.62E+01	2.62E+01	7.17E+00	1.22E+01
	84.21	6.40	1.15E+02		7.53E+01	5.35E+01
+ PA-234	9.89	*	89.00	2.81E+00	2.39E+00	1.29E+00
	21.72	*	64.90		9.07E+00	4.36E+00
	37.93		1.44E+01		-3.67E+00	6.53E+00
	131.42	20.40	4.19E+01		-5.09E+00	1.91E+01
TH-234	63.29	3.80	2.12E+02	2.12E+02	2.46E+01	1.00E+02
NP-237	29.37	14.00	9.73E+01	4.70E+01	-1.82E+01	4.76E+01
	86.50	12.60	4.70E+01		-3.19E+01	2.13E+01
U-237	97.08	16.30	4.12E+01	2.80E+01	5.52E+00	1.87E+01
	101.07	26.30	2.80E+01		1.18E+01	1.28E+01
	114.00	12.30	7.57E+01		-4.65E+01	3.51E+01
	208.01	22.00	5.42E+01		1.02E+01	2.45E+01
+ AM-241	59.54	*	35.90	3.25E+01	2.01E+01	1.57E+01
AM-243	74.67	66.00	8.31E+00	8.31E+00	-7.54E-01	3.78E+00

- + = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

0000017577.CNF

Live Time : 900.000 sec
Real Time : 901.220 sec
Start: 1: -0.8(keV)
Stop : 4096.427.2(keV)
Acq. Start : Tue Jan 20 14:32:08 2015



ROI Type: 1

ROI Type: 2

VB
1/20/15
VB

Analysis Report for 1501043-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1501043-02
 Sample Description : BLANK
 Sample Type : RA RECOVERY

Sample Size : 1.000E+00 units
 Facility : Countroom

Sample Taken On : 1/20/2015 12:10:26PM
 Acquisition Started : 1/20/2015 2:47:46PM

Procedure : BAFIL
 Operator : Administrator
 Detector Name : GE5
 Geometry : BAFIL
 Live Time : 900.0 seconds
 Real Time : 901.2 seconds

Dead Time : 0.13 %

Peak Locate Threshold : 2.50
 Peak Locate Range (in channels) : 1 - 4096
 Peak Area Range (in channels) : 33 - 4096
 Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
 Efficiency Calibration Used Done On : 10/26/2014
 Efficiency Calibration Description :

Sample Number : 17578

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/20/2015 3:02:50PM

Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
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Analysis Report for 1501043-02

BLANK

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)	
1	20.80	197 -	216	207.70	4.28E+01	42.24	1.84E+02	0.52	
2	24.51	234 -	251	243.18	2.29E+01	19.29	3.21E+01	0.14	
3	30.77	289 -	316	303.06	2.10E+03	104.51	2.24E+02	0.78	
M	4	34.91	331 -	357	342.71	4.84E+02	49.34	4.40E+01	0.78
m	5	35.95	331 -	357	352.57	5.56E+01	26.68	2.40E+01	0.43
	6	53.20	511 -	526	517.62	5.20E+01	21.54	4.00E+01	0.44
	7	61.68	584 -	612	598.76	2.23E+02	45.05	1.22E+02	0.71
	8	65.90	625 -	652	639.16	1.39E+02	33.48	6.27E+01	0.99
M	9	78.74	760 -	795	762.00	1.85E+01	7.35	6.00E+00	0.89
m	10	79.48	760 -	795	769.00	7.00E+01	21.48	2.70E+01	0.89
m	11	80.93	760 -	795	782.95	8.38E+02	61.08	2.85E+01	0.65
	12	111.83	1069 -	1089	1078.54	1.65E+02	41.32	1.38E+02	0.56
	13	121.43	1158 -	1183	1170.33	1.45E+01	14.92	1.90E+01	1.83
	14	160.53	1529 -	1553	1544.44	2.06E+01	21.01	4.27E+01	0.82
M	15	275.97	2635 -	2664	2649.00	4.23E+01	19.34	1.53E+01	1.13
m	16	276.92	2635 -	2664	2658.08	4.47E+01	13.43	9.52E+00	1.01
M	17	302.82	2890 -	2917	2905.89	2.05E+02	24.39	1.44E+01	1.23
m	18	303.35	2890 -	2917	2911.00	1.17E+01	20.40	9.27E+00	1.15
	19	307.32	2935 -	2960	2948.97	2.86E+01	12.29	4.76E+00	0.18
	20	333.71	3185 -	3211	3201.56	5.49E+01	16.04	4.14E+00	1.02
	21	356.13	3398 -	3431	3416.09	4.37E+02	41.81	0.00E+00	0.66
	22	383.96	3665 -	3693	3682.40	1.02E+02	23.26	1.62E+01	0.90
M	23	386.74	3696 -	3725	3709.00	1.11E+02	29.17	3.38E+01	1.22
m	24	387.37	3696 -	3725	3715.00	1.39E+02	27.16	2.20E+01	1.22
	25	391.08	3734 -	3760	3750.57	2.96E+01	17.60	2.29E+01	1.02
	26	414.87	3964 -	3987	3978.21	2.49E+01	15.85	1.83E+01	0.57

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 1/20/2015 3:02:50PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000017516.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	20.80	4.28E+01	42.24			4.28E+01	4.22E+01
2	24.51	2.29E+01	19.29	7.55E+00	7.94E-01	1.54E+01	1.93E+01
3	30.77	2.10E+03	104.51			2.10E+03	1.05E+02

Analysis Report for 1501043-02

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	4	34.91	4.84E+02	49.34			4.84E+02	4.93E+01
m	5	35.95	5.56E+01	26.68			5.56E+01	2.67E+01
	6	53.20	5.20E+01	21.54			5.20E+01	2.15E+01
	7	61.68	2.23E+02	45.05			2.23E+02	4.51E+01
	8	65.90	1.39E+02	33.48			1.39E+02	3.35E+01
M	9	78.74	1.85E+01	7.35			1.85E+01	7.35E+00
m	10	79.48	7.00E+01	21.48			7.00E+01	2.15E+01
m	11	80.93	8.38E+02	61.08			8.38E+02	6.11E+01
	12	111.83	1.65E+02	41.32			1.65E+02	4.13E+01
	13	121.43	1.45E+01	14.92	6.94E-01	5.46E-01	1.38E+01	1.49E+01
	14	160.53	2.06E+01	21.01			2.06E+01	2.10E+01
M	15	275.97	4.23E+01	19.34			4.23E+01	1.93E+01
m	16	276.92	4.47E+01	13.43			4.47E+01	1.34E+01
M	17	302.82	2.05E+02	24.39			2.05E+02	2.44E+01
m	18	303.35	1.17E+01	20.40			1.17E+01	2.04E+01
	19	307.32	2.86E+01	12.29			2.86E+01	1.23E+01
	20	333.71	5.49E+01	16.04			5.49E+01	1.60E+01
	21	356.13	4.37E+02	41.81			4.37E+02	4.18E+01
	22	383.96	1.02E+02	23.26			1.02E+02	2.33E+01
M	23	386.74	1.11E+02	29.17			1.11E+02	2.92E+01
m	24	387.37	1.39E+02	27.16			1.39E+02	2.72E+01
	25	391.08	2.96E+01	17.60			2.96E+01	1.76E+01
	26	414.87	2.49E+01	15.85			2.49E+01	1.58E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/units)	Activity Uncertainty
CO-57	0.77	122.06 *	85.51	4.29E+00	4.65E+00
		136.48	10.60		
SN-113	0.88	255.12	1.93		
		391.69 *	61.90	3.88E+01	2.35E+01
I-125	0.96	35.49 *	6.49	1.02E+02	4.89E+01
BA-133	0.99	30.80 *	97.60	2.35E+02	2.07E+01

Analysis Report for 1501043-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/units)	Activity Uncertainty
BA-133	0.99	81.00	*	33.00	4.94E+02	8.22E+01
		302.84	*	17.80	7.10E+02	1.71E+02
		356.01	*	60.00	5.33E+02	9.45E+01
		383.85	*	8.70	9.30E+02	6.85E+02

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 @ = Energy line not used for Weighted Mean Activity
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/units)	Wt mean Activity Uncertainty	Comments
CO-57	0.774	4.29E+00	4.65E+00	
SN-113	0.884	3.88E+01	2.35E+01	
I-125	0.968	1.02E+02	4.89E+01	
X I-129	0.478			
BA-133	0.999	2.69E+02	1.95E+01	

? = nuclide is part of an undetermined solution
 X = nuclide rejected by the interference analysis
 @ = nuclide contains energy lines not used in Weighted Mean Activity
 Errors quoted at 2.000sigma

Analysis Report for 1501043-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/20/2015 3:02:50PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	20.80	4.75473E-02	49.36	Tol.	PA-234
2	24.51	1.71101E-02	62.68	Tol.	SN-119M SN-119M
M 4	34.91	5.38007E-01	5.10	Tol.	I-125
6	53.20	5.77546E-02	20.72		
7	61.68	2.47679E-01	10.11	Sum	
8	65.90	1.54080E-01	12.07	Sum	
M 9	78.74	2.05828E-02	19.83		
m 10	79.48	7.78025E-02	15.34		
12	111.83	1.83305E-01	12.52	Sum	
14	160.53	2.29167E-02	50.93		
M 15	275.97	4.69772E-02	22.87		
m 16	276.92	4.96450E-02	15.03		
m 18	303.35	1.29527E-02	87.51	Tol.	PA-231
19	307.32	3.17993E-02	21.47		
20	333.71	6.10331E-02	14.60	Sum	
M 23	386.74	1.22919E-01	13.18	Sum	
m 24	387.37	1.54114E-01	9.79	Sum	
26	414.87	2.76144E-02	31.89	Sum	

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

Analysis Report for 1501043-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/units)	Nuclide MDA (pCi/units)	Activity (pCi/units)	Dec. Level (pCi/units)
FE-55	5.89	24.50	9.76E+00	9.76E+00	4.81E-01	4.50E+00
+ CO-57	122.06 *	85.51	7.45E+00	7.45E+00	4.29E+00	3.30E+00
	136.48	10.60	8.33E+01		7.65E+00	3.79E+01
NI-59	6.92	29.80	7.09E+00	7.09E+00	-9.66E-01	3.22E+00
MO-93	16.59	52.90	5.32E+00	5.32E+00	1.70E+00	2.44E+00
	18.60	10.00	2.99E+01		-1.28E+01	1.37E+01
NB-93M	16.57	9.43	2.98E+01	2.98E+01	9.54E+00	1.37E+01
CD-109	88.03	3.72	1.64E+02	1.64E+02	3.54E+01	7.43E+01
+ SN-113	255.12	1.93	5.41E+02	3.34E+01	-1.25E+02	2.34E+02
	391.69 *	61.90	3.34E+01		3.88E+01	1.49E+01
SN-119M	23.87	16.10	1.93E+01	1.57E+01	-5.21E+00	8.83E+00
	25.10	22.70	1.57E+01		-1.69E+00	7.25E+00
+ I-125	35.49 *	6.49	7.43E+01	7.43E+01	1.02E+02	3.47E+01
I-129	29.78 *	57.00	1.64E+01	1.64E+01	4.03E+02	7.96E+00
	33.60	13.20	5.86E+01		-2.90E+01	2.81E+01
	39.58	7.52	4.30E+01		-4.55E+00	1.93E+01
+ BA-133	30.80 *	97.60	9.61E+00	3.30E+00	2.35E+02	4.65E+00
	81.00 *	33.00	2.42E+01		4.94E+02	1.13E+01
	302.84 *	17.80	7.26E+01		7.10E+02	3.16E+01
	356.01 *	60.00	3.30E+00		5.33E+02	0.00E+00
	383.85 *	8.70	1.98E+02		9.30E+02	8.67E+01
CE-139	165.85	80.35	1.30E+01	1.30E+01	2.87E+00	5.92E+00
CE-144	133.54	10.80	7.82E+01	7.82E+01	-1.86E+01	3.55E+01
HG-203	279.19	77.30	1.17E+01	1.17E+01	-2.87E+01	4.84E+00
PB-210	10.80	9.57	2.18E+01	2.18E+01	7.11E+00	9.80E+00
	46.50	4.25	9.30E+01		2.38E+01	4.22E+01
PA-231	9.28	42.00	5.25E+00	5.25E+00	1.71E+00	2.39E+00
	10.11	20.20	1.02E+01		6.00E-01	4.58E+00
	283.67	1.60	7.02E+02		2.52E+02	3.02E+02
	302.67	2.30	1.51E+03		3.22E+03	7.17E+02
TH-231	25.64	14.70	2.35E+01	2.35E+01	-1.22E+01	1.08E+01
	84.21	6.40	8.55E+01		-2.79E+00	3.85E+01
PA-234	9.89	89.00	2.44E+00	2.44E+00	7.22E-01	1.11E+00
	21.72	64.90	8.50E+00		3.28E+00	4.05E+00
	37.93	23.75	1.26E+01		-3.56E+01	5.59E+00
	131.42	20.40	3.97E+01		-8.96E+00	1.80E+01
TH-234	63.29	3.80	1.92E+02	1.92E+02	-6.83E+01	9.01E+01
NP-237	29.37	14.00	1.00E+02	4.70E+01	-2.06E+01	4.91E+01
	86.50	12.60	4.70E+01		1.91E+00	2.13E+01
U-237	97.08	16.30	3.71E+01	2.93E+01	-2.06E+00	1.67E+01
	101.07	26.30	2.93E+01		1.81E+01	1.35E+01
	114.00	12.30	7.10E+01		-1.87E+02	3.27E+01
	208.01	22.00	4.89E+01		1.28E+00	2.18E+01
AM-241	59.54	35.90	1.65E+01	1.65E+01	4.63E+00	7.67E+00
AM-243	74.67	66.00	8.20E+00	8.20E+00	-2.37E+00	3.72E+00

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

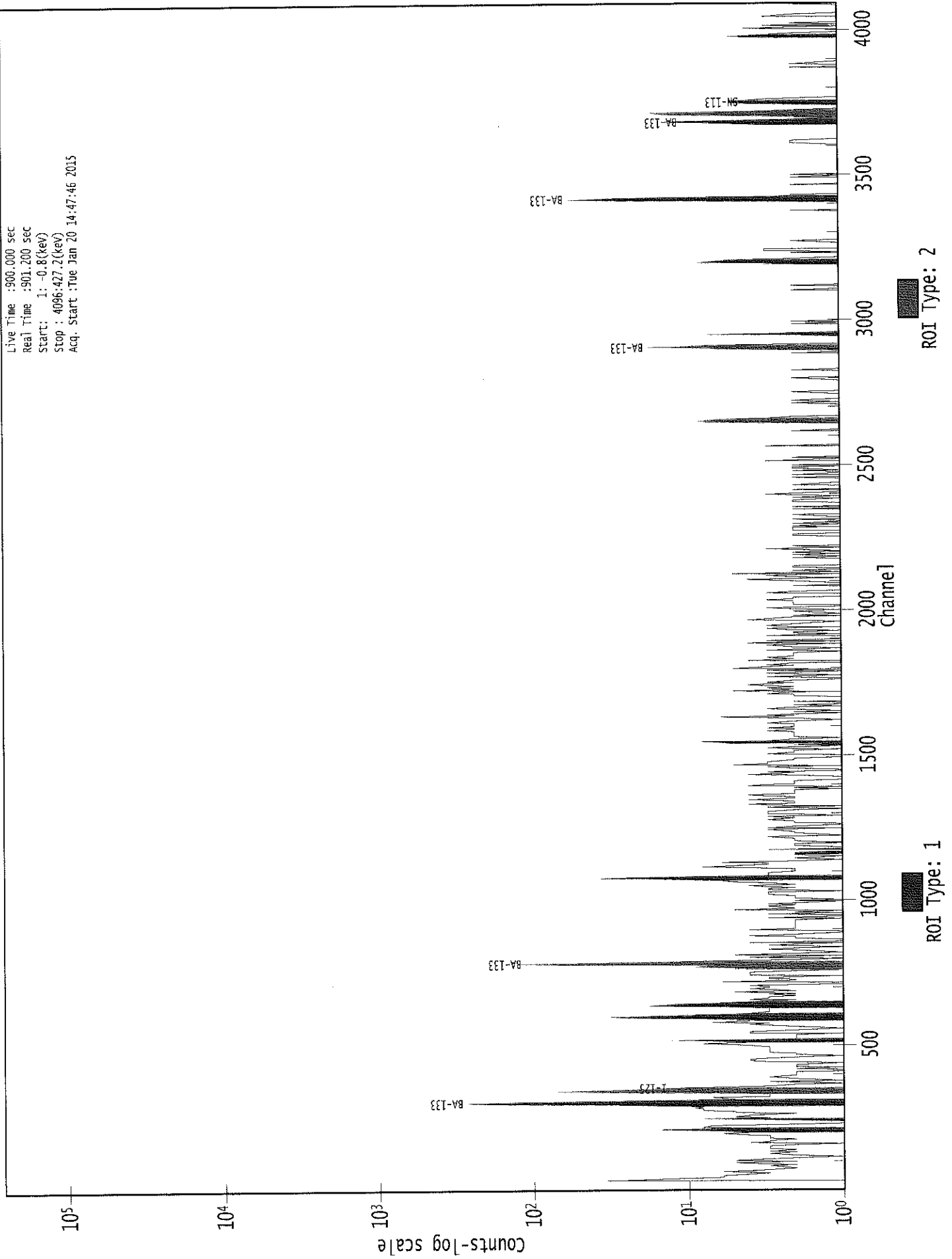
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

Analysis Report for 1501043-02
BLANK

0000017578.CNF

Live Time : 908.000 sec
Real Time : 901.200 sec
Start: 1: -0.8(keV)
Stop : 4096.427.2(keV)
Acq. Start : Tue Jan 20 14:47:46 2015



*YB
1/20/15*

Analysis Report for 1501043-03
WL-6

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1501043-03
 Sample Description : WL-6
 Sample Type : RA RECOVERY

 Sample Size : 1.000E+00 units
 Facility : Countroom

 Sample Taken On : 1/20/2015 12:10:37PM
 Acquisition Started : 1/20/2015 3:03:41PM

 Procedure : BAFIL
 Operator : Administrator
 Detector Name : GE5
 Geometry : BAFIL
 Live Time : 900.0 seconds
 Real Time : 901.2 seconds

 Dead Time : 0.13 %

 Peak Locate Threshold : 2.50
 Peak Locate Range (in channels) : 1 - 4096
 Peak Area Range (in channels) : 33 - 4096
 Identification Energy Tolerance : 1.000 keV

 Energy Calibration Used Done On : 10/25/2014
 Efficiency Calibration Used Done On : 10/26/2014
 Efficiency Calibration Description :

 Sample Number : 17581

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/20/2015 3:18:45PM
 Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
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Analysis Report for 1501043-03

WL-6

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	20.89	191 -	225	208.53	1.25E+02	33.10	4.44E+01	0.92
	2	30.76	286 -	315	303.01	1.92E+03	98.59	1.74E+02	0.73
M	3	34.93	329 -	359	342.88	4.22E+02	48.09	5.40E+01	0.76
m	4	35.90	329 -	359	352.10	6.10E+01	37.48	1.84E+01	0.67
	5	53.03	504 -	527	515.99	5.85E+01	27.57	6.50E+01	0.50
m	6	61.69	570 -	609	598.82	2.02E+02	38.46	8.38E+01	0.95
M	7	64.82	624 -	653	628.76	2.46E+01	11.26	1.39E+01	0.92
m	8	65.57	624 -	653	636.00	8.05E+01	26.71	2.18E+01	0.87
m	9	66.13	624 -	653	641.36	5.92E+01	23.58	9.13E+00	0.57
M	10	79.79	759 -	794	772.00	8.11E+01	48.46	1.05E+02	1.44
m	11	80.94	759 -	794	782.98	8.06E+02	59.27	6.58E+01	0.80
	12	111.78	1056 -	1091	1078.03	2.24E+02	41.18	7.53E+01	0.88
M	13	116.06	1105 -	1135	1119.00	6.77E+01	24.93	4.22E+01	0.95
m	14	117.00	1105 -	1135	1128.00	2.87E+01	18.23	2.01E+01	0.95
	15	160.65	1537 -	1556	1545.65	1.90E+01	16.91	3.00E+01	0.68
	16	276.45	2640 -	2663	2653.64	3.21E+01	15.14	1.58E+01	0.50
	17	302.96	2891 -	2917	2907.32	9.75E+01	22.53	1.51E+01	0.74
	18	333.70	3188 -	3211	3201.45	5.64E+01	18.87	1.92E+01	0.96
M	19	355.60	3399 -	3427	3411.00	1.21E+01	39.36	1.23E+01	1.19
m	20	356.17	3399 -	3427	3416.46	3.42E+02	40.28	1.35E+01	0.97
	21	384.02	3666 -	3694	3682.96	5.93E+01	17.98	9.49E+00	0.79
	22	386.92	3696 -	3724	3710.77	1.31E+02	27.35	2.88E+01	0.87
	23	414.99	3963 -	3989	3979.38	2.60E+01	10.20	0.00E+00	0.78

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 1/20/2015 3:18:45PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000017516.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	20.89	1.25E+02	33.10			1.25E+02	3.31E+01
	2	30.76	1.92E+03	98.59			1.92E+03	9.86E+01
M	3	34.93	4.22E+02	48.09			4.22E+02	4.81E+01
m	4	35.90	6.10E+01	37.48			6.10E+01	3.75E+01
	5	53.03	5.85E+01	27.57			5.85E+01	2.76E+01
m	6	61.69	2.02E+02	38.46			2.02E+02	3.85E+01

Analysis Report for 1501043-03

WL-6

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	7	64.82	2.46E+01	11.26			2.46E+01	1.13E+01
m	8	65.57	8.05E+01	26.71			8.05E+01	2.67E+01
m	9	66.13	5.92E+01	23.58			5.92E+01	2.36E+01
M	10	79.79	8.11E+01	48.46			8.11E+01	4.85E+01
m	11	80.94	8.06E+02	59.27			8.06E+02	5.93E+01
	12	111.78	2.24E+02	41.18			2.24E+02	4.12E+01
M	13	116.06	6.77E+01	24.93			6.77E+01	2.49E+01
m	14	117.00	2.87E+01	18.23			2.87E+01	1.82E+01
	15	160.65	1.90E+01	16.91			1.90E+01	1.69E+01
	16	276.45	3.21E+01	15.14			3.21E+01	1.51E+01
	17	302.96	9.75E+01	22.53			9.75E+01	2.25E+01
	18	333.70	5.64E+01	18.87			5.64E+01	1.89E+01
M	19	355.60	1.21E+01	39.36			1.21E+01	3.94E+01
m	20	356.17	3.42E+02	40.28			3.42E+02	4.03E+01
	21	384.02	5.93E+01	17.98			5.93E+01	1.80E+01
	22	386.92	1.31E+02	27.35			1.31E+02	2.74E+01
	23	414.99	2.60E+01	10.20			2.60E+01	1.02E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/units)	Activity Uncertainty
I-125	0.97	35.49 *	6.49	1.11E+02	6.85E+01
BA-133	0.99	30.80 *	97.60	2.15E+02	1.91E+01
		81.00 *	33.00	4.76E+02	7.93E+01
		302.84 *	17.80	3.38E+02	1.05E+02
		356.01 *	60.00	4.18E+02	7.94E+01
		383.85 *	8.70	5.41E+02	4.13E+02

Analysis Report for 1501043-03
WL-6

* = Energy line found in the spectrum.
- = Manually added nuclide.
? = Manually edited nuclide.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/units)	Wt mean Activity Uncertainty	Comments
	I-125	0.974	1.11E+02	6.85E+01	
X	I-129	0.479			
	BA-133	0.998	2.43E+02	1.78E+01	

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1501043-03
WL-6

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/20/2015 3:18:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	20.89	1.39341E-01	13.20	Tol. PA-234
M	3	34.93	4.68798E-01	5.70	Tol. I-125
	5	53.03	6.49756E-02	23.57	
m	6	61.69	2.24961E-01	9.50	Sum
M	7	64.82	2.73550E-02	22.86	
m	8	65.57	8.94763E-02	16.58	
m	9	66.13	6.58170E-02	19.90	Sum
M	10	79.79	9.01032E-02	29.88	
	12	111.78	2.49262E-01	9.18	Sum
M	13	116.06	7.52610E-02	18.40	Sum
m	14	117.00	3.18486E-02	31.80	Sum
	15	160.65	2.11111E-02	44.50	
	16	276.45	3.56611E-02	23.58	
	18	333.70	6.26667E-02	16.73	Sum
M	19	355.60	1.34432E-02	162.66	
	22	386.92	1.45084E-01	10.47	Sum
	23	414.99	2.88889E-02	19.61	Sum

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

Analysis Report for 1501043-03

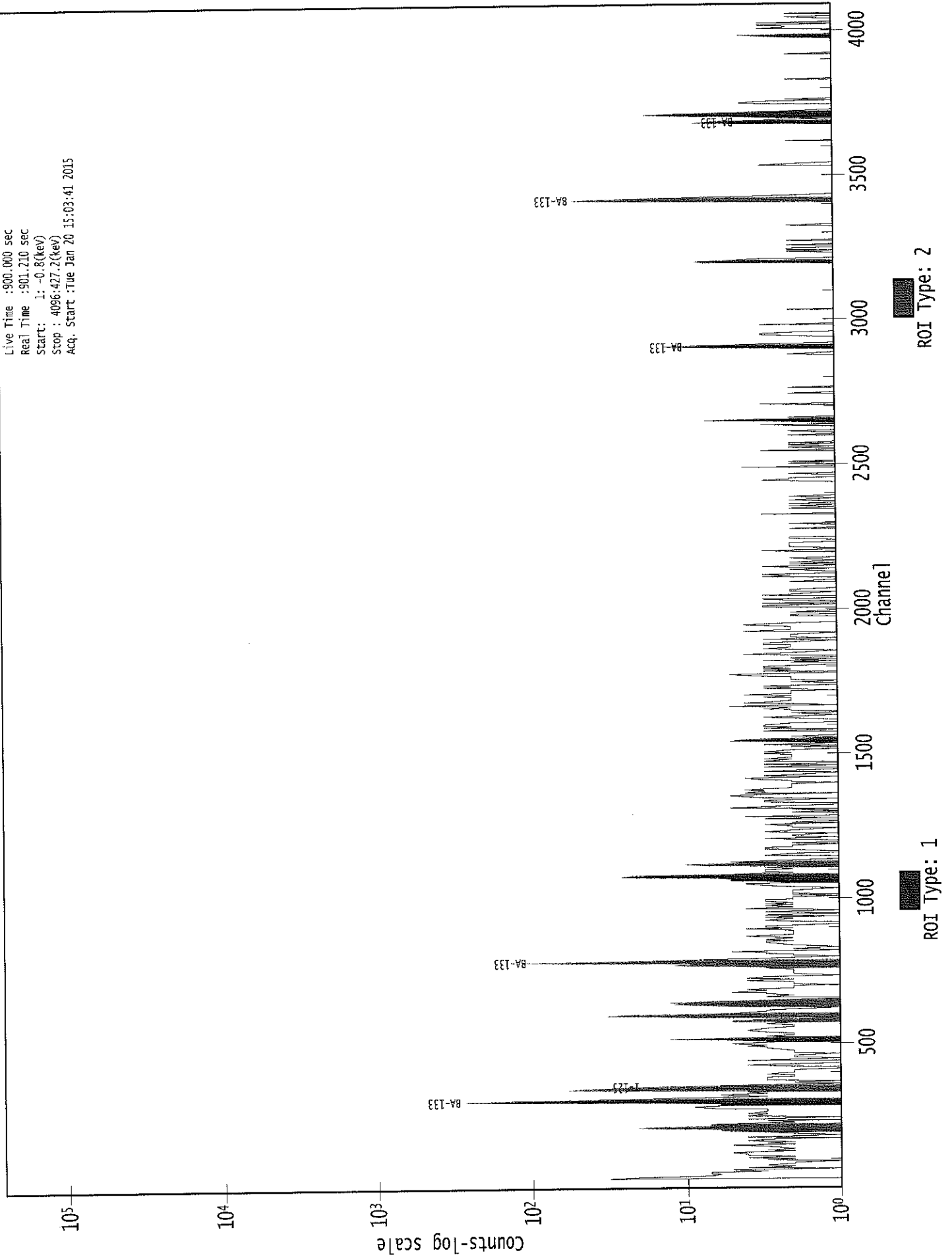
WL-6

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/units)	Nuclide MDA (pCi/units)	Activity (pCi/units)	Dec. Level (pCi/units)
FE-55	5.89	24.50	8.27E+00	8.27E+00	-5.16E+00	3.75E+00
CO-57	122.06	85.51	8.37E+00	8.37E+00	2.88E+00	3.77E+00
	136.48	10.60	7.16E+01		1.56E+01	3.21E+01
NI-59	6.92	29.80	6.28E+00	6.28E+00	-5.16E-01	2.82E+00
MO-93	16.59	52.90	4.83E+00	4.83E+00	1.55E+00	2.19E+00
	18.60	10.00	2.89E+01		-3.89E+00	1.33E+01
NB-93M	16.57	9.43	2.71E+01	2.71E+01	8.72E+00	1.23E+01
CD-109	88.03	3.72	1.66E+02	1.66E+02	6.21E+01	7.54E+01
SN-113	255.12	1.93	5.24E+02	3.97E+01	1.08E+02	2.25E+02
	391.69	61.90	3.97E+01		3.45E+01	1.81E+01
SN-119M	23.87	16.10	1.58E+01	1.33E+01	-2.60E+01	7.07E+00
	25.10	22.70	1.33E+01		-1.20E+00	6.06E+00
+ I-125	35.49 *	6.49	8.90E+01	8.90E+01	1.11E+02	4.20E+01
I-129	29.78 *	57.00	1.48E+01	1.48E+01	3.69E+02	7.15E+00
	33.60	13.20	5.54E+01		-2.78E+00	2.65E+01
	39.58	7.52	4.37E+01		1.43E+01	1.96E+01
+ BA-133	30.80 *	97.60	8.66E+00	8.66E+00	2.15E+02	4.18E+00
	81.00 *	33.00	3.38E+01		4.76E+02	1.61E+01
	302.84 *	17.80	7.12E+01		3.38E+02	3.09E+01
	356.01 *	60.00	2.60E+01		4.18E+02	1.14E+01
	383.85 *	8.70	1.64E+02		5.41E+02	6.98E+01
CE-139	165.85	80.35	1.14E+01	1.14E+01	3.26E+00	5.11E+00
CE-144	133.54	10.80	6.64E+01	6.64E+01	1.34E+01	2.96E+01
HG-203	279.19	77.30	8.84E+00	8.84E+00	-2.70E+01	3.42E+00
PB-210	10.80	9.57	2.53E+01	2.53E+01	7.11E+00	1.16E+01
	46.50	4.25	7.36E+01		-5.88E+00	3.25E+01
PA-231	9.28	42.00	4.88E+00	4.88E+00	5.88E-01	2.20E+00
	10.11	20.20	1.11E+01		-8.39E-01	5.04E+00
	283.67	1.60	6.28E+02		-1.11E+02	2.65E+02
	302.67	2.30	1.36E+03		2.55E+03	6.45E+02
TH-231	25.64	14.70	2.30E+01	2.30E+01	5.44E+00	1.06E+01
	84.21	6.40	9.21E+01		3.61E+01	4.18E+01
PA-234	9.89	89.00	2.47E+00	2.47E+00	1.17E-01	1.12E+00
	21.72	64.90	9.02E+00		-5.46E-01	4.31E+00
	37.93	23.75	1.35E+01		-2.33E+01	6.08E+00
	131.42	20.40	3.19E+01		-1.61E+01	1.41E+01
TH-234	63.29	3.80	1.78E+02	1.78E+02	-1.14E+02	8.31E+01
NP-237	29.37	14.00	9.46E+01	4.13E+01	-2.15E-01	4.63E+01
	86.50	12.60	4.13E+01		-2.54E+01	1.85E+01
U-237	97.08	16.30	3.78E+01	2.81E+01	8.03E+00	1.70E+01
	101.07	26.30	2.81E+01		5.71E+00	1.28E+01
	114.00	12.30	6.36E+01		-4.00E+01	2.90E+01
	208.01	22.00	4.80E+01		-8.02E+00	2.14E+01
AM-241	59.54	35.90	1.58E+01	1.58E+01	-4.85E-01	7.32E+00
AM-243	74.67	66.00	8.53E+00	8.53E+00	3.72E+00	3.89E+00

- + = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

0000017581.CNF

Live Time :900.000 sec
Real Time :901.210 sec
Start: 1: -0.8(keV)
Stop : 4096.427.2(keV)
Acq. Start :Tue Jan 20 15:03:41 2015



KAB
1/20/15

Analysis Report for 1501043-04
WL-6

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1501043-04
 Sample Description : WL-6
 Sample Type : RA RECOVERY

Sample Size : 1.000E+00 units
 Facility : Countroom

Sample Taken On : 1/20/2015 12:10:49PM
 Acquisition Started : 1/20/2015 3:21:51PM

Procedure : BAFIL
 Operator : Administrator
 Detector Name : GE5
 Geometry : BAFIL
 Live Time : 900.0 seconds
 Real Time : 901.3 seconds

Dead Time : 0.14 %

Peak Locate Threshold : 2.50
 Peak Locate Range (in channels) : 1 - 4096
 Peak Area Range (in channels) : 33 - 4096
 Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
 Efficiency Calibration Used Done On : 10/26/2014
 Efficiency Calibration Description :

Sample Number : 17584

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/20/2015 3:36:55PM
 Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
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Analysis Report for 1501043-04

WL-6

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	19.76	186 -	215	197.72	5.01E+01	30.66	3.44E+01	0.83
m	2	20.97	186 -	215	209.27	1.09E+02	24.50	4.13E+01	0.69
	3	30.77	286 -	314	303.05	2.16E+03	105.47	2.22E+02	0.80
	4	35.07	328 -	359	344.19	5.34E+02	57.90	9.54E+01	0.62
	5	53.18	504 -	526	517.44	4.69E+01	29.95	9.01E+01	0.20
	6	61.66	578 -	610	598.53	2.35E+02	49.81	1.57E+02	0.82
	7	66.02	628 -	653	640.31	1.12E+02	34.58	7.87E+01	0.58
M	8	79.97	758 -	794	773.74	1.33E+02	64.56	3.10E+01	1.57
m	9	80.99	758 -	794	783.50	8.45E+02	61.85	1.80E+01	0.64
	10	96.33	920 -	940	930.27	1.80E+01	20.30	4.61E+01	0.12
	11	111.85	1065 -	1089	1078.70	2.03E+02	37.85	7.66E+01	0.58
M	12	115.85	1105 -	1127	1117.00	1.57E+01	26.51	7.84E+01	0.95
m	13	116.57	1105 -	1127	1123.88	4.37E+01	11.95	2.70E+01	0.85
	14	160.51	1532 -	1555	1544.28	2.90E+01	20.10	3.60E+01	1.01
	15	236.67	2262 -	2280	2272.93	1.11E+01	11.57	1.59E+01	0.68
M	16	276.18	2637 -	2663	2651.00	2.53E+01	14.93	4.16E+00	1.13
m	17	277.01	2637 -	2663	2659.00	3.81E+01	9.80	3.41E+00	1.13
	18	302.97	2890 -	2920	2907.38	1.25E+02	25.52	1.78E+01	0.72
	19	307.22	2931 -	2956	2948.04	1.24E+01	15.47	2.72E+01	0.99
M	20	333.13	3186 -	3213	3196.00	2.48E+01	15.75	1.14E+01	1.17
m	21	333.86	3186 -	3213	3203.00	5.80E+01	17.93	1.81E+01	1.18
	22	356.14	3399 -	3430	3416.18	3.95E+02	42.33	2.35E+01	0.78
	23	383.97	3663 -	3696	3682.49	1.02E+02	25.47	2.72E+01	1.33
M	24	386.33	3698 -	3722	3705.05	2.25E+01	20.20	1.57E+01	1.07
m	25	387.07	3698 -	3722	3712.19	1.23E+02	25.82	1.58E+01	1.15
	26	391.28	3738 -	3763	3752.50	3.48E+01	14.63	1.04E+01	1.32
	27	414.84	3963 -	3987	3977.93	3.20E+01	12.69	3.96E+00	0.55

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 1/20/2015 3:36:55PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000017516.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	19.76	5.01E+01	30.66			5.01E+01	3.07E+01
m	2	20.97	1.09E+02	24.50			1.09E+02	2.45E+01

: 00122

Analysis Report for 1501043-04

WL-6

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
3	30.77	2.16E+03	105.47			2.16E+03	1.05E+02
4	35.07	5.34E+02	57.90			5.34E+02	5.79E+01
5	53.18	4.69E+01	29.95			4.69E+01	2.99E+01
6	61.66	2.35E+02	49.81			2.35E+02	4.98E+01
7	66.02	1.12E+02	34.58			1.12E+02	3.46E+01
M 8	79.97	1.33E+02	64.56			1.33E+02	6.46E+01
m 9	80.99	8.45E+02	61.85			8.45E+02	6.18E+01
10	96.33	1.80E+01	20.30			1.80E+01	2.03E+01
11	111.85	2.03E+02	37.85			2.03E+02	3.79E+01
M 12	115.85	1.57E+01	26.51			1.57E+01	2.65E+01
m 13	116.57	4.37E+01	11.95			4.37E+01	1.20E+01
14	160.51	2.90E+01	20.10			2.90E+01	2.01E+01
15	236.67	1.11E+01	11.57			1.11E+01	1.16E+01
M 16	276.18	2.53E+01	14.93			2.53E+01	1.49E+01
m 17	277.01	3.81E+01	9.80			3.81E+01	9.80E+00
18	302.97	1.25E+02	25.52			1.25E+02	2.55E+01
19	307.22	1.24E+01	15.47			1.24E+01	1.55E+01
M 20	333.13	2.48E+01	15.75			2.48E+01	1.57E+01
m 21	333.86	5.80E+01	17.93			5.80E+01	1.79E+01
22	356.14	3.95E+02	42.33			3.95E+02	4.23E+01
23	383.97	1.02E+02	25.47			1.02E+02	2.55E+01
M 24	386.33	2.25E+01	20.20			2.25E+01	2.02E+01
m 25	387.07	1.23E+02	25.82			1.23E+02	2.58E+01
26	391.28	3.48E+01	14.63			3.48E+01	1.46E+01
27	414.84	3.20E+01	12.69			3.20E+01	1.27E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/units)	Activity Uncertainty
SN-113	0.91	255.12	1.93		
		391.69 *	61.90	4.56E+01	2.00E+01
I-125	0.97	35.49 *	6.49	9.63E+02	1.12E+02
BA-133	0.99	30.80 *	97.60	2.42E+02	2.11E+01

Analysis Report for 1501043-04

WL-6

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/units)	Activity Uncertainty
BA-133	0.99	81.00	*	33.00	4.99E+02	8.31E+01
		302.84	*	17.80	4.34E+02	1.27E+02
		356.01	*	60.00	4.82E+02	8.85E+01
		383.85	*	8.70	9.35E+02	6.95E+02

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/units)	Wt mean Activity Uncertainty	Comments
	0.915	4.56E+01	2.00E+01	
	0.972	9.63E+02	1.12E+02	
X	0.479			
	0.999	2.74E+02	1.97E+01	

? = nuclide is part of an undetermined solution

X = nuclide rejected by the interference analysis

@ = nuclide contains energy lines not used in Weighted Mean Activity

*Errors quoted at 2.000sigma

Analysis Report for 1501043-04
WL-6

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/20/2015 3:36:55PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	19.76	5.56183E-02	30.62	
m	2	20.97	1.20982E-01	11.25	
	5	53.18	5.21618E-02	31.90	
	6	61.66	2.61442E-01	10.58	Sum
	7	66.02	1.24047E-01	15.49	Sum
M	8	79.97	1.47730E-01	24.28	
	10	96.33	1.99458E-02	56.54	Tol. U-237
	11	111.85	2.25195E-01	9.34	Sum
M	12	115.85	1.74013E-02	84.64	Sum
m	13	116.57	4.85754E-02	13.67	Sum
	14	160.51	3.22222E-02	34.65	
	15	236.67	1.23041E-02	52.22	
M	16	276.18	2.81481E-02	29.48	
m	17	277.01	4.23196E-02	12.86	
	19	307.22	1.37692E-02	62.40	
M	20	333.13	2.75474E-02	31.76	Sum
m	21	333.86	6.44117E-02	15.46	Sum
M	24	386.33	2.49649E-02	44.95	Sum
m	25	387.07	1.36648E-01	10.50	Sum
	27	414.84	3.55752E-02	19.81	Sum

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\WSRC.NLB

Analysis Report for 1501043-04

WL-6

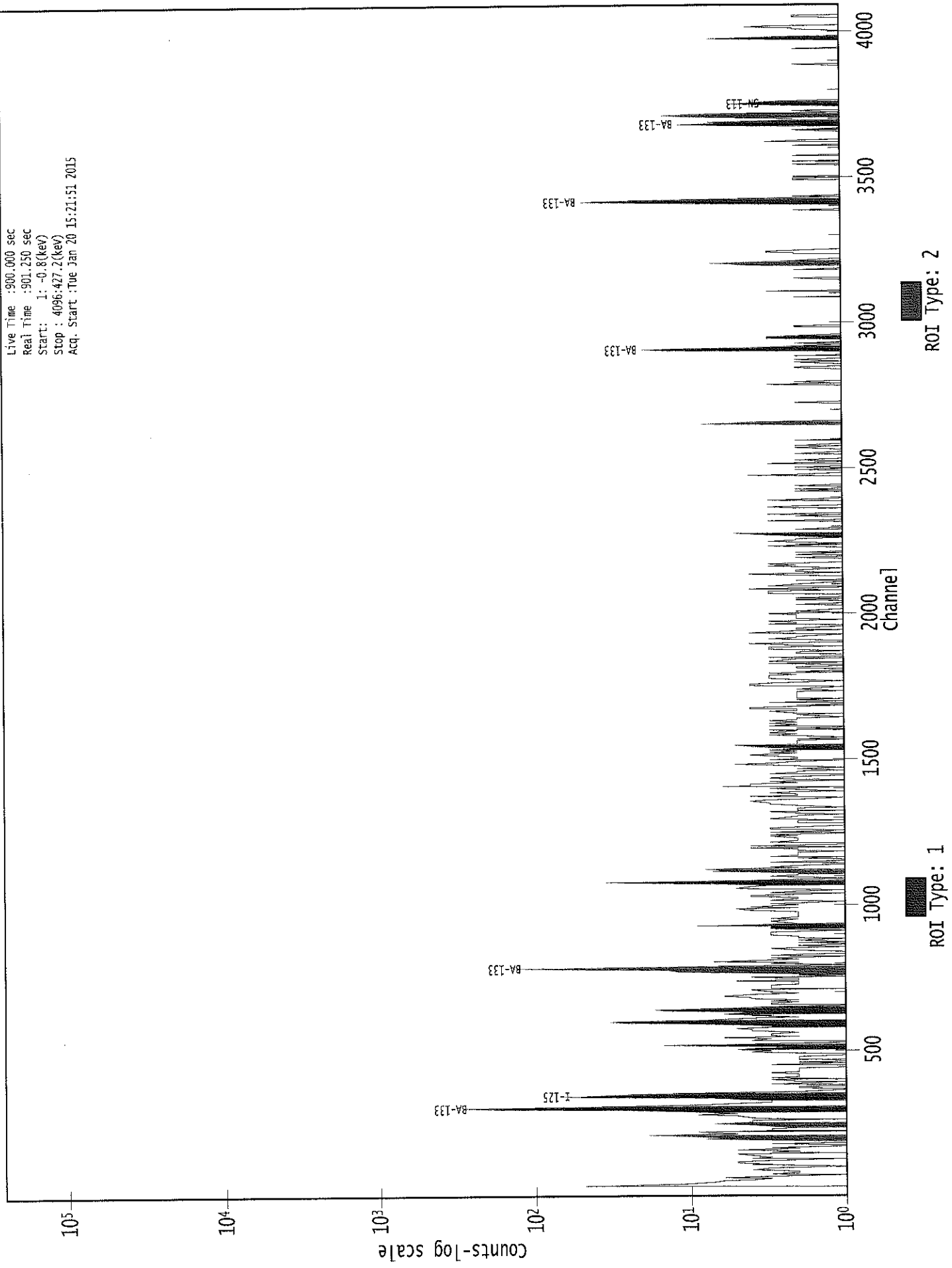
Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/units)	Nuclide MDA (pCi/units)	Activity (pCi/units)	Dec. Level (pCi/units)
FE-55	5.89	24.50	9.46E+00	9.46E+00	3.88E-02	4.35E+00
CO-57	122.06	85.51	8.51E+00	8.51E+00	-1.84E+00	3.83E+00
	136.48	10.60	6.33E+01		-1.68E+00	2.79E+01
NI-59	6.92	29.80	6.17E+00	6.17E+00	-5.76E+00	2.76E+00
MO-93	16.59	52.90	4.35E+00	4.35E+00	-7.61E-01	1.96E+00
	18.60	10.00	2.99E+01		1.94E+00	1.37E+01
NB-93M	16.57	9.43	2.44E+01	2.44E+01	-4.27E+00	1.10E+01
CD-109	88.03	3.72	1.54E+02	1.54E+02	5.20E+01	6.97E+01
+ SN-113	255.12	1.93	5.88E+02	2.22E+01	1.81E+01	2.58E+02
	391.69	* 61.90	2.22E+01		4.56E+01	9.33E+00
SN-119M	23.87	16.10	1.95E+01	1.58E+01	-2.84E+01	8.95E+00
	25.10	22.70	1.58E+01		1.02E+01	7.32E+00
+ I-125	35.49	* 6.49	1.08E+02	1.08E+02	9.63E+02	5.17E+01
I-129	29.78	* 57.00	1.63E+01	1.63E+01	4.14E+02	7.90E+00
	33.60	13.20	5.89E+01		-1.76E+01	2.83E+01
	39.58	7.52	3.80E+01		-1.58E+01	1.68E+01
+ BA-133	30.80	* 97.60	9.54E+00	9.54E+00	2.42E+02	4.62E+00
	81.00	* 33.00	2.05E+01		4.99E+02	9.44E+00
	302.84	* 17.80	7.95E+01		4.34E+02	3.50E+01
	356.01	* 60.00	3.24E+01		4.82E+02	1.46E+01
	383.85	* 8.70	2.57E+02		9.35E+02	1.16E+02
CE-139	165.85	80.35	1.33E+01	1.33E+01	5.82E+00	6.09E+00
CE-144	133.54	10.80	6.24E+01	6.24E+01	5.31E-01	2.76E+01
HG-203	279.19	77.30	1.17E+01	1.17E+01	-2.24E+01	4.84E+00
PB-210	10.80	9.57	2.37E+01	2.37E+01	7.96E+00	1.08E+01
	46.50	4.25	7.70E+01		-2.67E+00	3.42E+01
PA-231	9.28	42.00	4.49E+00	4.49E+00	-1.77E+00	2.01E+00
	10.11	20.20	9.83E+00		-5.88E+00	4.41E+00
	283.67	1.60	6.54E+02		1.82E+01	2.78E+02
	302.67	2.30	1.52E+03		2.19E+01	7.25E+02
TH-231	25.64	14.70	2.42E+01	2.42E+01	4.30E+00	1.12E+01
	84.21	6.40	1.04E+02		6.67E+01	4.77E+01
PA-234	9.89	89.00	2.06E+00	2.06E+00	-1.68E+00	9.17E-01
	21.72	64.90	8.39E+00		-1.57E+00	4.00E+00
	37.93	23.75	1.20E+01		-3.72E+01	5.33E+00
	131.42	20.40	3.40E+01		3.70E+00	1.51E+01
TH-234	63.29	3.80	2.10E+02	2.10E+02	-2.02E+02	9.92E+01
NP-237	29.37	14.00	1.00E+02	4.28E+01	1.91E-01	4.91E+01
	86.50	12.60	4.28E+01		-6.48E+00	1.92E+01
U-237	97.08	16.30	4.93E+01	2.94E+01	-6.46E-01	2.28E+01
	101.07	26.30	2.94E+01		1.68E+01	1.35E+01
	114.00	12.30	6.20E+01		-9.05E+01	2.82E+01
	208.01	22.00	5.44E+01		2.09E+01	2.46E+01
AM-241	59.54	35.90	1.61E+01	1.61E+01	1.76E+00	7.46E+00
AM-243	74.67	66.00	8.85E+00	8.85E+00	-4.47E-01	4.05E+00

- + = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

Analysis Report for 1501043-04
WL-6

0000017584.CNF

Live Time : 900.000 sec
Real Time : 901.250 sec
Start: 1: -0.8(keV)
Stop : 4096:427.2(keV)
Acq. Start : Tue Jan 20 15:21:51 2015



SECTION XI
ANALYTICAL DATA (TOTAL DISSOLVED SOLIDS)

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 01/27/2015

GCAL Report 215010920



Deliver To Michael Pisani & Associates
1100 Poydras St
1430 Energy Ctr.
New Orleans, LA 70163

Attn Lance Cooper

Project East White Lake 07-47



Laboratory Endorsement

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

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
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
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
DL	Dilution
N	Metals Matrix Spike or Matrix Spike Duplicate Recovery is outside control limits
00:00	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
U	Indicates the compound was analyzed for but not detected
B	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

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

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

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

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

Authorized Signature
GCAL Report 215010920

Case Narrative

Client: Michael Pisani & Associates **Report:** 215010920

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

SEMI-VOLATILES GAS CHROMATOGRAPHY

In the Texas 1006 analysis, samples 21501092008(WL-3 0-2'), 21501092009(WL-3 4-6'), 21501092012(WL-4 2-4'), 21501092013(WL-4 4-11'), 21501092014(WL-4 11-12.5') and 21501092016(WL-5 2-13') had to be diluted to bracket target compounds within the calibration range of the instrument. This is reflected in elevated detection limits.

In the Texas 1006 analysis for prep batch 548716, the MS/MSD exhibited recovery and RPD failures. The LCS/LCSD recoveries are acceptable.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21501092001	WL-1 0-2'	Solid	01/05/2015 12:10	01/08/2015 20:45
21501092002	WL-1 2-4'	Solid	01/05/2015 12:16	01/08/2015 20:45
21501092003	WL-1 9-13'	Solid	01/05/2015 12:40	01/08/2015 20:45
21501092004	WL-2 0-2'	Solid	01/05/2015 14:05	01/08/2015 20:45
21501092005	WL-2 2-4'	Solid	01/05/2015 14:10	01/08/2015 20:45
21501092006	WL-2 8-10'	Solid	01/05/2015 14:30	01/08/2015 20:45
21501092007	WL-2 14-16'	Solid	01/05/2015 14:45	01/08/2015 20:45
21501092008	WL-3 0-2'	Solid	01/06/2015 08:45	01/08/2015 20:45
21501092009	WL-3 4-6'	Solid	01/06/2015 09:00	01/08/2015 20:45
21501092010	WL-3 10-13'	Solid	01/06/2015 09:10	01/08/2015 20:45
21501092011	WL-4 0-2'	Solid	01/06/2015 10:15	01/08/2015 20:45
21501092012	WL-4 2-4'	Solid	01/06/2015 10:25	01/08/2015 20:45
21501092013	WL-4 4-11'	Solid	01/06/2015 10:40	01/08/2015 20:45
21501092014	WL-4 11-12.5'	Solid	01/06/2015 10:50	01/08/2015 20:45
21501092015	WL-5 0-2'	Solid	01/06/2015 12:10	01/08/2015 20:45
21501092016	WL-5 2-13'	Solid	01/06/2015 12:30	01/08/2015 20:45
21501092017	WL-6 0-2'	Solid	01/06/2015 14:00	01/08/2015 20:45
21501092018	WL-6 4-6'	Solid	01/06/2015 14:15	01/08/2015 20:45

Summary of Compounds Detected

WL-2 0-2'	Collect Date	01/05/2015 14:05	GCAL ID	21501092004
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-12	Aliphatic >C12-C16	63.3	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	138	10.0	7100	mg/kg

WL-3 0-2'	Collect Date	01/06/2015 08:45	GCAL ID	21501092008
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	353	150	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	2500	100	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	7110	100	7100	mg/kg
GCSV-02-15	Aromatic >C10-C12	74.4	20.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	403	30.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	1070	30.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	1370	30.0	180	mg/kg

WL-3 4-6'	Collect Date	01/06/2015 09:00	GCAL ID	21501092009
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	94.9	75.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	874	50.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	1730	50.0	7100	mg/kg
GCSV-02-15	Aromatic >C10-C12	22.8	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	260	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	365	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	341	15.0	180	mg/kg

WL-4 2-4'	Collect Date	01/06/2015 10:25	GCAL ID	21501092012
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	85.4	75.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	678	50.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	1860	50.0	7100	mg/kg
GCSV-02-15	Aromatic >C10-C12	21.6	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	205	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	340	15.0	150	mg/kg

Summary of Compounds Detected

WL-4 2-4'	Collect Date	01/06/2015 10:25	GCAL ID	21501092012
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006 (Continued)

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-05-18	Aromatic >C21-C35	285	15.0	180	mg/kg

WL-4 4-11'	Collect Date	01/06/2015 10:40	GCAL ID	21501092013
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	307	300	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	1840	200	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	4280	200	7100	mg/kg
GCSV-02-30	Aliphatic C6-C8	311	300	1200	mg/kg
GCSV-02-15	Aromatic >C10-C12	317	50.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	1560	75.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	2130	75.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	2040	75.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	116	50.0	65	mg/kg

WL-4 11-12.5'	Collect Date	01/06/2015 10:50	GCAL ID	21501092014
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	363	300	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	2050	200	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	3480	200	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	328	300	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	325	300	1200	mg/kg
GCSV-02-15	Aromatic >C10-C12	211	50.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	1380	75.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	1400	75.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	422	75.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	146	50.0	65	mg/kg

WL-5 0-2'	Collect Date	01/06/2015 12:10	GCAL ID	21501092015
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-12	Aliphatic >C12-C16	151	10.0	370	mg/kg

Summary of Compounds Detected

WL-5 0-2'	Collect Date	01/06/2015 12:10	GCAL ID	21501092015
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006 (Continued)

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-31	Aliphatic >C16-C35	508	10.0	7100	mg/kg

WL-5 2-13'	Collect Date	01/06/2015 12:30	GCAL ID	21501092016
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	314	150	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	1600	100	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	2800	100	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	189	150	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	298	150	1200	mg/kg
GCSV-02-15	Aromatic >C10-C12	120	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	665	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	817	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	617	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	59.1	10.0	65	mg/kg

Sample Results

WL-1 0-2'	Collect Date	01/05/2015 12:10	GCAL ID	21501092001
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/22/2015 20:52	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/22/2015 20:20	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	40.8	ug/Kg	82	60 - 140

WL-1 2-4'	Collect Date	01/05/2015 12:16	GCAL ID	21501092002
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 01:36	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Sample Results

WL-1 2-4'	Collect Date	01/05/2015 12:16	GCAL ID	21501092002
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 22:25	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	40.6	ug/Kg	81	60 - 140

WL-1 9-13'	Collect Date	01/05/2015 12:40	GCAL ID	21501092003
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 02:07	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	35.8	ug/Kg	72	60 - 140

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 02:39	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Sample Results

WL-2 0-2'	Collect Date	01/05/2015 14:05	GCAL ID	21501092004
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 03:10	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	38.9	ug/Kg	78	60 - 140

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 03:42	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	63.3	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	138	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

WL-2 2-4'	Collect Date	01/05/2015 14:10	GCAL ID	21501092005
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 04:45	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Sample Results

WL-2 2-4'	Collect Date	01/05/2015 14:10	GCAL ID	21501092005
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 04:14	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	32.2	ug/Kg	64	60 - 140

WL-2 8-10'	Collect Date	01/05/2015 14:30	GCAL ID	21501092006
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 06:21	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 23:29	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	39.6	ug/Kg	79	60 - 140

Sample Results

WL-2 14-16'	Collect Date	01/05/2015 14:45	GCAL ID	21501092007
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 06:54	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	49.2	ug/Kg	98	60 - 140

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 07:27	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

WL-3 0-2'	Collect Date	01/06/2015 08:45	GCAL ID	21501092008
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	10	01/24/2015 00:33	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	353	150	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	2500	100	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	7110	100	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	150	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	150	1200	mg/kg

Sample Results

WL-3 0-2'	Collect Date	01/06/2015 08:45	GCAL ID	21501092008
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	2	01/24/2015 00:01	SMH	549918
CAS#	Parameter	Result	LOQ	Reg Limit	Units	
GCSV-02-15	Aromatic >C10-C12	74.4	20.0	100	mg/kg	
GCSV-02-16	Aromatic >C12-C16	403	30.0	180	mg/kg	
GCSV-02-17	Aromatic >C16-C21	1070	30.0	150	mg/kg	
GCSV-05-18	Aromatic >C21-C35	1370	30.0	180	mg/kg	
GCSV-02-14	Aromatic >C8-C10	ND	20.0	65	mg/kg	
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	41.9	ug/Kg	84	60 - 140

WL-3 4-6'	Collect Date	01/06/2015 09:00	GCAL ID	21501092009
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 09:03	SMH	549918
CAS#	Parameter	Result	LOQ	Reg Limit	Units	
GCSV-02-15	Aromatic >C10-C12	22.8	10.0	100	mg/kg	
GCSV-02-16	Aromatic >C12-C16	260	15.0	180	mg/kg	
GCSV-02-17	Aromatic >C16-C21	365	15.0	150	mg/kg	
GCSV-05-18	Aromatic >C21-C35	341	15.0	180	mg/kg	
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg	
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	41.6	ug/Kg	83	60 - 140

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	5	01/24/2015 01:05	SMH	549917
CAS#	Parameter	Result	LOQ	Reg Limit	Units	
GCSV-02-11	Aliphatic >C10-C12	94.9	75.0	230	mg/kg	
GCSV-02-12	Aliphatic >C12-C16	874	50.0	370	mg/kg	
GCSV-02-31	Aliphatic >C16-C35	1730	50.0	7100	mg/kg	
GCSV-02-10	Aliphatic >C8-C10	ND	75.0	120	mg/kg	
GCSV-02-30	Aliphatic C6-C8	ND	75.0	1200	mg/kg	

Sample Results

WL-3 10-13'	Collect Date	01/06/2015 09:10	GCAL ID	21501092010
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 10:40	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 10:07	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	30.6	ug/Kg	61	60 - 140

WL-4 0-2'	Collect Date	01/06/2015 10:15	GCAL ID	21501092011
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 11:44	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	41.9	ug/Kg	84	60 - 140

Sample Results

WL-4 0-2'	Collect Date	01/06/2015 10:15	GCAL ID	21501092011
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 12:16	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

WL-4 2-4'	Collect Date	01/06/2015 10:25	GCAL ID	21501092012
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	5	01/26/2015 09:51	SMH	549949

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	85.4	75.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	678	50.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	1860	50.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	75.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	75.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 12:48	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	21.6	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	205	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	340	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	285	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	47.7	ug/Kg	95	60 - 140

Sample Results

WL-4 4-11'	Collect Date	01/06/2015 10:40	GCAL ID	21501092013
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	20	01/26/2015 11:02	SMH	549949

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	307	300	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	1840	200	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	4280	200	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	300	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	311	300	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	5	01/26/2015 10:26	SMH	549948

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	317	50.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	1560	75.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	2130	75.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	2040	75.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	116	50.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	38.4	ug/Kg	77	60 - 140

WL-4 11-12.5'	Collect Date	01/06/2015 10:50	GCAL ID	21501092014
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	20	01/26/2015 12:12	SMH	549949

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	363	300	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	2050	200	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	3480	200	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	328	300	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	325	300	1200	mg/kg

Sample Results

WL-4 11-12.5'	Collect Date	01/06/2015 10:50	GCAL ID	21501092014
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	5	01/26/2015 11:37	SMH	549948

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	211	50.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	1380	75.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	1400	75.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	422	75.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	146	50.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	35.7	ug/Kg	71	60 - 140

WL-5 0-2'	Collect Date	01/06/2015 12:10	GCAL ID	21501092015
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 18:09	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	151	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	508	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 17:36	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	43.9	ug/Kg	88	60 - 140

Sample Results

WL-5 2-13'	Collect Date	01/06/2015 12:30	GCAL ID	21501092016
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	10	01/26/2015 12:48	SMH	549949

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	314	150	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	1600	100	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	2800	100	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	189	150	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	298	150	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 18:41	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	120	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	665	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	817	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	617	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	59.1	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	39.6	ug/Kg	79	60 - 140

WL-6 0-2'	Collect Date	01/06/2015 14:00	GCAL ID	21501092017
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 20:17	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Sample Results

WL-6 0-2'	Collect Date	01/06/2015 14:00	GCAL ID	21501092017
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 19:45	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	39.4	ug/Kg	79	60 - 140

WL-6 4-6'	Collect Date	01/06/2015 14:15	GCAL ID	21501092018
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 20:49	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	43.6	ug/Kg	87	60 - 140

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 21:21	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

GC Semi-Volatiles Quality Control Summary

Analytical Batch 549917		Client ID GCAL ID	MB548716 1397820	LCS548716 1397821 LCS				LCSD548716 1397822 LCSD					
Prep Batch 548716		Sample Type	MB	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 17:39	01/22/2015 18:44				01/22/2015 19:48					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aliphatic >C10-C12	GCSV-02-11	ND	15.0										
Aliphatic >C12-C16	GCSV-02-12	ND	10.0										
Aliphatic >C16-C35	GCSV-02-31	ND	10.0										
Aliphatic >C8-C10	GCSV-02-10	ND	15.0										
Aliphatic C6-C8	GCSV-02-30	ND	15.0										
Total Aliphatic >C6-C35	GCSV-02-28	ND	25.0	100	92.7	93	60 - 140	100	113	113	20	40	

Analytical Batch 549917		Client ID GCAL ID	WL-1 0-2' 21501092001	1397807MS 1397823 MS				1397807MSD 1397824 MSD					
Prep Batch 548716		Sample Type	SAMPLE	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 20:52	01/22/2015 21:55				01/22/2015 23:29					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Total Aliphatic >C6-C35	GCSV-02-28	0.00	25.0	100	135	135	60 - 140	100	104	104	26*	20	

Analytical Batch 549918		Client ID GCAL ID	MB548716 1397820	LCS548716 1397821 LCS				LCSD548716 1397822 LCSD					
Prep Batch 548716		Sample Type	MB	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 17:06	01/22/2015 18:12				01/23/2015 21:53					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aromatic >C10-C12	GCSV-02-15	ND	10.0										
Aromatic >C12-C16	GCSV-02-16	ND	15.0										
Aromatic >C16-C21	GCSV-02-17	ND	15.0										
Aromatic >C21-C35	GCSV-05-18	ND	15.0										
Aromatic >C8-C10	GCSV-02-14	ND	10.0										
Total Aromatic >C6-C35	GCSV-02-29	ND	25.0	100	114	114	60 - 140	100	103	103	10	40	
Total TPH (C6-C35)	GCSV-05-04	ND	150	200	207	104	60 - 140	200	215	108	4	20	
Surrogate o-Terphenyl	84-15-1	42.3	85	50	41.1	82	60 - 140	50	36	72	13	NA	

Analytical Batch 549918		Client ID GCAL ID	WL-1 0-2' 21501092001	1397807MS 1397823 MS				1397807MSD 1397824 MSD					
Prep Batch 548716		Sample Type	SAMPLE	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 20:20	01/22/2015 21:23				01/22/2015 22:58					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Total Aromatic >C6-C35	GCSV-02-29	0.00	25.0	100	47.9	48*	60 - 140	100	69.6	70	37*	20	
Total TPH (C6-C35)	GCSV-05-04	0.00	150	200	183	91	60 - 140	200	174	87	5	20	
Surrogate o-Terphenyl	84-15-1	40.8	82	50	42.2	84	60 - 140	50	43.6	87	3	NA	



CHAIN OF CUSTODY RECORD

Client ID: 4271 - Michael Pisani & Associates

SDG: 215010920

Due Date: 01/16/15



7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Report to: Client: <u>Michael Pisani & Associate</u> Address: <u>1100 Poydras Street, #1430</u> <u>New Orleans, LA 70163</u> Contact: <u>Lance Cooper</u> Phone: <u>504.582.2476</u> E-mail: <u>lcooper@mpisani.com</u>		Bill to: Client: <u>SAME</u> Address: <u>↓</u> Contact: <u>↓</u> Phone: <u>↓</u> E-mail: <u>↓</u>		Analytical Requests & Method <u>non TPH fractions</u>				GCAL use only: <u>174115, 6</u> Custody Seal used <input type="checkbox"/> yes <input checked="" type="checkbox"/> no intact <input type="checkbox"/> yes <input type="checkbox"/> no Temperature °C <u>0.4 E24</u> <input type="checkbox"/> Dissolved Analysis Requested <input type="checkbox"/> Field filtered <input type="checkbox"/> Lab filtered	
P.O. Number		Project Name/Number							
		<u>East White Lake / 07-47</u>							
Sampled By: <u>R. Charles Trahan</u>									
Matrix ¹	Date	Time (2400)	Comp	Grab	Sample Description	No Con-tainers	Preservative		
<u>S</u>	<u>1/8/15</u>	<u>1210</u>		<u>G</u>	<u>WL-1 0-2'</u>	<u>1</u>		<u>1</u>	
		<u>1216</u>			<u>WL-1 2-4'</u>			<u>2</u>	
		<u>1240</u>			<u>WL-1 9-13'</u>			<u>3</u>	
		<u>1405</u>			<u>WL-2 0-2'</u>			<u>4</u>	
		<u>1410</u>			<u>WL-2 2-4'</u>			<u>5</u>	
		<u>1430</u>			<u>WL-2 8-10'</u>			<u>6</u>	
		<u>1445</u>			<u>WL-2 14-16'</u>			<u>7</u>	
	<u>1/6/15</u>	<u>0845</u>			<u>WL-3 0-2'</u>			<u>8</u>	
		<u>0900</u>			<u>WL-3 4-6'</u>			<u>9</u>	
		<u>0910</u>			<u>WL-3 10-13'</u>			<u>10</u>	
		<u>1015</u>			<u>WL-4 0-2'</u>			<u>11</u>	
		<u>1025</u>			<u>WL-4 2-4'</u>			<u>12</u>	
		<u>1040</u>			<u>WL-4 4-11'</u>			<u>13</u>	
Air Bill No:									
Turn Around Time (Business Days): <input type="checkbox"/> 24h* <input type="checkbox"/> 48h* <input type="checkbox"/> 3 days* <input type="checkbox"/> 1 week* <input checked="" type="checkbox"/> Standard (Per Contract/Quote)									
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Date:	Time:	Note:	
<u>[Signature]</u>		<u>1/8/15</u>	<u>1040</u>	<u>[Signature]</u>		<u>1/8/15</u>	<u>1040</u>		
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Date:	Time:		
<u>[Signature]</u>		<u>1/8/15</u>	<u>1750</u>	<u>[Signature]</u>		<u>1/8/15</u>	<u>1750</u>		
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Date:	Time:		
<u>[Signature]</u>		<u>1/8/15</u>	<u>2045</u>	<u>[Signature]</u>		<u>1/8/15</u>	<u>2045</u>		

Matrix¹: W = water, S = solid, L = liquid, T = tissue

Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT



CHAIN OF CUSTODY RECORD

Client ID: 4271 - Michael Pisani & Associates

SDG: 215010920

Due Date: 01/16/15



7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
 Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Report to: Client: <u>Michael Pisani & Associates</u> Address: <u>1100 Royal Street, #143</u> <u>New Orleans, LA 70163</u> Contact: <u>Lance Cooper</u> Phone: <u>504.582.2476</u> E-mail: <u>lcooper@mpisani.com</u>		Bill to: Client: <u>SAME</u> Address: _____ Contact: _____ Phone: _____ E-mail: _____		Analytical Requests & Method				GCAL use only: Custody Seal used <input type="checkbox"/> yes <input checked="" type="checkbox"/> no intact <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Temperature °C <u>0.4E24</u>	
P.O. Number _____		Project Name/Number <u>East White Lake (07-47)</u>						<input type="checkbox"/> Dissolved Analysis Requested <input type="checkbox"/> Field filtered <input type="checkbox"/> Lab filtered	
Sampled By: <u>R. Charles Trahan</u>									
Matrix	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	Preservative		
S	1/15	1050	1050	G	WL-4 11-12.5'	1	X	14	
↓	↓	1210	↓	↓	WL-5 0-2'	↓	X	15	
↓	↓	1230	↓	↓	WL-5 2-13'	↓	X	16	
↓	↓	1400	↓	↓	WL-6 0-2'	↓	X	17	
↓	↓	1415	↓	↓	WL-6 4-6'	↓	X	18	

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

Air Bill No: _____

Turn Around Time (Business Days): 24h* 48h* 3 days* 1 week* Standard (Per Contract/Quote)

Relinquished by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>1040</u>	Received by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>1040</u>	Note: _____
Relinquished by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>1750</u>	Received by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>1750</u>	
Relinquished by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>2045</u>	Received by (Signature): <u>[Signature]</u>	Date: <u>1/8/15</u>	Time: <u>2045</u>	

Matrix: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 215010920		CHECKLIST	YES	NO	NA
Client 4271 - Michael Pisani & Associates	Transport Method COURIER	Were all samples received using proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		When used, were all custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all samples received in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profile Number 174115	Received By McCune, Dodie N.	Were all samples received using proper chemical preservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Was preservative added to any container at the lab?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 6 - Soil	Receive Date(s) 01/08/15	Were all containers received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Were all VOA vials received with no head space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Do all sample labels match the Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Did the Chain of Custody list the sampling technician?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was the COC maintained i.e. all signatures, dates and time of receipt included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COOLERS		DISCREPANCIES	LAB PRESERVATIONS
Airbill	Thermometer ID: E24	None	None
	Temp(°C) 0.4		

NOTES	
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ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 01/26/2015

GCAL Report 215010921



Deliver To Michael Pisani & Associates
1100 Poydras St
1430 Energy Ctr.
New Orleans, LA 70163

Attn Lance Cooper

Project East White Lake 07-47



Laboratory Endorsement

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

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
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
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
DL	Dilution
N	Metals Matrix Spike or Matrix Spike Duplicate Recovery is outside control limits
00:00	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
U	Indicates the compound was analyzed for but not detected
B	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

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

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

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

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

Authorized Signature
GCAL Report 215010921

Case Narrative

Client: Michael Pisani & Associates **Report:** 215010921

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

METALS

In the EPA 6020A Total and Dissolved analyses, had to be diluted in order to bracket the concentration within the calibration range of the instrument and to eliminate a chemical or physical interference. This is reflected in the elevated reporting limits that may exceed the RECAP limits.

CONVENTIONALS

In the EPA 9056A analysis, sample 21501092101 (WL-6) had to be diluted in order to bracket the concentration within the calibration range of the instrument and to eliminate a chemical or physical interference. This is reflected in the elevated reporting limits.

In the SM 2540 C-2011 analysis, sample 21501092101 (WL-6) had to be diluted prior to filtration in order not to exceed the maximum residue allowed by the method.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21501092101	WL-6	Water	01/07/2015 12:45	01/08/2015 20:45

Summary of Compounds Detected

WL-6	Collect Date	01/07/2015 12:45	GCAL ID	21501092101
	Receive Date	01/08/2015 20:45	Matrix	Water

EPA 6020A

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-39-3	Barium	12.1	0.10	2	mg/L
7440-70-2	Calcium	764	50.0		mg/L
7439-89-6	Iron	18.8	10.0		mg/L
7439-95-4	Magnesium	770	10.0		mg/L
7439-96-5	Manganese	5.84	0.50		mg/L
7440-09-7	Potassium	61.1	10.0		mg/L
7440-23-5	Sodium	9540	100		mg/L
7440-24-6	Strontium	17.0	1.00		mg/L

EPA 6020A Dissolved

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-39-3	Barium	10.8	0.10	2	mg/L
7439-89-6	Iron	16.7	10.0		mg/L
7439-96-5	Manganese	5.12	0.50		mg/L
7440-24-6	Strontium	18.4	1.00		mg/L

EPA 9056A

CAS#	Parameter	Result	LOQ	Reg Limit	Units
24959-67-9	Bromide	22.6	20.0		mg/L
16887-00-6	Chloride	18100	1000		mg/L

SM 2320 B-2011

CAS#	Parameter	Result	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity	295	1.0		mg/L CaCO ₃

SM 2540 C-2011

CAS#	Parameter	Result	LOQ	Reg Limit	Units
WET-035	Total Dissolved Solids(TDS)	35500	100		mg/L

Sample Results

WL-6	Collect Date	01/07/2015 12:45	GCAL ID	21501092101
	Receive Date	01/08/2015 20:45	Matrix	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	01/14/2015 22:32	JCK	549149

CAS#	Parameter	Result	LOQ	Reg Limit	Units
71-43-2	Benzene	ND	0.00500	0.0050	mg/L
100-41-4	Ethylbenzene	ND	0.00500	0.70	mg/L
108-88-3	Toluene	ND	0.00500	1	mg/L
1330-20-7	Xylene (total)	ND	0.015	10	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.054	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.054	ug/L	107	77 - 127
2037-26-5	Toluene d8	0.05	.05	ug/L	99	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.056	ug/L	112	71 - 127

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 08:53	549238	Texas 1006	1	01/20/2015 22:26	SMH	549569

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	0.150	0.15	mg/L
GCSV-02-12	Aliphatic >C12-C16	ND	0.150	0.15	mg/L
GCSV-02-31	Aliphatic >C16-C35	ND	0.150	7.30	mg/L
GCSV-02-10	Aliphatic >C8-C10	ND	0.150	0.15	mg/L
GCSV-02-30	Aliphatic C6-C8	ND	0.150	3.20	mg/L

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 08:53	549238	Texas 1006	1	01/20/2015 21:47	SMH	549570

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	0.150	0.15	mg/L
GCSV-02-16	Aromatic >C12-C16	ND	0.150	0.15	mg/L
GCSV-02-17	Aromatic >C16-C21	ND	0.150	0.15	mg/L
GCSV-05-18	Aromatic >C21-C35	ND	0.150	0.15	mg/L
GCSV-02-14	Aromatic >C8-C10	ND	0.150	0.15	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	15.60	11.6	ug/L	74	60 - 140

Sample Results

WL-6	Collect Date	01/07/2015 12:45	GCAL ID	21501092101
	Receive Date	01/08/2015 20:45	Matrix	Water

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/09/2015 19:00	548753	EPA 3010A	100	01/19/2015 18:44	AWG	549432

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	0.10	0.01	mg/L
7440-39-3	Barium	12.1	0.10	2	mg/L
7440-43-9	Cadmium	ND	0.10	0.0050	mg/L
7440-70-2	Calcium	764	50.0		mg/L
7440-47-3	Chromium	ND	0.10		mg/L
7439-89-6	Iron	18.8	10.0		mg/L
7439-92-1	Lead	ND	0.10	0.0150	mg/L
7439-95-4	Magnesium	770	10.0		mg/L
7439-96-5	Manganese	5.84	0.50		mg/L
7440-09-7	Potassium	61.1	10.0		mg/L
7440-66-6	Zinc	ND	2.00	1.10	mg/L

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/09/2015 19:00	548753	EPA 3010A	1000	01/19/2015 18:40	AWG	549432

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-23-5	Sodium	9540	100		mg/L
7440-24-6	Strontium	17.0	1.00		mg/L

EPA 6020A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/09/2015 20:30	548757	EPA 3005A Dissolved	100	01/19/2015 18:37	AWG	549432

CAS#	Parameter	Result	LOQ	Reg Limit	Units
7440-38-2	Arsenic	ND	0.10	0.01	mg/L
7440-39-3	Barium	10.8	0.10	2	mg/L
7440-43-9	Cadmium	ND	0.10	0.0050	mg/L
7440-47-3	Chromium	ND	0.10		mg/L
7439-89-6	Iron	16.7	10.0		mg/L
7439-92-1	Lead	ND	0.10	0.0150	mg/L
7439-96-5	Manganese	5.12	0.50		mg/L
7440-66-6	Zinc	ND	2.00	1.10	mg/L

Sample Results

WL-6	Collect Date	01/07/2015 12:45	GCAL ID	21501092101
	Receive Date	01/08/2015 20:45	Matrix	Water

EPA 6020A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
01/09/2015 20:30	548757	EPA 3005A Dissolved	1000	01/19/2015 18:33	AWG	549432	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
7440-24-6	Strontium			18.4	1.00		mg/L

EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
01/09/2015 19:25	548756	EPA 7470A	1	01/10/2015 18:15	TAH	548829	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
7439-97-6	Mercury			ND	0.00020	0.0020	mg/L

EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
01/09/2015 19:25	548756	EPA 7470A Dissolved	1	01/10/2015 18:17	TAH	548829	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
7439-97-6	Mercury			ND	0.00020	0.0020	mg/L

EPA 9056A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
NA	NA	NA	100	01/14/2015 14:41	RXJ	549122	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
24959-67-9	Bromide			22.6	20.0		mg/L
14808-79-8	Sulfate			ND	20.0		mg/L

EPA 9056A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
NA	NA	NA	5000	01/14/2015 14:58	RXJ	549122	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
16887-00-6	Chloride			18100	1000		mg/L

Sample Results

WL-6	Collect Date	01/07/2015 12:45	GCAL ID	21501092101
	Receive Date	01/08/2015 20:45	Matrix	Water

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
NA	NA	NA	1	01/14/2015 11:25	JEM	549130	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity			295	1.0		mg/L CaCO3

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
NA	NA	NA	1	01/14/2015 11:25	JEM	549130	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
T-005-C	Carbonate Alkalinity			ND	1.0		mg/L CaCO3

SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch	
NA	NA	NA	10	01/09/2015 15:13	AJE	548741	
CAS#	Parameter			Result	LOQ	Reg Limit	Units
WET-035	Total Dissolved Solids(TDS)			35500	100		mg/L

GC/MS Volatiles Quality Control Summary

Analytical Batch 549149		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB549149 1400257 MB NA 01/14/2015 19:03 Water	LCS549149 1400258 LCS NA 01/14/2015 17:13 Water	LCSD549149 1400259 LCSD NA 01/14/2015 17:33 Water								
EPA 8260B			Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1-Dichloroethene	75-35-4	ND	0.00500	0.050	0.051	102	69 - 129	0.050	0.050	101	2	20	
Benzene	71-43-2	ND	0.00500	0.050	0.046	93	70 - 129	0.050	0.045	90	2	20	
Chlorobenzene	108-90-7	ND	0.00500	0.050	0.048	95	74 - 123	0.050	0.046	92	4	20	
Ethylbenzene	100-41-4	ND	0.00500	0.050	0.048	97	74 - 126	0.050	0.047	94	2	30	
Toluene	108-88-3	ND	0.00500	0.050	0.045	90	72 - 120	0.050	0.043	87	5	20	
Trichloroethene	79-01-6	ND	0.00500	0.050	0.050	101	76 - 129	0.050	0.049	98	2	20	
Xylene (total)	1330-20-7	ND	0.015	0.150	0.153	102	74 - 127	0.150	0.145	97	5	30	
Surrogate													
1,2-Dichloroethane-d4	17060-07-0	.0564	113	.05	.0565	113	71 - 127	.05	.0566	113	0	NA	
4-Bromofluorobenzene	460-00-4	.0539	108	.05	.053	106	78 - 130	.05	.0535	107	1	NA	
Dibromofluoromethane	1868-53-7	.0552	110	.05	.0553	111	77 - 127	.05	.0534	107	3	NA	
Toluene d8	2037-26-5	.0495	99	.05	.0486	97	76 - 134	.05	.0486	97	0	NA	

GC Semi-Volatiles Quality Control Summary

Analytical Batch		Client ID	MB549238	LCS549238				LCSD549238					
549569		GCAL ID	1400701	1400702				1400703					
Prep Batch		Sample Type	MB	LCS				LCSD					
549238		Prep Date	01/19/2015 08:53	01/19/2015 08:53				01/19/2015 08:53					
Prep Method		Analysis Date	01/20/2015 18:20	01/20/2015 19:47				01/20/2015 21:08					
Texas 1006		Matrix	Water	Water				Water					
Texas 1006			Units	mg/L	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
			Result	LOQ	Added			Limits%R	Added				Limit
Aliphatic >C10-C12	GCSV-02-11	ND	0.150										
Aliphatic >C12-C16	GCSV-02-12	ND	0.150										
Aliphatic >C16-C35	GCSV-02-31	ND	0.150										
Aliphatic >C8-C10	GCSV-02-10	ND	0.150										
Aliphatic C6-C8	GCSV-02-30	ND	0.150										
Total Aliphatic >C6-C35	GCSV-02-28	ND	0.150	31.3	23.8	76	60 - 140	31.3	24.2	77	2	40	

Analytical Batch		Client ID	MB549238	LCS549238				LCSD549238					
549570		GCAL ID	1400701	1400702				1400703					
Prep Batch		Sample Type	MB	LCS				LCSD					
549238		Prep Date	01/19/2015 08:53	01/19/2015 08:53				01/19/2015 08:53					
Prep Method		Analysis Date	01/20/2015 17:34	01/20/2015 19:04				01/20/2015 20:29					
Texas 1006		Matrix	Water	Water				Water					
Texas 1006			Units	mg/L	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
			Result	LOQ	Added			Limits%R	Added				Limit
Aromatic >C10-C12	GCSV-02-15	ND	0.150										
Aromatic >C12-C16	GCSV-02-16	ND	0.150										
Aromatic >C16-C21	GCSV-02-17	ND	0.150										
Aromatic >C21-C35	GCSV-05-18	ND	0.150										
Aromatic >C8-C10	GCSV-02-14	ND	0.150										
Total Aromatic >C6-C35	GCSV-02-29	ND	0.150	31.3	25.4	81	60 - 140	31.3	24.6	78	3	40	
Total TPH (C6-C35)	GCSV-05-04	ND	0.150	62.7	49.2	78	60 - 140	62.7	48.8	78	1	20	
Surrogate													
o-Terphenyl	84-15-1	10.1	63	15.7	17.1	109	60 - 140	15.7	14.7	94	15	NA	

Inorganics Quality Control Summary

Analytical Batch 548829	Client ID GCAL ID	MB548756 1398167	LCS548756 1398168				
Prep Batch 548756	Sample Type	MB	LCS				
Prep Method EPA 7470A	Prep Date Analysis Date	01/09/2015 19:25 01/10/2015 17:48	01/09/2015 19:25 01/10/2015 17:50				
	Matrix	Water	Water				
EPA 7470A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.00020	0.0050	0.0052	104	80 - 120

Analytical Batch 548829	Client ID GCAL ID	2014100A 21501080601	1397181MS 1398169				1397181MSD 1398170					
Prep Batch 548756	Sample Type	SAMPLE	MS				MSD					
Prep Method EPA 7470A	Prep Date Analysis Date	01/09/2015 19:25 01/10/2015 17:52	01/09/2015 19:25 01/10/2015 17:54				01/09/2015 19:25 01/10/2015 17:56					
	Matrix	Solid	Solid				Solid					
EPA 7470A		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Mercury	7439-97-6	0.0	0.0010	0.0050	0.0051	101	80 - 120	0.0050	0.0052	103	2	20

Analytical Batch 548829	Client ID GCAL ID	MB548756 1398167	LCS548756 1398168				
Prep Batch 548756	Sample Type	MB	LCS				
Prep Method EPA 7470A	Prep Date Analysis Date	01/09/2015 19:25 01/10/2015 17:48	01/09/2015 19:25 01/10/2015 17:50				
	Matrix	Water	Water				
EPA 7470A Dissolved		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.00020	0.0050	0.0052	104	80 - 120

Analytical Batch 548829	Client ID GCAL ID	2014100A 21501080601	1397181MS 1398169				1397181MSD 1398170					
Prep Batch 548756	Sample Type	SAMPLE	MS				MSD					
Prep Method EPA 7470A	Prep Date Analysis Date	01/09/2015 19:25 01/10/2015 17:52	01/09/2015 19:25 01/10/2015 17:54				01/09/2015 19:25 01/10/2015 17:56					
	Matrix	Solid	Solid				Solid					
EPA 7470A Dissolved		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Mercury	7439-97-6	0.0	0.0010	0.0050	0.0051	101	80 - 120	0.0050	0.0052	103	2	20

Analytical Batch 548823	Client ID GCAL ID	MB548753 1398150	LCS548753 1398151				
Prep Batch 548753	Sample Type	MB	LCS				
Prep Method EPA 3010A	Prep Date Analysis Date	01/09/2015 19:00 01/10/2015 16:54	01/09/2015 19:00 01/10/2015 17:02				
	Matrix	Water	Water				
EPA 6020A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.0010	0.050	0.049	99	80 - 120
Barium	7440-39-3	ND	0.0010	0.050	0.052	103	80 - 120
Cadmium	7440-43-9	ND	0.0010	0.050	0.051	101	80 - 120
Calcium	7440-70-2	ND	0.50	25.0	25.7	103	80 - 120
Chromium	7440-47-3	ND	0.0010	0.050	0.053	106	80 - 120
Iron	7439-89-6	ND	0.10	5.00	5.21	104	80 - 120
Lead	7439-92-1	ND	0.0010	0.050	0.051	103	80 - 120
Magnesium	7439-95-4	ND	0.10	5.00	5.39	108	80 - 120
Manganese	7439-96-5	ND	0.0050	0.050	0.050	100	80 - 120
Potassium	7440-09-7	ND	0.10	5.00	5.21	104	80 - 120
Sodium	7440-23-5	ND	0.10	5.00	5.22	104	80 - 120
Strontium	7440-24-6	ND	0.0010	0.050	0.053	105	80 - 120
Zinc	7440-66-6	ND	0.020	1.00	0.98	98	80 - 120

Inorganics Quality Control Summary

Analytical Batch		Client ID	92453	1397911MS			1397911MSD					
549220		GCAL ID	21501092802	1398152			1398153					
Prep Batch		Sample Type	SAMPLE	MS			MSD					
548753		Prep Date	01/09/2015 19:00	01/09/2015 19:00			01/09/2015 19:00					
Prep Method		Analysis Date	01/15/2015 19:10	01/15/2015 19:13			01/15/2015 19:17					
EPA 3010A		Matrix	Water	Water			Water					
EPA 6020A		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Arsenic	7440-38-2	0.0	0.0010	0.050	0.050	99	80 - 120	0.050	0.047	94	6	20
Barium	7440-39-3	0.041	0.0010	0.050	0.094	107	80 - 120	0.050	0.088	95	7	20
Cadmium	7440-43-9	0.0	0.0010	0.050	0.052	103	80 - 120	0.050	0.048	97	8	20
Calcium	7440-70-2	3.36	0.50	25.0	29.7	106	80 - 120	25.0	28.1	99	6	20
Chromium	7440-47-3	0.0	0.0010	0.050	0.050	101	80 - 120	0.050	0.048	96	4	20
Iron	7439-89-6	1.16	0.10	5.00	6.50	107	80 - 120	5.00	6.19	101	5	20
Lead	7439-92-1	0.00027	0.0010	0.050	0.054	108	80 - 120	0.050	0.051	101	6	20
Magnesium	7439-95-4	1.16	0.10	5.00	6.27	102	80 - 120	5.00	5.94	96	5	20
Manganese	7439-96-5	0.113	0.0050	0.050	0.17	107	80 - 120	0.050	0.16	88	6	20
Potassium	7440-09-7	2.02	0.10	5.00	7.09	101	80 - 120	5.00	6.68	93	6	20
Sodium	7440-23-5	2.83	0.10	5.00	8.13	106	80 - 120	5.00	7.66	97	6	20
Strontium	7440-24-6	0.022	0.0010	0.050	0.076	109	80 - 120	0.050	0.071	99	7	20
Zinc	7440-66-6	0.00742	0.020	1.00	1.04	104	80 - 120	1.00	0.99	98	5	20

Analytical Batch		Client ID	MB548757	LCS548757			
549220		GCAL ID	1398171	1398172			
Prep Batch		Sample Type	MB	LCS			
548757		Prep Date	01/09/2015 20:30	01/09/2015 20:30			
Prep Method		Analysis Date	01/15/2015 20:14	01/15/2015 20:18			
EPA 3005A Dissolved		Matrix	Water	Water			
EPA 6020A Dissolved		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.0010	0.050	0.046	91	80 - 120
Barium	7440-39-3	ND	0.0010	0.050	0.047	95	80 - 120
Cadmium	7440-43-9	ND	0.0010	0.050	0.048	96	80 - 120
Chromium	7440-47-3	ND	0.0010	0.050	0.045	90	80 - 120
Iron	7439-89-6	ND	0.10	5.00	4.78	96	80 - 120
Lead	7439-92-1	ND	0.0010	0.050	0.049	97	80 - 120
Manganese	7439-96-5	ND	0.0050	0.050	0.051	102	80 - 120
Strontium	7440-24-6	ND	0.0010	0.050	0.050	100	80 - 120
Zinc	7440-66-6	ND	0.020	1.00	0.97	97	80 - 120

Analytical Batch		Client ID	92452	1397910MS			1397910MSD					
549220		GCAL ID	21501092801	1398173			1398174					
Prep Batch		Sample Type	SAMPLE	MS			MSD					
548757		Prep Date	01/09/2015 20:30	01/09/2015 20:30			01/09/2015 20:30					
Prep Method		Analysis Date	01/15/2015 20:21	01/15/2015 20:25			01/15/2015 20:28					
EPA 3005A Dissolved		Matrix	Water	Water			Water					
EPA 6020A Dissolved		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Arsenic	7440-38-2	0.0	0.0010	0.050	0.047	93	80 - 120	0.050	0.048	96	2	20
Barium	7440-39-3	0.037	0.0010	0.050	0.084	94	80 - 120	0.050	0.085	96	1	20
Cadmium	7440-43-9	0.0	0.0010	0.050	0.049	99	80 - 120	0.050	0.051	101	4	20
Chromium	7440-47-3	0.0	0.0010	0.050	0.047	94	80 - 120	0.050	0.048	95	2	20
Iron	7439-89-6	0.347	0.10	5.00	5.30	99	80 - 120	5.00	5.35	100	1	20
Lead	7439-92-1	0.0	0.0010	0.050	0.050	100	80 - 120	0.050	0.051	101	2	20
Manganese	7439-96-5	0.0527	0.0050	0.050	0.10	95	80 - 120	0.050	0.10	96	0	20
Strontium	7440-24-6	0.0173	0.0010	0.050	0.068	100	80 - 120	0.050	0.068	101	0	20
Zinc	7440-66-6	0.0106	0.020	1.00	1.02	100	80 - 120	1.00	1.03	102	1	20

General Chemistry Quality Control Summary

Analytical Batch 549122		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB549122 1400044 MB NA 01/14/2015 13:31 Water	LCS549122 1400045 LCS NA 01/14/2015 13:14 Water			
EPA 9056A		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Bromide	24959-67-9	ND	0.200	2.50	2.46	98	80 - 120
Chloride	16887-00-6	ND	0.200	2.50	2.51	100	80 - 120
Sulfate	14808-79-8	ND	0.200	2.50	2.44	98	80 - 120

Analytical Batch 549122		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MW-E 21501085305 SAMPLE NA 01/14/2015 15:50 Water	1397543MS 1400046 MS NA 01/14/2015 16:08 Water	1397543MSD 1400047 MSD NA 01/14/2015 16:25 Water							
EPA 9056A		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Chloride	16887-00-6	2580	400	5000	7370	96	80 - 120	5000	7230	93	2	15

Analytical Batch 548741		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB548741 1398072 MB NA 01/09/2015 15:13 Water	LCS548741 1398073 LCS NA 01/09/2015 15:13 Water			
SM 2540 C-2011		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R
Total Dissolved Solids(TDS)	WET-035	ND	10.0	1000	974	97	80 - 120

Analytical Batch 548741		Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MW-B 21501085301 SAMPLE NA 01/09/2015 15:13 Water	1397539DUP 1398074 DUP NA 01/09/2015 15:13 Water		
SM 2540 C-2011		Units Result	mg/L LOQ	Result	RPD	RPD Limit
Total Dissolved Solids(TDS)	WET-035	1900	10.0	1910	1	5.4



7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
 Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4271 - Michael Pisani & Associates

SDG: 215010921

Due Date: 01/20/15



Report to: Client: Michael Pisani & Associates Address: 1100 Poydras Street, #1930 New Orleans, LA 70163 Contact: Lance Cooper Phone: 504.582.2476 E-mail: lcooper@mpisani.com		Bill to: Client: SAME Address: Contact: Phone: E-mail:		Analytical Requests & Method HCl BTEX HCl TPH fractions HNO3 Total Metals HNO3 Diss. Metals Non TDS, Cl, SO4 Non Carb Alk, Bi carb Alk Non Bromide			GCAL use only: 174115, 3 Custody Seal used <input type="checkbox"/> yes <input checked="" type="checkbox"/> no intact <input type="checkbox"/> yes <input type="checkbox"/> no Temperature °C 0.4 E24	
---	--	--	--	---	--	--	---	--

P.O. Number: _____ Project Name/Number: East White Lake / 07-47

Sampled By: R. Charles Trahan

Dissolved Analysis Requested
 Field filtered
 Lab filtered

Matrix	Date	Time (2400)	Comp	Grab	Sample Description	No. Containers	HCl	HCl	HNO3	HNO3	Non	Non	Non	Preservative
W	1/17/15	1245		G	WL-6	8	X	X	X	X	X	X	X	1

Air Bill No: _____

Turn Around Time (Business Days): 24h* 48h* 3 days* 1 week* Standard (Per Contract/Quote)

Relinquished by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 1040	Received by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 1040	Note: Total Metals: As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg, Na, Ca, Mg, K Diss. Metals: As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.
Relinquished by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 1750	Received by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 1750	
Relinquished by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 2045	Received by: (Signature) <i>[Signature]</i>	Date: 1/8/15	Time: 2045	

Matrix: W = water, S = solid, L = liquid, T = tissue *Requires prior approval, rush charges may apply. We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT



SAMPLE RECEIVING CHECKLIST



* 2 1 5 0 1 0 9 2 1 *

SAMPLE DELIVERY GROUP 215010921		CHECKLIST	YES	NO	NA
Client 4271 - Michael Pisani & Associates	Transport Method COURIER	Were all samples received using proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		When used, were all custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all samples received in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profile Number 174115	Received By Saucier, Charlotte M.	Were all samples received using proper chemical preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was preservative added to any container at the lab?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Were all containers received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 3 - Surface Water	Receive Date(s) 01/08/15	Were all VOA vials received with no head space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Do all sample labels match the Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Did the Chain of Custody list the sampling technician?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was the COC maintained i.e. all signatures, dates and time of receipt included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COOLERS		DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E24	Temp(°C)	None		
		0.4			
NOTES					

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 02/09/2015

GCAL Report 215020303



Deliver To Michael Pisani & Associates
1100 Poydras St
1430 Energy Ctr.
New Orleans, LA 70163

Attn Lance Cooper

Project East White Lake 07-47



Laboratory Endorsement

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

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
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
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
DL	Dilution
N	Metals Matrix Spike or Matrix Spike Duplicate Recovery is outside control limits
00:00	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
U	Indicates the compound was analyzed for but not detected
B	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

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

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

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

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

Authorized Signature
GCAL Report 215020303

Case Narrative

Client: Michael Pisani & Associates **Report:** 215020303

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

SEMI-VOLATILES GAS CHROMATOGRAPHY

In the Texas 1006 analysis for prep batch 548716, the MS/MSD exhibited recovery and RPD failures. The LCS/LCSD recoveries are acceptable.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21501091909	WL-6 8-10	Solid	01/06/2015 14:25	01/08/2015 20:45
21501091910	WL-6 10-13	Solid	01/06/2015 14:35	01/08/2015 20:45

Summary of Compounds Detected

No analytes were detected for analyses performed by GCAL.

Sample Results

WL-6 8-10	Collect Date	01/06/2015 14:25	GCAL ID	21501091909
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 14:24	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 13:52	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	48.6	ug/Kg	97	60 - 140

WL-6 10-13	Collect Date	01/06/2015 14:35	GCAL ID	21501091910
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 00:33	SMH	549917

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	ND	15.0	230	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	10.0	370	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	10.0	7100	mg/kg
GCSV-02-10	Aliphatic >C8-C10	ND	15.0	120	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	15.0	1200	mg/kg

Sample Results

WL-6 10-13	Collect Date	01/06/2015 14:35	GCAL ID	21501091910
	Receive Date	01/08/2015 20:45	Matrix	Solid

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
01/19/2015 13:21	548716	Texas 1006	1	01/23/2015 00:01	SMH	549918

CAS#	Parameter	Result	LOQ	Reg Limit	Units
GCSV-02-15	Aromatic >C10-C12	ND	10.0	100	mg/kg
GCSV-02-16	Aromatic >C12-C16	ND	15.0	180	mg/kg
GCSV-02-17	Aromatic >C16-C21	ND	15.0	150	mg/kg
GCSV-05-18	Aromatic >C21-C35	ND	15.0	180	mg/kg
GCSV-02-14	Aromatic >C8-C10	ND	10.0	65	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	38.4	ug/Kg	77	60 - 140

GC Semi-Volatiles Quality Control Summary

Analytical Batch 549917		Client ID GCAL ID	MB548716 1397820	LCS548716 1397821 LCS				LCSD548716 1397822 LCSD					
Prep Batch 548716		Sample Type	MB	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 17:39	01/22/2015 18:44				01/22/2015 19:48					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aliphatic >C10-C12	GCSV-02-11	ND	15.0										
Aliphatic >C12-C16	GCSV-02-12	ND	10.0										
Aliphatic >C16-C35	GCSV-02-31	ND	10.0										
Aliphatic >C8-C10	GCSV-02-10	ND	15.0										
Aliphatic C6-C8	GCSV-02-30	ND	15.0										
Total Aliphatic >C6-C35	GCSV-02-28	ND	25.0	100	92.7	93	60 - 140	100	113	113	20	40	

Analytical Batch 549917		Client ID GCAL ID	WL-1 0-2' 21501092001	1397807MS 1397823 MS				1397807MSD 1397824 MSD					
Prep Batch 548716		Sample Type	SAMPLE	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 20:52	01/22/2015 21:55				01/22/2015 23:29					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Total Aliphatic >C6-C35	GCSV-02-28	0.00	25.0	100	135	135	60 - 140	100	104	104	26*	20	

Analytical Batch 549918		Client ID GCAL ID	MB548716 1397820	LCS548716 1397821 LCS				LCSD548716 1397822 LCSD					
Prep Batch 548716		Sample Type	MB	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 17:06	01/22/2015 18:12				01/23/2015 21:53					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	mg/kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aromatic >C10-C12	GCSV-02-15	ND	10.0										
Aromatic >C12-C16	GCSV-02-16	ND	15.0										
Aromatic >C16-C21	GCSV-02-17	ND	15.0										
Aromatic >C21-C35	GCSV-05-18	ND	15.0										
Aromatic >C8-C10	GCSV-02-14	ND	10.0										
Total Aromatic >C6-C35	GCSV-02-29	ND	25.0	100	114	114	60 - 140	100	103	103	10	40	
Total TPH (C6-C35)	GCSV-05-04	ND	150	200	207	104	60 - 140	200	215	108	4	20	
Surrogate o-Terphenyl	84-15-1	42.3	85	50	41.1	82	60 - 140	50	36	72	13	NA	

Analytical Batch 549918		Client ID GCAL ID	WL-1 0-2' 21501092001	1397807MS 1397823 MS				1397807MSD 1397824 MSD					
Prep Batch 548716		Sample Type	SAMPLE	01/19/2015 13:21				01/19/2015 13:21					
Prep Method Texas 1006		Analysis Date	01/22/2015 20:20	01/22/2015 21:23				01/22/2015 22:58					
		Matrix	Solid	Solid				Solid					
Texas 1006			Units Result	LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Total Aromatic >C6-C35	GCSV-02-29	0.00	25.0	100	47.9	48*	60 - 140	100	69.6	70	37*	20	
Total TPH (C6-C35)	GCSV-05-04	0.00	150	200	183	91	60 - 140	200	174	87	5	20	
Surrogate o-Terphenyl	84-15-1	40.8	82	50	42.2	84	60 - 140	50	43.6	87	3	NA	



CHAIN OF CUSTODY RECORD

Client ID: 4271 - Michael Pisani & Associates

SDG: 215020303



Due Date: 01/21/15

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
 Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Report to: Client: <u>Michael Pisani & Associates</u> Address: <u>1100 Bidias Street, #1430</u> <u>New Orleans, LA 70163</u> Contact: <u>Lance Cooper</u> Phone: <u>504.582.2476</u> E-mail: <u>lcooper@mpisani.com</u>		Bill to: Client: <u>SAME</u> Address: <u>↓</u> Contact: <u>↓</u> Phone: <u>↓</u> E-mail: <u>↓</u>	
--	--	---	--

P.O. Number	Project Name/Number <u>East White Lake / 07-47</u>
Sampled By: <u>R. Charles Trahan</u>	

Matrix ¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers ²	Preservative
S	1/6/15	1535		G	WL-7 0-2'	1	
		1555		↑	WL-7 2-4'	1	
		1615			WL-7 4-6'	1	
		1630			WL-7 6-8'	1	
	1/7/15	0830			WL-8 0-2'	1	
		0835			WL-8 2-4'	1	
		0850			WL-8 4-6'	1	
		0905		↓	WL-8 6-8'	1	
	1/6	1425			WL-6 8-10 *	1	
	1/6	1435			WL-6 10-13 *	1	

New TPH fractions

Analytical Requests & method

Custody Seal used yes no
 intact yes no
 Temperature °C: 0.4 EZ4

Dissolved Analysis Requested
 Field filtered
 Lab filtered

Hold all samples at this time.

1
2
3
4
5
6
7
8
9
10

Air Bill No:

Turn Around Time (Business Days): 24h* 48h* 3 days* 1 week* Standard (Per Contract/Quote)

Requisitioned by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>1040</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>1030</u>	Note: <u>*on this SDG only</u>
Requisitioned by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>1150</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>11250</u>	
Requisitioned by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>12045</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>1/8/15</u> Time: <u>12045</u>	

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

² Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 215020303		CHECKLIST		
Client 4271 - Michael Pisani & Associates	Transport Method COURIER	Were all samples received using proper thermal preservation?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
		When used, were all custody seals intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all samples received in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Profile Number 174115	Received By McCune, Dodie N.	Were all samples received using proper chemical preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Was preservative added to any container at the lab?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all containers received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 6 - Soil	Receive Date(s) 01/08/15	Were all VOA vials received with no head space?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Do all sample labels match the Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Did the Chain of Custody list the sampling technician?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Was the COC maintained i.e. all signatures, dates and time of receipt included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COOLERS		DISCREPANCIES	LAB PRESERVATIONS	
Airbill	Thermometer ID: E24	Temp(°C)	None	
		0.4		
NOTES				



East White Lake Samples on hold - Element Work Order number 15010290

Lance Cooper

to:

caitlin.duplantis@element.com

01/16/2015 11:25 AM

Cc:

Charles Trahan, Dave Angle

Hide Details

From: Lance Cooper <lcooper@mpisani.com>

To: "caitlin.duplantis@element.com" <caitlin.duplantis@element.com>,

Cc: Charles Trahan <ctrahan@mpisani.com>, Dave Angle <dangle@mpisani.com>

History: This message has been replied to.

Caitlin;

Samples from the above referenced group from East White Lake were submitted by MP&A (Charles Trahan) on January 8, 2015 with instructions to hold for analysis.

Please proceed with analysis on the samples in the above referenced group.

Regards;

Lance R. Cooper, P.E.

Michael Pisani & Associates, Inc.

1100 Poydras Street, Suite 1430

New Orleans, LA 70163

504-582-2476 (phone)

504-582-2470 (fax)

315-246-4494 (cell)

lcooper@mpisani.com



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

January 22, 2015

Lance Cooper
Michael Pisani & Associates
1100 Poydras Street, Suite 1430
New Orleans, LA 70163
TEL: (504) 582-2468
FAX (504) 582-2470

RE: East White Lake 07-47

Order No.: 15010292

Dear Lance Cooper:

Element Materials Technology Lafayette, LLC received 20 sample(s) on 1/8/2015 for the analyses presented in the following report.

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

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

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261-14-6. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads 'Annie Reedy'.

Annie Reedy
Manager, Analytical Services
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#: 15010292
Date: 1/22/2015

CLIENT: Michael Pisani & Associates
Project: East White Lake 07-47

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.

Due to limited sample, only Metals, Percent Moisture and Oil & Grease were analyzed for Lab IDs 15010292-003, 009 & 014.

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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 Website: www.element.com

Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 12:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-001

Matrix: SOIL

Client Sample ID WL-1 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	73.4	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
Chlorides	1,580	212		mg/Kg-dry	25	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	6.78	0.10		mmhos/cm	1	1/13/2015 12:55:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	11.7	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
HEM, Oil & Grease	1.06	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
pH Measurement	5.25	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
Percent Moisture	46.3	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	24.7	0.100			1	1/14/2015
Soluble Calcium	4.72	1.00		meq/L	1	1/14/2015
Soluble Magnesium	7.41	1.00		meq/L	1	1/14/2015
Soluble Sodium	60.9	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 12:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-001

Matrix: SOIL

Client Sample ID WL-1 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	0.41	0.10		mg/Kg	1	1/12/2015 9:28:27 AM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	2.29	0.53		mg/Kg	1	1/9/2015 11:31:11 PM
Barium	135	0.53		mg/Kg	1	1/9/2015 11:31:11 PM
Cadmium	0.31	0.26		mg/Kg	1	1/9/2015 11:31:11 PM
Chromium	8.10	0.53		mg/Kg	1	1/9/2015 11:31:11 PM
Lead	6.74	0.53		mg/Kg	1	1/9/2015 11:31:11 PM
Selenium	< 1.06	1.06		mg/Kg	1	1/9/2015 11:31:11 PM
Silver	< 0.26	0.26		mg/Kg	1	1/9/2015 11:31:11 PM
Zinc	24.2	0.53		mg/Kg	1	1/9/2015 11:31:11 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	338	47		mg/Kg-dry	1	1/13/2015 11:05:40 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 12:16:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-002

Matrix: SOIL

Client Sample ID WL-1 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	58.0	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
Chlorides	3,320	520		mg/Kg-dry	50	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	11.4	0.10		mmhos/cm	1	1/13/2015 12:58:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	11.2	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
HEM, Oil & Grease	0.09	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
pH Measurement	7.15	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
Percent Moisture	51.6	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	30.1	0.100			1	1/14/2015
Soluble Calcium	8.92	1.00		meq/L	1	1/14/2015
Soluble Magnesium	16.8	1.00		meq/L	1	1/14/2015
Soluble Sodium	108	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 12:16:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-002

Matrix: SOIL

Client Sample ID WL-1 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 9:31:14 AM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	3.14	0.52		mg/Kg	1	1/9/2015 11:41:29 PM
Barium	48.2	0.52		mg/Kg	1	1/9/2015 11:41:29 PM
Cadmium	< 0.26	0.26		mg/Kg	1	1/9/2015 11:41:29 PM
Chromium	7.57	0.52		mg/Kg	1	1/9/2015 11:41:29 PM
Lead	7.07	0.52		mg/Kg	1	1/9/2015 11:41:29 PM
Selenium	< 1.05	1.05		mg/Kg	1	1/9/2015 11:41:29 PM
Silver	< 0.26	0.26		mg/Kg	1	1/9/2015 11:41:29 PM
Zinc	36.7	0.52		mg/Kg	1	1/9/2015 11:41:29 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	145	47		mg/Kg-dry	1	1/13/2015 11:15:55 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 12:40:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-003

Matrix: SOIL

Client Sample ID WL-1 9-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE					SW9071B	Analyst: MMT
HEM, Oil & Grease	0.09	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE					LDNR 29-B	Analyst: MMT
Percent Moisture	56.3	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE					SW7471A	SW7471A Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 9:33:37 AM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	1.75	0.51		mg/Kg	1	1/9/2015 11:45:06 PM
Barium	46.9	0.51		mg/Kg	1	1/9/2015 11:45:06 PM
Cadmium	< 0.25	0.25		mg/Kg	1	1/9/2015 11:45:06 PM
Chromium	5.25	0.51		mg/Kg	1	1/9/2015 11:45:06 PM
Lead	4.86	0.51		mg/Kg	1	1/9/2015 11:45:06 PM
Selenium	< 1.01	1.01		mg/Kg	1	1/9/2015 11:45:06 PM
Silver	< 0.25	0.25		mg/Kg	1	1/9/2015 11:45:06 PM
Zinc	18.1	0.51		mg/Kg	1	1/9/2015 11:45:06 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	143	46		mg/Kg-dry	1	1/13/2015 11:19:19 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



Element Materials Technology Lafayette
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 TEL: (337) 235-0483 FAX: (337) 233-6540
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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:05:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-004

Matrix: SOIL

Client Sample ID WL-2 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	46.5	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	3,840	492		mg/Kg-dry	50	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	13.3	0.10		mmhos/cm	1	1/13/2015 12:59:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	8.4	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.10	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	4.63	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	37.4	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	45.5	0.100			1	1/14/2015
Soluble Calcium	6.88	1.00		meq/L	1	1/14/2015
Soluble Magnesium	11.2	1.00		meq/L	1	1/14/2015
Soluble Sodium	137	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:05:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-004

Matrix: SOIL

Client Sample ID WL-2 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 9:36:24 AM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	0.57	0.51		mg/Kg	1	1/9/2015 11:48:53 PM
Barium	140	0.51		mg/Kg	1	1/9/2015 11:48:53 PM
Cadmium	< 0.26	0.26		mg/Kg	1	1/9/2015 11:48:53 PM
Chromium	7.77	0.51		mg/Kg	1	1/9/2015 11:48:53 PM
Lead	6.89	0.51		mg/Kg	1	1/9/2015 11:48:53 PM
Selenium	< 1.02	1.02		mg/Kg	1	1/9/2015 11:48:53 PM
Silver	< 0.26	0.26		mg/Kg	1	1/9/2015 11:48:53 PM
Zinc	37.3	0.51		mg/Kg	1	1/9/2015 11:48:53 PM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	350	47		mg/Kg-dry	1	1/13/2015 11:22:44 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-005

Matrix: SOIL

Client Sample ID WL-2 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	65.8	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	9,700	942		mg/Kg-dry	100	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	29.4	0.10		mmhos/cm	1	1/13/2015 12:59:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	8.6	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.09	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	5.03	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	54.3	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	45.6	0.100			1	1/14/2015
Soluble Calcium	31.3	1.00		meq/L	1	1/14/2015
Soluble Magnesium	62.1	1.00		meq/L	1	1/14/2015
Soluble Sodium	312	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

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WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-005

Matrix: SOIL

Client Sample ID WL-2 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:30:10 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	1.28	0.51		mg/Kg	1	1/10/2015
Barium	48.2	0.51		mg/Kg	1	1/10/2015
Cadmium	< 0.26	0.26		mg/Kg	1	1/10/2015
Chromium	7.49	0.51		mg/Kg	1	1/10/2015
Lead	7.22	0.51		mg/Kg	1	1/10/2015
Selenium	< 1.02	1.02		mg/Kg	1	1/10/2015
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015
Zinc	27.6	0.51		mg/Kg	1	1/10/2015
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	164	48		mg/Kg-dry	1	1/13/2015 11:26:08 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:30:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-006

Matrix: SOIL

Client Sample ID WL-2 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	54.0	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	5,690	552		mg/Kg-dry	50	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	16.5	0.10		mmhos/cm	1	1/13/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	7.1	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.06	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	7.51	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	50.8	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	19.2	0.100			1	1/14/2015
Soluble Calcium	26.1	1.00		meq/L	1	1/14/2015
Soluble Magnesium	52.9	1.00		meq/L	1	1/14/2015
Soluble Sodium	120	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:30:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-006

Matrix: SOIL

Client Sample ID WL-2 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:32:33 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	3.58	0.52		mg/Kg	1	1/10/2015 12:03:37 AM
Barium	40.5	0.52		mg/Kg	1	1/10/2015 12:03:37 AM
Cadmium	< 0.26	0.26		mg/Kg	1	1/10/2015 12:03:37 AM
Chromium	8.02	0.52		mg/Kg	1	1/10/2015 12:03:37 AM
Lead	7.97	0.52		mg/Kg	1	1/10/2015 12:03:37 AM
Selenium	< 1.04	1.04		mg/Kg	1	1/10/2015 12:03:37 AM
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015 12:03:37 AM
Zinc	38.5	0.52		mg/Kg	1	1/10/2015 12:03:37 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	153	46		mg/Kg-dry	1	1/13/2015 11:29:31 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:45:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-007

Matrix: SOIL

Client Sample ID WL-2 14-16'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	29.6	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	1,390	163		mg/Kg-dry	25	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	7.68	0.10		mmhos/cm	1	1/13/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	6.7	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	6.89	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	29.1	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	11.1	0.100			1	1/14/2015
Soluble Calcium	11.0	1.00		meq/L	1	1/14/2015
Soluble Magnesium	23.0	1.00		meq/L	1	1/14/2015
Soluble Sodium	45.6	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/5/2015 2:45:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-007

Matrix: SOIL

Client Sample ID WL-2 14-16'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:34:55 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	3.52	0.50		mg/Kg	1	1/10/2015 12:07:15 AM
Barium	102	0.50		mg/Kg	1	1/10/2015 12:07:15 AM
Cadmium	< 0.25	0.25		mg/Kg	1	1/10/2015 12:07:15 AM
Chromium	7.24	0.50		mg/Kg	1	1/10/2015 12:07:15 AM
Lead	8.46	0.50		mg/Kg	1	1/10/2015 12:07:15 AM
Selenium	< 1.00	1.00		mg/Kg	1	1/10/2015 12:07:15 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:07:15 AM
Zinc	15.1	0.50		mg/Kg	1	1/10/2015 12:07:15 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	167	48		mg/Kg-dry	1	1/13/2015 11:32:54 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
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Analytical Report

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WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 8:45:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-008

Matrix: SOIL

Client Sample ID WL-3 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
Cation Exchange Capacity	13.6	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
Chlorides	644	73		mg/Kg-dry	20	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
Electrical Conductivity	5.92	0.10		mmhos/cm	1	1/13/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
Exchangeable Sodium %	9.7	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
HEM, Oil & Grease	4.97	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
pH Measurement	7.32	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
Percent Moisture	24.5	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	24.0	0.100			1	1/14/2015
Soluble Calcium	6.24	1.00		meq/L	1	1/14/2015
Soluble Magnesium	6.27	1.00		meq/L	1	1/14/2015
Soluble Sodium	60.1	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 8:45:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-008

Matrix: SOIL

Client Sample ID WL-3 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	5.73	0.96		mg/Kg	10	1/12/2015 4:48:48 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	0.81	0.52		mg/Kg	1	1/10/2015 12:11:16 AM
Barium	177	0.52		mg/Kg	1	1/10/2015 12:11:16 AM
Cadmium	2.67	0.26		mg/Kg	1	1/10/2015 12:11:16 AM
Chromium	6.79	0.52		mg/Kg	1	1/10/2015 12:11:16 AM
Lead	113	0.52		mg/Kg	1	1/10/2015 12:11:16 AM
Selenium	< 1.04	1.04		mg/Kg	1	1/10/2015 12:11:16 AM
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015 12:11:16 AM
Zinc	1,650	0.52		mg/Kg	1	1/10/2015 12:11:16 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	701	46		mg/Kg-dry	1	1/13/2015 11:43:33 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



Element Materials Technology Lafayette
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 TEL: (337) 235-0483 FAX: (337) 233-6540
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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 9:00:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-009

Matrix: SOIL

Client Sample ID WL-3 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE					SW9071B	Analyst: MMT
HEM, Oil & Grease	1.57	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE					LDNR 29-B	Analyst: MMT
Percent Moisture	70.1	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE					SW7471A SW7471A	Analyst: KML
Mercury	3.12	0.48		mg/Kg	5	1/12/2015 4:51:37 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B SW3050B	Analyst: STS
Arsenic	1.45	0.53		mg/Kg	1	1/10/2015 12:15:09 AM
Barium	53.1	0.53		mg/Kg	1	1/10/2015 12:15:09 AM
Cadmium	< 0.27	0.27		mg/Kg	1	1/10/2015 12:15:09 AM
Chromium	3.07	0.53		mg/Kg	1	1/10/2015 12:15:09 AM
Lead	4.05	0.53		mg/Kg	1	1/10/2015 12:15:09 AM
Selenium	< 1.06	1.06		mg/Kg	1	1/10/2015 12:15:09 AM
Silver	< 0.27	0.27		mg/Kg	1	1/10/2015 12:15:09 AM
Zinc	33.7	0.53		mg/Kg	1	1/10/2015 12:15:09 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	276	48		mg/Kg-dry	1	1/13/2015 11:46:57 PM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 9:10:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-010

Matrix: SOIL

Client Sample ID WL-3 10-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	55.9	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	4,730	579		mg/Kg-dry	50	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	12.3	0.10		mmhos/cm	1	1/13/2015 1:01:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	36.5	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.06	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	8.03	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	49.7	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	55.9	0.100			1	1/14/2015
Soluble Calcium	4.21	1.00		meq/L	1	1/14/2015
Soluble Magnesium	3.88	1.00		meq/L	1	1/14/2015
Soluble Sodium	112	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 9:10:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-010

Matrix: SOIL

Client Sample ID WL-3 10-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:42:53 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	2.07	0.50		mg/Kg	1	1/10/2015 12:19:03 AM
Barium	47.8	0.50		mg/Kg	1	1/10/2015 12:19:03 AM
Cadmium	< 0.25	0.25		mg/Kg	1	1/10/2015 12:19:03 AM
Chromium	7.25	0.50		mg/Kg	1	1/10/2015 12:19:03 AM
Lead	7.30	0.50		mg/Kg	1	1/10/2015 12:19:03 AM
Selenium	< 1.00	1.00		mg/Kg	1	1/10/2015 12:19:03 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:19:03 AM
Zinc	38.8	0.50		mg/Kg	1	1/10/2015 12:19:03 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	153	46		mg/Kg-dry	1	1/13/2015 11:50:20 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

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WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates **Collection Date:** 1/6/2015 10:15:00 AM
Project: East White Lake 07-47
Lab ID: 15010292-011 **Matrix:** SOIL
Client Sample ID WL-4 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	81.5	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	1,640	201		mg/Kg-dry	25	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	7.54	0.10		mmhos/cm	1	1/13/2015 1:01:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	6.0	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.93	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	4.25	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	53.2	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	22.0	0.100			1	1/14/2015
Soluble Calcium	6.56	1.00		meq/L	1	1/14/2015
Soluble Magnesium	10.7	1.00		meq/L	1	1/14/2015
Soluble Sodium	64.8	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:15:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-011

Matrix: SOIL

Client Sample ID WL-4 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:45:16 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	1.99	0.53		mg/Kg	1	1/10/2015 12:22:56 AM
Barium	308	0.53		mg/Kg	1	1/10/2015 12:22:56 AM
Cadmium	< 0.26	0.26		mg/Kg	1	1/10/2015 12:22:56 AM
Chromium	6.35	0.53		mg/Kg	1	1/10/2015 12:22:56 AM
Lead	9.70	0.53		mg/Kg	1	1/10/2015 12:22:56 AM
Selenium	< 1.06	1.06		mg/Kg	1	1/10/2015 12:22:56 AM
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015 12:22:56 AM
Zinc	20.8	0.53		mg/Kg	1	1/10/2015 12:22:56 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	645	46		mg/Kg-dry	1	1/13/2015 11:53:45 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:25:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-012

Matrix: SOIL

Client Sample ID WL-4 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	62.7	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	4,500	705		mg/Kg-dry	100	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	19.5	0.10		mmhos/cm	1	1/13/2015 1:01:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	13.2	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	2.37	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	5.95	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	50.0	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	40.3	0.100			1	1/14/2015
Soluble Calcium	15.7	1.00		meq/L	1	1/14/2015
Soluble Magnesium	15.8	1.00		meq/L	1	1/14/2015
Soluble Sodium	160	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:25:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-012

Matrix: SOIL

Client Sample ID WL-4 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:47:39 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	2.24	0.50		mg/Kg	1	1/10/2015 12:26:28 AM
Barium	431	0.50		mg/Kg	1	1/10/2015 12:26:28 AM
Cadmium	< 0.25	0.25		mg/Kg	1	1/10/2015 12:26:28 AM
Chromium	6.35	0.50		mg/Kg	1	1/10/2015 12:26:28 AM
Lead	8.66	0.50		mg/Kg	1	1/10/2015 12:26:28 AM
Selenium	< 1.00	1.00		mg/Kg	1	1/10/2015 12:26:28 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:26:28 AM
Zinc	57.6	0.50		mg/Kg	1	1/10/2015 12:26:28 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	1,240	47		mg/Kg-dry	1	1/13/2015 11:57:10 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:40:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-013

Matrix: SOIL

Client Sample ID WL-4 4-11'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	20.3	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	2,910	483		mg/Kg-dry	100	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	19.0	0.10		mmhos/cm	1	1/13/2015 1:01:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	19.4	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	4.55	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	6.66	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	34.0	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	48.7	0.100			1	1/14/2015
Soluble Calcium	13.6	1.00		meq/L	1	1/14/2015
Soluble Magnesium	9.01	1.00		meq/L	1	1/14/2015
Soluble Sodium	164	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:40:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-013

Matrix: SOIL

Client Sample ID WL-4 4-11'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:50:02 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	0.91	0.54		mg/Kg	1	1/10/2015 12:29:53 AM
Barium	394	0.54		mg/Kg	1	1/10/2015 12:29:53 AM
Cadmium	< 0.27	0.27		mg/Kg	1	1/10/2015 12:29:53 AM
Chromium	8.00	0.54		mg/Kg	1	1/10/2015 12:29:53 AM
Lead	7.14	0.54		mg/Kg	1	1/10/2015 12:29:53 AM
Selenium	< 1.08	1.08		mg/Kg	1	1/10/2015 12:29:53 AM
Silver	< 0.27	0.27		mg/Kg	1	1/10/2015 12:29:53 AM
Zinc	57.9	0.54		mg/Kg	1	1/10/2015 12:29:53 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	953	48		mg/Kg-dry	1	1/14/2015 12:00:33 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 10:50:00 AM

Project: East White Lake 07-47

Lab ID: 15010292-014

Matrix: SOIL

Client Sample ID WL-4 11-12.5'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE					SW9071B	Analyst: MMT
HEM, Oil & Grease	2.13	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE					LDNR 29-B	Analyst: MMT
Percent Moisture	48.1	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE					SW7471A	SW7471A Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 12:52:45 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	1.09	0.50		mg/Kg	1	1/10/2015 12:33:19 AM
Barium	92.1	0.50		mg/Kg	1	1/10/2015 12:33:19 AM
Cadmium	< 0.25	0.25		mg/Kg	1	1/10/2015 12:33:19 AM
Chromium	4.18	0.50		mg/Kg	1	1/10/2015 12:33:19 AM
Lead	5.10	0.50		mg/Kg	1	1/10/2015 12:33:19 AM
Selenium	< 1.00	1.00		mg/Kg	1	1/10/2015 12:33:19 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:33:19 AM
Zinc	34.9	0.50		mg/Kg	1	1/10/2015 12:33:19 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	321	47		mg/Kg-dry	1	1/14/2015 12:03:58 AM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

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WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 12:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-015

Matrix: SOIL

Client Sample ID WL-5 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	78.0	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	2,270	400		mg/Kg-dry	50	1/14/2015 9:35:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	9.46	0.10		mmhos/cm	1	1/13/2015 1:02:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	6.7	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	2.90	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	4.61	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	53.6	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	23.7	0.100			1	1/14/2015
Soluble Calcium	8.41	1.00		meq/L	1	1/14/2015
Soluble Magnesium	15.4	1.00		meq/L	1	1/14/2015
Soluble Sodium	81.6	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 12:10:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-015

Matrix: SOIL

Client Sample ID WL-5 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE					SW7471A	SW7471A Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:03:38 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP					SW6010B	SW3050B Analyst: STS
Arsenic	2.01	0.54		mg/Kg	1	1/10/2015 12:44:20 AM
Barium	477	0.54		mg/Kg	1	1/10/2015 12:44:20 AM
Cadmium	< 0.27	0.27		mg/Kg	1	1/10/2015 12:44:20 AM
Chromium	5.32	0.54		mg/Kg	1	1/10/2015 12:44:20 AM
Lead	8.45	0.54		mg/Kg	1	1/10/2015 12:44:20 AM
Selenium	< 1.07	1.07		mg/Kg	1	1/10/2015 12:44:20 AM
Silver	< 0.27	0.27		mg/Kg	1	1/10/2015 12:44:20 AM
Zinc	51.9	0.54		mg/Kg	1	1/10/2015 12:44:20 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM					LDNR 29-B	Analyst: STS
True Total Barium	1,430	47		mg/Kg-dry	1	1/14/2015 12:07:23 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

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WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 12:30:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-016

Matrix: SOIL

Client Sample ID WL-5 2-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	8.5	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	1,470	197		mg/Kg-dry	50	1/14/2015 11:23:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	11.5	0.10		mmhos/cm	1	1/13/2015 1:02:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	30.0	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	1.64	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	5.95	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	29.1	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	30.4	0.100			1	1/14/2015
Soluble Calcium	8.39	1.00		meq/L	1	1/14/2015
Soluble Magnesium	9.13	1.00		meq/L	1	1/14/2015
Soluble Sodium	90.0	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 12:30:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-016

Matrix: SOIL

Client Sample ID WL-5 2-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:06:23 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	1.39	0.51		mg/Kg	1	1/10/2015 12:47:45 AM
Barium	253	0.51		mg/Kg	1	1/10/2015 12:47:45 AM
Cadmium	0.27	0.25		mg/Kg	1	1/10/2015 12:47:45 AM
Chromium	9.33	0.51		mg/Kg	1	1/10/2015 12:47:45 AM
Lead	10.3	0.51		mg/Kg	1	1/10/2015 12:47:45 AM
Selenium	< 1.02	1.02		mg/Kg	1	1/10/2015 12:47:45 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:47:45 AM
Zinc	146	0.51		mg/Kg	1	1/10/2015 12:47:45 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	524	47		mg/Kg-dry	1	1/14/2015 12:10:47 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

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WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:00:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-017

Matrix: SOIL

Client Sample ID WL-6 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	69.5	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	1,260	154		mg/Kg-dry	20	1/14/2015 11:23:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	5.69	0.10		mmhos/cm	1	1/13/2015 1:02:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	9.1	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.68	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	5.59	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	51.0	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	22.9	0.100			1	1/14/2015
Soluble Calcium	4.56	1.00		meq/L	1	1/14/2015
Soluble Magnesium	8.81	1.00		meq/L	1	1/14/2015
Soluble Sodium	59.2	1.00		meq/L	1	1/14/2015

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:00:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-017

Matrix: SOIL

Client Sample ID WL-6 0-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:08:46 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	2.79	0.51		mg/Kg	1	1/10/2015 12:51:11 AM
Barium	373	0.51		mg/Kg	1	1/10/2015 12:51:11 AM
Cadmium	< 0.26	0.26		mg/Kg	1	1/10/2015 12:51:11 AM
Chromium	6.02	0.51		mg/Kg	1	1/10/2015 12:51:11 AM
Lead	8.93	0.51		mg/Kg	1	1/10/2015 12:51:11 AM
Selenium	< 1.02	1.02		mg/Kg	1	1/10/2015 12:51:11 AM
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015 12:51:11 AM
Zinc	28.8	0.51		mg/Kg	1	1/10/2015 12:51:11 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	801	47		mg/Kg-dry	1	1/14/2015 12:14:11 AM

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| C Value is below Minimum Compound Limit. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Matrix Interference |
| N Tentatively identified compounds | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits |
| RL Reporting Detection Limit | S Spike Recovery outside accepted recovery limits |



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:15:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-018

Matrix: SOIL

Client Sample ID WL-6 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	99.8	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	43,100	4,340		mg/Kg-dry	500	1/14/2015 11:23:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	144	1.00		mmhos/cm	10	1/13/2015 1:06:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	38.6	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.50	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	5.81	1.68	C	S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	75.0	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	102	0.100			1	1/14/2015
Soluble Calcium	99.2	1.00		meq/L	1	1/14/2015
Soluble Magnesium	179	1.00		meq/L	1	1/14/2015
Soluble Sodium	1,200	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:15:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-018

Matrix: SOIL

Client Sample ID WL-6 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:11:09 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	1.39	0.50		mg/Kg	1	1/10/2015 12:55:09 AM
Barium	59.6	0.50		mg/Kg	1	1/10/2015 12:55:09 AM
Cadmium	< 0.25	0.25		mg/Kg	1	1/10/2015 12:55:09 AM
Chromium	1.34	0.50		mg/Kg	1	1/10/2015 12:55:09 AM
Lead	1.18	0.50		mg/Kg	1	1/10/2015 12:55:09 AM
Selenium	< 1.01	1.01		mg/Kg	1	1/10/2015 12:55:09 AM
Silver	< 0.25	0.25		mg/Kg	1	1/10/2015 12:55:09 AM
Zinc	4.34	0.50		mg/Kg	1	1/10/2015 12:55:09 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	312	48		mg/Kg-dry	1	1/14/2015 12:24:55 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:25:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-019

Matrix: SOIL

Client Sample ID WL-6 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	52.0	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	23,600	3,160		mg/Kg-dry	400	1/14/2015 11:23:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	71.4	0.10		mmhos/cm	1	1/13/2015 1:03:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	48.5	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	1/15/2015 7:00:00 AM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	6.19	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	51.5	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	70.4	0.100			1	1/14/2015
Soluble Calcium	54.1	1.00		meq/L	1	1/14/2015
Soluble Magnesium	100	1.00		meq/L	1	1/14/2015
Soluble Sodium	619	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits
	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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

Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:25:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-019

Matrix: SOIL

Client Sample ID WL-6 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:13:32 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	1.41	0.54		mg/Kg	1	1/10/2015 12:59:02 AM
Barium	48.1	0.54		mg/Kg	1	1/10/2015 12:59:02 AM
Cadmium	< 0.27	0.27		mg/Kg	1	1/10/2015 12:59:02 AM
Chromium	5.79	0.54		mg/Kg	1	1/10/2015 12:59:02 AM
Lead	5.07	0.54		mg/Kg	1	1/10/2015 12:59:02 AM
Selenium	< 1.08	1.08		mg/Kg	1	1/10/2015 12:59:02 AM
Silver	< 0.27	0.27		mg/Kg	1	1/10/2015 12:59:02 AM
Zinc	24.6	0.54		mg/Kg	1	1/10/2015 12:59:02 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	153	47		mg/Kg-dry	1	1/14/2015 12:28:19 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: 15010292

Date Reported: 1/22/2015

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:35:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-020

Matrix: SOIL

Client Sample ID WL-6 10-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING CATION EXCHANGE CAPACITY						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Cation Exchange Capacity	79.4	0.1		meq/100g	1	1/16/2015 1:46:00 PM
SOLUBLE CHLORIDE BY SW9253						
				SW9253		Analyst: SGP
Chlorides	42,100	4,560		mg/Kg-dry	500	1/14/2015 11:23:00 AM
LA STATEWIDE ORDER 29-B TESTING ELECTRICAL CONDUCTIVITY @ SPE						
				LDNR 29-B		Analyst: MMT
Electrical Conductivity	130	1.00		mmhos/cm	10	1/13/2015 1:07:00 PM
LA STATEWIDE ORDER 29-B TESTING EXCHANGEABLE SODIUM PERCENTAGE						
				LDNR 29-B	LDNR 29-B	Analyst: MMT
Exchangeable Sodium %	42.2	0.1		%	1	1/16/2015 1:46:00 PM
LA STATEWIDE ORDER 29-B TESTING HEM, OIL & GREASE						
				SW9071B		Analyst: MMT
HEM, Oil & Grease	0.20	0.05		% dry wt	1	1/12/2015 12:00:00 PM
LA STATEWIDE ORDER 29-B TESTING PH MEASUREMENT						
				LDNR 29-B		Analyst: GXT
pH Measurement	6.39	1.68		S.U.	1	1/14/2015 1:25:00 PM
LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE						
				LDNR 29-B		Analyst: MMT
Percent Moisture	67.5	1.0		wt%	1	1/8/2015 1:00:00 PM
LA STATEWIDE ORDER 29-B TESTING SODIUM ADSORPTION RATIO						
				LDNR 29-B	LDNR 29-B	Analyst: STS
Sodium Adsorption Ratio	84.4	0.100			1	1/14/2015
Soluble Calcium	87.7	1.00		meq/L	1	1/14/2015
Soluble Magnesium	187	1.00		meq/L	1	1/14/2015
Soluble Sodium	989	1.00		meq/L	1	1/14/2015

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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	RL Reporting Detection Limit	S Spike Recovery outside accepted recovery limits



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Analytical Report

(consolidated)

WO#: **15010292**

Date Reported: **1/22/2015**

CLIENT: Michael Pisani & Associates

Collection Date: 1/6/2015 2:35:00 PM

Project: East White Lake 07-47

Lab ID: 15010292-020

Matrix: SOIL

Client Sample ID WL-6 10-13'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
LA STATEWIDE ORDER 29-B TESTING MERCURY IN SOIL OR SLUDGE				SW7471A	SW7471A	Analyst: KML
Mercury	< 0.10	0.10		mg/Kg	1	1/12/2015 1:23:53 PM
LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP				SW6010B	SW3050B	Analyst: STS
Arsenic	2.50	0.52		mg/Kg	1	1/10/2015 1:02:55 AM
Barium	55.8	0.52		mg/Kg	1	1/10/2015 1:02:55 AM
Cadmium	< 0.26	0.26		mg/Kg	1	1/10/2015 1:02:55 AM
Chromium	3.92	0.52		mg/Kg	1	1/10/2015 1:02:55 AM
Lead	3.01	0.52		mg/Kg	1	1/10/2015 1:02:55 AM
Selenium	< 1.04	1.04		mg/Kg	1	1/10/2015 1:02:55 AM
Silver	< 0.26	0.26		mg/Kg	1	1/10/2015 1:02:55 AM
Zinc	6.92	0.52		mg/Kg	1	1/10/2015 1:02:55 AM
LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM				LDNR 29-B		Analyst: STS
True Total Barium	240	46		mg/Kg-dry	1	1/14/2015 12:31:43 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	C Value is below Minimum Compound Limit.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	N Tentatively identified compounds	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Second column confirmation exceeds
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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: 13922

Sample ID	MB-13922	SampType:	MBLK	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	1/8/2015	RunNo:	40640		
Client ID:	PBS	Batch ID:	13922	TestNo:	SW6010B	SW3050B		Analysis Date:	1/9/2015	SeqNo:	975095		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.50		0.50									
Barium		< 0.50		0.50									
Cadmium		< 0.25		0.25									
Chromium		< 0.50		0.50									
Lead		< 0.50		0.50									
Selenium		< 1.00		1.00									
Silver		< 0.25		0.25									
Zinc		< 0.50		0.50									

Sample ID	LCS-13922	SampType:	LCS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	1/8/2015	RunNo:	40640		
Client ID:	LCSS	Batch ID:	13922	TestNo:	SW6010B	SW3050B		Analysis Date:	1/9/2015	SeqNo:	975096		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		25.4		0.50	25.00	0	101	80	120				
Barium		24.5		0.50	25.00	0	98.1	80	120				
Cadmium		24.5		0.25	25.00	0	98.1	80	120				
Chromium		23.9		0.50	25.00	0	95.7	80	120				
Lead		24.8		0.50	25.00	0	99.0	80	120				
Selenium		25.3		1.00	25.00	0	101	80	120				
Silver		12.3		0.25	12.50	0	98.1	80	120				
Zinc		25.2		0.50	25.00	0	101	80	120				

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: 13922

Sample ID	LCSD-13922	SampType:	LCSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	1/8/2015	RunNo:	40640											
Client ID:	LCSS02	Batch ID:	13922	TestNo:	SW6010B		SW3050B	Analysis Date:	1/9/2015	SeqNo:	975097											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
Arsenic		25.3		0.50		25.00		0		101		80		120		25.36		0.30		20		
Barium		24.5		0.50		25.00		0		97.8		80		120		24.52		0.24		20		
Cadmium		24.5		0.25		25.00		0		97.8		80		120		24.52		0.22		20		
Chromium		23.9		0.50		25.00		0		95.5		80		120		23.92		0.21		20		
Lead		24.7		0.50		25.00		0		98.8		80		120		24.76		0.22		20		
Selenium		25.3		1.00		25.00		0		101		80		120		25.33		0.18		20		
Silver		12.2		0.25		12.50		0		97.8		80		120		12.26		0.24		20		
Zinc		25.1		0.50		25.00		0		100		80		120		25.16		0.40		20		

Sample ID	15010292-001AMS	SampType:	MS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	1/8/2015	RunNo:	40640											
Client ID:	WL-1 0-2'	Batch ID:	13922	TestNo:	SW6010B		SW3050B	Analysis Date:	1/9/2015	SeqNo:	975097											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
Arsenic		34.9		0.53		26.44		2.29		123		75		125								
Barium		162		0.53		26.44		134.7		105		75		125								
Cadmium		30.3		0.26		26.44		0.31		114		75		125								
Chromium		37.9		0.53		26.44		8.10		113		75		125								
Lead		35.9		0.53		26.44		6.74		110		75		125								
Selenium		27.8		1.06		26.44		0		105		75		125								
Silver		12.8		0.26		13.22		0		96.8		75		125								
Zinc		54.8		0.53		26.44		24.25		116		75		125								

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13922

Sample ID	15010292-001AMSD	SampType:	MSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	1/8/2015	RunNo:	40640
Client ID:	WL-1 0-2'	Batch ID:	13922	TestNo:	SW6010B		SW3050B	Analysis Date:	1/9/2015	SeqNo:	975100
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.9	0.53	26.39	2.29	124	75	125	34.86	0.24	20	
Barium	162	0.53	26.39	134.7	104	75	125	162.4	0.21	20	
Cadmium	30.2	0.26	26.39	0.31	113	75	125	30.34	0.53	20	
Chromium	37.7	0.53	26.39	8.10	112	75	125	37.88	0.42	20	
Lead	35.7	0.53	26.39	6.74	110	75	125	35.87	0.61	20	
Selenium	27.2	1.06	26.39	0	103	75	125	27.76	1.87	20	
Silver	10.8	0.26	13.19	0	82.0	75	125	12.80	16.7	20	
Zinc	54.6	0.53	26.39	24.25	115	75	125	54.83	0.47	20	

Qualifiers:

- | | | |
|---|--|--|
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| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13937

Sample ID	MB-13937	SampType:	MBLK	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40639			
Client ID:	PBS	Batch ID:	13937	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	974963			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.10 0.10

Sample ID	LCS-13937	SampType:	LCS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40639			
Client ID:	LCSS	Batch ID:	13937	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	974964			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.90 0.10 0.83 0 108 80 120

Sample ID	LCSD-13937	SampType:	LCSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40639			
Client ID:	LCSS02	Batch ID:	13937	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	974965			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.92 0.10 0.83 0 110 80 120 0.90 2.02 20

Sample ID	15010006-001AMS	SampType:	MS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40639			
Client ID:	ZZZZZZ	Batch ID:	13937	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	974967			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.86 0.10 0.81 0 106 75 125

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13937

Sample ID	15010006-001AMSD	SampType:	MSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40639		
Client ID:	ZZZZZZ	Batch ID:	13937	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	974968		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.88		0.10	0.82	0	107	75	125	0.86	2.32	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13938

Sample ID	MB-13938	SampType:	MBLK	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40658			
Client ID:	PBS	Batch ID:	13938	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	975627			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.10 0.10

Sample ID	LCS-13938	SampType:	LCS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40658			
Client ID:	LCSS	Batch ID:	13938	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	975628			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.90 0.10 0.83 0 108 80 120

Sample ID	LCSD-13938	SampType:	LCSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40658			
Client ID:	LCSS02	Batch ID:	13938	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	975629			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.93 0.10 0.83 0 112 80 120 0.90 3.37 20

Sample ID	15010292-020AMS	SampType:	MS	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40658			
Client ID:	WL-6 10-13'	Batch ID:	13938	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	975631			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.90 0.10 0.81 0 110 75 125

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13938

Sample ID	15010292-020AMSD	SampType:	MSD	TestCode:	HG_S_7471A	Units:	mg/Kg	Prep Date:	1/9/2015	RunNo:	40658		
Client ID:	WL-6 10-13'	Batch ID:	13938	TestNo:	SW7471A	SW7471A		Analysis Date:	1/12/2015	SeqNo:	975635		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.91		0.10	0.83	0	109	75	125	0.90	1.01	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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

QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: 13955

Sample ID	MB-13955	SampType:	MBLK	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	1/12/2015	RunNo:	40722			
Client ID:	PBS	Batch ID:	13955	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	977411			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50 50

Sample ID	LCS-13955	SampType:	LCS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	1/12/2015	RunNo:	40722			
Client ID:	LCSS	Batch ID:	13955	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	977412			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,330 50 5,000 0 87 75 125

Sample ID	LCSD-13955	SampType:	LCSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	1/12/2015	RunNo:	40722			
Client ID:	LCSS02	Batch ID:	13955	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	977415			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,340 50 5,000 0 87 75 125 4,332 0 20

Sample ID	15010292-001AMS	SampType:	MS	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	1/12/2015	RunNo:	40722			
Client ID:	WL-1 0-2'	Batch ID:	13955	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	977417			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,470 47 4,660 338 89 75 125

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: 13955

Sample ID	15010292-001AMSD	SampType:	MSD	TestCode:	TTBA	Units:	mg/Kg-dry	Prep Date:	1/12/2015	RunNo:	40722		
Client ID:	WL-1 0-2'	Batch ID:	13955	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	977418		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		4,140		47	4,660	338	82	75	125	4,466	7	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13975

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	SAR_S	Units:		Prep Date:	1/12/2015	RunNo:	40742		
Client ID:	WL-1 0-2'	Batch ID:	13975	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	1/14/2015	SeqNo:	977882		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		24.8		0.100						24.71	0.493	20	*
Soluble Calcium		4.75		1.00						4.724	0.569	20	
Soluble Magnesium		7.45		1.00						7.405	0.587	20	
Soluble Sodium		61.3		1.00						60.86	0.783	20	

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13996

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	1/13/2015	RunNo:	40794		
Client ID:	WL-1 0-2'	Batch ID:	13996	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	1/16/2015	SeqNo:	979465		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Exchangeable Sodium %	11.0	0.1								11.7	6.0	20
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Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: 13997

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	CEC	Units:	meq/100g	Prep Date:	1/13/2015	RunNo:	40793
Client ID:	WL-1 0-2'	Batch ID:	13997	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	1/16/2015	SeqNo:	979417
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		75.9		0.1						73.4	3.3 20

Sample ID	LCS-13997	SampType:	LCS	TestCode:	CEC	Units:	meq/100g	Prep Date:	1/13/2015	RunNo:	40793
Client ID:	LCSS	Batch ID:	13997	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	1/16/2015	SeqNo:	979434
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.1	25.0	0	87.8	76	124		

Sample ID	LCSD-13997	SampType:	LCSD	TestCode:	CEC	Units:	meq/100g	Prep Date:	1/13/2015	RunNo:	40793
Client ID:	LCSS02	Batch ID:	13997	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	1/16/2015	SeqNo:	979435
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.9		0.1	25.0	0	87.6	76	124	22.0	0.3 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40593

Sample ID	MB-R40593	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40593
Client ID:	PBS	Batch ID:	R40593	TestNo:	SW9071B			Analysis Date:	1/12/2015	SeqNo:	976437
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID	LCS-R40593	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40593
Client ID:	LCSS	Batch ID:	R40593	TestNo:	SW9071B			Analysis Date:	1/12/2015	SeqNo:	976438
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.23 0.05 0.20 0 113 70 130

Sample ID	LCSD-R40593	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40593
Client ID:	LCSS02	Batch ID:	R40593	TestNo:	SW9071B			Analysis Date:	1/12/2015	SeqNo:	976439
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

0.22 0.05 0.20 0 109 70 130 0.23 3.38 40

Sample ID	15010256-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40593
Client ID:	ZZZZZZ	Batch ID:	R40593	TestNo:	SW9071B			Analysis Date:	1/12/2015	SeqNo:	976440
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

HEM, Oil & Grease

6.86 0.05 0.31 5.61 398 70 130 S

NOTES:

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: R40593

Sample ID	15010256-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40593		
Client ID:	ZZZZZZ	Batch ID:	R40593	TestNo:	SW9071B			Analysis Date:	1/12/2015	SeqNo:	976441		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		5.78		0.05						5.61	2.94	40	*

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40673

Sample ID	15010292-001ADUP	SampType:	dup	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	40673
Client ID:	WL-1 0-2'	Batch ID:	R40673	TestNo:	LDNR 29-B			Analysis Date:	1/8/2015	SeqNo:	976123
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture		46.5		1.0						46.3	0.4 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40681

Sample ID	R40681LCS1	SampType:	LCS1	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	40681
Client ID:	ZZZZZZ	Batch ID:	R40681	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	976331
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 0.48 0.10 0.47 0 101 89.87 110.12

Sample ID	R40681LCS2	SampType:	LCS2	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	40681
Client ID:	ZZZZZZ	Batch ID:	R40681	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	976332
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 51.5 0.10 53.00 0 97.2 90 110

Sample ID	MB-R40681	SampType:	MBLK	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	40681
Client ID:	PBS	Batch ID:	R40681	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	976333
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity < 0.10 0.10

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	EC_S	Units:	mmhos/cm	Prep Date:		RunNo:	40681
Client ID:	WL-1 0-2'	Batch ID:	R40681	TestNo:	LDNR 29-B			Analysis Date:	1/13/2015	SeqNo:	976335
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 7.14 0.10 6.78 5.17 20

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit.
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit	P	Second column confirmation exceeds
PL	Permit Limit	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits				



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: R40712

Sample ID	MB-R40712	SampType:	MBLK	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40712
Client ID:	PBS	Batch ID:	R40712	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977172
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	< 10	10									
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Sample ID	LCSD-R40712	SampType:	LCSD	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40712
Client ID:	LCSS02	Batch ID:	R40712	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977173
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	114	10	100	0	114	80	120	106	6	20	
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Sample ID	LCS-R40712	SampType:	LCS	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40712
Client ID:	LCSS	Batch ID:	R40712	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977174
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	106	10	100	0	106	80	120				
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Sample ID	15010294-008AMSD	SampType:	MSD	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40712
Client ID:	ZZZZZZ	Batch ID:	R40712	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977182
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	16,700	870	8,700	7,721	103	80	120	16,060	4	20	
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Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	C Value is below Minimum Compound Limit.
E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	O RSD is greater than RSDlimit	P Second column confirmation exceeds
PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40712

Sample ID	15010294-008AMS	SampType:	MS	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40712
Client ID:	ZZZZZZ	Batch ID:	R40712	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977184
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Chlorides	16,100	870	8,700	7,721	96	80	120				
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Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: R40721

Sample ID	MB-R40721	SampType:	MBLK	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40721
Client ID:	PBS	Batch ID:	R40721	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977475
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chlorides		< 10		10							

Sample ID	LCSD-R40721	SampType:	LCSD	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40721
Client ID:	LCSS02	Batch ID:	R40721	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977476
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chlorides		106		10	100	0	106	80	120	110	3 20

Sample ID	LCS-R40721	SampType:	LCS	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40721
Client ID:	LCSS	Batch ID:	R40721	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977477
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chlorides		110		10	100	0	110	80	120		

Sample ID	15010292-020AMSD	SampType:	MSD	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40721
Client ID:	WL-6 10-13'	Batch ID:	R40721	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977482
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chlorides		92,300		4,560	45,600	42,090	110	80	120	92,270	0 20

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: R40721

Sample ID	15010292-020AMS	SampType:	MS	TestCode:	CL_S_9253	Units:	mg/Kg-dry	Prep Date:		RunNo:	40721
Client ID:	WL-6 10-13'	Batch ID:	R40721	TestNo:	SW9253			Analysis Date:	1/14/2015	SeqNo:	977483
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chlorides		92,300		4,560	45,600	42,090	110	80	120		

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection 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#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates
Project: East White Lake 07-47

BatchID: R40725

Sample ID	LCS-R40725	SampType:	LCS	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	40725
Client ID:	LCSS	Batch ID:	R40725	TestNo:	LDNR 29-B			Analysis Date:	1/14/2015	SeqNo:	977486
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

pH Measurement 7.00 1.68 7.00 0 100 97.14 102.86

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	PH_S	Units:	S.U.	Prep Date:		RunNo:	40725
Client ID:	WL-1 0-2'	Batch ID:	R40725	TestNo:	LDNR 29-B			Analysis Date:	1/14/2015	SeqNo:	977488
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

pH Measurement 5.25 1.68 5.25 0 20 C

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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QC SUMMARY REPORT

WO#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40743

Sample ID	MB-R40743	SampType:	MBLK	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40743
Client ID:	PBS	Batch ID:	R40743	TestNo:	SW9071B			Analysis Date:	1/15/2015	SeqNo:	978971
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		< 0.05		0.05							

Sample ID	LCS-R40743	SampType:	LCS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40743
Client ID:	LCSS	Batch ID:	R40743	TestNo:	SW9071B			Analysis Date:	1/15/2015	SeqNo:	978972
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.25		0.05	0.20	0	123	70	130		

Sample ID	LCSD-R40743	SampType:	LCSD	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40743
Client ID:	LCSS02	Batch ID:	R40743	TestNo:	SW9071B			Analysis Date:	1/15/2015	SeqNo:	978973
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.24		0.05	0.20	0	118	70	130	0.25	4.36 40

Sample ID	15010292-001AMS	SampType:	MS	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40743
Client ID:	WL-1 0-2'	Batch ID:	R40743	TestNo:	SW9071B			Analysis Date:	1/15/2015	SeqNo:	978974
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		1.82		0.05	0.37	1.06	205	70	130		S

NOTES:

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

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection 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#: 15010292
 22-Jan-15

Client: Michael Pisani & Associates

Project: East White Lake 07-47

BatchID: R40743

Sample ID	15010292-001ADUP	SampType:	DUP	TestCode:	HEM_S	Units:	% dry wt	Prep Date:		RunNo:	40743
Client ID:	WL-1 0-2'	Batch ID:	R40743	TestNo:	SW9071B			Analysis Date:	1/15/2015	SeqNo:	978975
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		1.08		0.05						1.06	1.92 40

Qualifiers:

- | | | |
|---|--|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | C Value is below Minimum Compound Limit. |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded | M Matrix Interference |
| ND Not Detected at the Reporting Limit | O RSD is greater than RSDlimit | P Second column confirmation exceeds |
| PL Permit Limit | R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | | |



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 Lafayette, LA 70508-3344
 TEL: (337) 235-0483 FAX: (337) 233-6540
 Website: www.element.com

Sample Log-In Check List

Client Name: **M_PISANI_NO** Work Order Number: **15010292** RcptNo: **1**

Logged by:	Danielle Hollier	1/8/2015 8:45:00 AM	<i>Danielle Hollier</i>
Completed By:	Danielle Hollier	1/8/2015 9:28:36 AM	<i>Danielle Hollier</i>
Reviewed By:	Caitlin Duplantis	1/12/2015 1:06:37 PM	<i>Caitlin Duplantis</i>

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Not Present			
2	0.1	Good	Not Present			



Chain of Custody

Laboratory Number: **15010292**

Client Information: Michael Pisanic Associates Lane Cooper 1100 Bayview Street Suite 1430 New Orleans LA 70113 504.582.2476 504.582.2470 lcooper@mpisanic.com		Billing Information: SAME		PO Number: Quote Number: Required QC Level: Bill Monthly: <input type="checkbox"/> Yes <input type="checkbox"/> No		Project Name/Number: East White Lake 107-47 Sampler's Signature: <i>[Signature]</i> Shipping Method: UPS / FedEx / Airborne / DHL / Element / Hand / Mail		Page of Matrix Code DW = Drinking Water WW = Waste Water GW = Ground Water AO = Aqueous OT = Other SL = Sludge O = Oil F = Food NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid	
--	--	-------------------------------------	--	--	--	---	--	--	--

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Container Type P=Plastic, V=Vial	Pres. HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ SO ₃	Requested Tests	Comments		
			(Rush turn times will incur a surcharge and must be pre-approved by lab.)						Quantity	Date/Time
			Date	Time						
WL-1 0-2'			1/5/15	1210	G	SO				
WL-1 2-4'			1/5/15	1216	G	SO				
WL-1 9-13'			1/5/15	1240	G	SO				
WL-2 0-2'			1/5/15	1405	G	SO				
WL-2 2-4'			1/5/15	1410	G	SO				
WL-2 8-10'			1/5/15	1430	G	SO				
WL-2 14-16'			1/5/15	1445	G	SO				
WL-3 0-2'			1/6/15	0845	G	SO				
WL-3 4-6'			1/6/15	0900	G	SO				

Relinquished by	Date/Time	Received by	Date/Time
<i>[Signature]</i>	1/8/15 0845	<i>[Signature]</i>	1-8-15 8:45

Field Notes: Volume run today
 Lab Methods Submittal
 Received at lab on ice? Yes No
 Temp: *1.6°C @ 9B*

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.

9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109
 629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731
 2121 East Washington Boulevard Fort Wayne, IN 46803-1328 USA P 260-471-7000 F 260-471-7777
 560 South Zimmer Road Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569
 3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699
 2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-235-6540



Chain of Custody

Laboratory Number: 150102.92

Client Information: Michael Pisoni & Associates
 Contact Name: Lance Cooper
 Address: 1122 Poplar Street, Suite 1130
 City, State Zip: New Orleans, LA 70113
 Phone Number: 504.582.2476
 Fax Number: 504.582.2470
 E-mail Address: lcooper@mpisoini.com

Billing Information: SAME

PO Number: [Blank]

Quote Number: [Blank]

Required QC Level: [Blank]

Bill Monthly: Yes No

Shipping Method: UPS / FedEx / Airborne
 DHL / Element / Hand / Mail

Project Name/Number: East white lake / 07-47

Sampler's Signature: [Signature]

Shipping Method: [Blank]

Page 2 of 2
 Matrix Code: DW = Drinking Water, WW = Waste Water, GW = Ground Water, AQ = Aqueous, OT = Other, SL = Sludge, SOL = Solid, O = Oil, SO = Soil, F = Food, SW = Swab, NG = Natural Gas, NGL = Natural Gas Liquid, PW = Produced Water, CF = Completion Fluid

Sample ID/Description	Turn Time		Collection Information	Container	Pres.	Requested Tests	Comments
	Date	Time					
WL-3 10-13'	11/6/15	0910	G	G	None		
WL-4 0-2'	11/6/15	1215					Limited Volume
WL-4 2-4'	11/6/15	1035					Limited Volume
WL-4 4-11'	11/6/15	1040					Limited Volume
WL-4 11-12.5'	11/6/15	1250					
WL-5 0-2'	11/6/15	1210					
WL-5 2-13'	11/6/15	1230					
WL-6 0-2'	11/6/15	1400					
WL-6 4-6'	11/6/15	1415					

Relinquished by: [Signature] Date/Time: 11/8/15 0845

Received by: [Signature] Date/Time: 1-8-15 8:45

Field Notes: Vol 4 mt run on 1/8/15
 Limited Volume
 Limited Volume
 Limited Volume
 Received at lab on ice? 1.6°C at 1/8/15
 Yes No Temp: 0.1°C @ 1/8/15

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.

9301 Innovation Drive, Suite 115 Daleville, IN 47334-0568 USA
 P 765-378-4103 F 765-378-4109

625 Washington St, Suite 300 Columbus, IN 47201-6231 USA
 P 812-375-0531 F 812-375-0731

2121 East Washington Boulevard Fort Wayne, IN 46803-1328 USA
 P 260-471-7000 F 260-471-7777

568 South Zimmer Road Warsaw, IN 46590-2368 USA
 P 574-267-3305 F 574-269-6569

3371 Cleveland Road, Suite 108A South Bend, IN 46628-0780 USA
 P 574-277-0707 F 574-273-5699

2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA
 P 337-235-0483 F 337-233-6540

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 02/16/2015

GCAL Report 215020505



Deliver To Michael Pisani & Associates
1100 Poydras St
Suite 1430
New Orleans, LA 70163
504-582-2468

Attn Jonathan Miller

Project East White Lake 07-47



Laboratory Endorsement

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

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
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
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
DL	Dilution
N	Metals Matrix Spike or Matrix Spike Duplicate Recovery is outside control limits
00:00	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
U	Indicates the compound was analyzed for but not detected
B	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

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

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

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

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

Authorized Signature
GCAL Report 215020505

Case Narrative

Client: Michael Pisani & Associates **Report:** 215020505

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

MISCELLANEOUS

See Subcontract report for any case narrative.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21502050501	WL-3 0-2	Solid	01/06/2015 08:45	01/08/2015 20:45

Sample Results

WL-3 0-2	Collect Date	01/06/2015 08:45	GCAL ID	21502050501
	Receive Date	01/08/2015 20:45	Matrix	Solid

EPA 1312/6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
02/07/2015 14:00	550988	EPA 3010A	1	02/16/2015 14:35	TAH	551808

CAS#	Parameter	Result	LOQ	Units
7439-92-1	Lead	14.1	1.00	ug/L

Subcontract Work

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	Subcontract Work	1	02/16/2015 14:43	BJM	NA

CAS#	Parameter	Result	LOQ	Units
SHIP-000	Ship Result	*		mg/L

Inorganics Quality Control Summary

Analytical Batch 551400	Client ID GCAL ID	MB550988 1409298	LCS550988 1409299				
Prep Batch 550988	Sample Type	MB	LCS				
Prep Method EPA 3010A	Prep Date	02/07/2015 14:00	02/07/2015 14:00				
	Analysis Date	02/09/2015 04:10	02/09/2015 04:14				
	Matrix	Water	Water				
EPA 1312/6020A		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Lead	7439-92-1	ND	1.00	50.0	50.9	102	80 - 120

Analytical Batch 551400	Client ID GCAL ID	LL-12998 21502045801	1408375MSD 1409397				
Prep Batch 550988	Sample Type	SAMPLE	MSD				
Prep Method EPA 3010A	Prep Date	02/07/2015 14:00	02/07/2015 14:00				
	Analysis Date	02/09/2015 04:35	02/09/2015 04:42				
	Matrix	Solid	Solid				
EPA 1312/6020A		Units Result	LOQ	Spike Added	Result	%R	RPD RPD Limit
Lead	7439-92-1	489	100	500	489	98	2 20

Analytical Batch 551808	Client ID GCAL ID	WL-3 0-2 21502050501	1408528MS 1409553				
Prep Batch 550988	Sample Type	SAMPLE	MS				
Prep Method EPA 3010A	Prep Date	02/07/2015 14:00	02/07/2015 14:00				
	Analysis Date	02/16/2015 14:35	02/16/2015 14:39				
	Matrix	Solid	Solid				
EPA 1312/6020A		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R
Lead	7439-92-1	14.0	1.00	50.0	64.9	102	80 - 120

Analytical Batch 551400	Client ID GCAL ID	14081-D1-013 (TCLP) 21502061101	1408932MS 1409398				
Prep Batch 550988	Sample Type	SAMPLE	MS				
Prep Method EPA 3010A	Prep Date	02/07/2015 14:00	02/07/2015 14:00				
	Analysis Date	02/09/2015 05:07	02/09/2015 05:11				
	Matrix	Solid	Solid				
EPA 1312/6020A		Units Result	LOQ	Spike Added	Result	%R	Control Limits%R
Lead	7439-92-1	1610	100	500	2020	83	80 - 120



CHAIN OF CUSTODY RECORD

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Client ID: 4271 - Michael Pisani & Associates

SDG: 215020505

Due Date: 02/09/15



Report to:
Client: Michael Pisani & Associates
Address: 1100 Poydras Street #1430
New Orleans, LA 70163
Contact: Lance Cooper
Phone: 504.582.2476
E-mail: lcooper@mpisani.com

Bill to:
Client: SAME
Address:
Contact:
Phone:
E-mail:

Analytical Requests & Method

TPH fractions
SPLP HQ
SPLP PB

GCAL use only: 174115, 6
Custody Seal used yes no
intact yes no
Temperature °C D.4 E24

P.O. Number: Project Name/Number: East White Lake / 07-47

Sampled By: R. Charles Trahan

Matrix ¹	Date	Time (2400)	Comp	Grab	Sample Description	No. Containers	Preservative	
S	1/8/15	1210		G	WH-1 0-2'	1		1
		1216			WH-1 2-4'	1		2
		1240			WH-1 9-13'	1		3
		1405			WH-2 0-2'	1		4
		1410			WH-2 2-4'	1		5
		1430			WH-2 8-10'	1		6
		1445			WH-2 14-16'	1		7
	1/6/15	0845			WH-3 0-2'	1	*	8
		0900			WH-3 4-6'	1		9
		0910			WH-3 10-13'	1		10
		1015			WH-4 0-2'	1		11
		1025			WH-4 2-4'	1		12
		1040			WH-4 4-11'	1		13

Air Bill No:

Turn Around Time (Business Days): 24h* 48h* 3 days* 1 week* Standard (Per Contract/Quote)

Received by: (Signature) Date: 1/8/15 Time: 1040	Received by: (Signature) Date: 1/8/15 Time: 1046
Received by: (Signature) Date: 1/8/15 Time: 1750	Received by: (Signature) Date: 1/8/15 Time: 1750
Received by: (Signature) Date: 1/8/15 Time: 2045	Received by: (Signature) Date: 1/8/15 Time: 2045

Note: *only sample on this SDG

Matrix¹: W = water, S = solid, L = liquid, T = tissue

Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 215020505		CHECKLIST	YES	NO	NA
Client 4271 - Michael Pisani & Associates	Transport Method CUST	Were all samples received using proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		When used, were all custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Were all samples received in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profile Number 174115	Received By Saucier, Charlotte M.	Were all samples received using proper chemical preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was preservative added to any container at the lab?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Were all containers received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 5 - SPLP	Receive Date(s) 01/08/15	Were all VOA vials received with no head space?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Do all sample labels match the Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Did the Chain of Custody list the sampling technician?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Was the COC maintained i.e. all signatures, dates and time of receipt included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COOLERS		DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E24	Temp(°C)	None		
		0.4			
NOTES					



Corporate Address: 1717 Seaboard Drive,
Baton Rouge, LA 70810
Louisiana Division: Baton Rouge, LA (225)769-1930
Alabama Division: Mobile, AL (251) 344-9915
Texas Division: Bryan, TX (800) 364-1930

February 16, 2015

Scott Bailey
GCAL Analytical Labs
7979 Innovation Drive
Baton Rouge, LA 70820
Work Order ID 1502307

Dear Scott Bailey,

Analytical & Environmental Testing, Inc. received 1 sample(s) on 2/16/2015 for the analyses presented in the following report.

Results exceeding your permit levels (if available) are indicated by an "*" in the column labeled Qual. All documents contain the AET Work Order Number assigned to this report. Paginated Report includes: Cover Letter/Case Narrative, Analytical Results, and Quality Control Summary Reports. The Chain of Custody and Sample Receipt Checklist Documents are supplied as attachments with this report.

As mandated by ISO Guide 25, this report shall not be reproduced except in full without the permission of Analytical & Environmental Testing, Inc. Documented results relating to the sample(s) specified are included along with the original Chain of Custody. Analytical & Environmental Testing, Inc. appreciates the opportunity to perform analyses of this type for you. If you have any questions concerning this project or any of our other services, please call.

Analyses were conducted within the current NELAC guidelines except as noted with qualifiers on the Certificate of Analyses and/or QC Summary Report.

A handwritten signature in black ink, appearing to read "H. Nathan Levy III".

H. Nathan Levy III
President

www.aetesting.com



Corporate Address: 1717 Seaboard Drive,
 Baton Rouge, LA 70810
 Louisiana Division: Baton Rouge, LA (225)769-1930
 Alabama Division: Mobile, AL (251) 344-9915
 Texas Division: Bryan, TX (800) 364-1930

Certificate of Analyses

NELAP# 01978

Date Reported: 2/16/2015

GCAL Analytical Labs

AET Work Order/Project #: 1502307

Parameter	Analytical Result	Units	Qual	Date/Time Analyzed	Analyst	Method No
Client ID wl-3 0-2		Date: 01/06/2015 8:45 AM		Lab ID: 1502307-001		Matrix: Water
Mercury	< 0.0002	mg/L	H	02/16/2015 11:41 AM	AMV	7470A

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - B Analyte detected in the associated Method Blank
 - H Holding times for preparation or analysis exceeded
 - O RSD is greater than RSDlimit
 - * Value is below Minimum Compound Limit.
 - E Value above quantitation range/Estimated Value
 - J Analyte detected below quantitation limits
 - S Spike Recovery outside accepted recovery limits

CLIENT: GCAL Analytical Labs

Work Order: 1502307

QC SUMMARY REPORT

Project:

Analyte	Result	PQL	SPK Val	%REC	Low Limit%	HighLimit%	Ref Val	%RPD	RPDLimit	Qual
Sample ID: LCS SampType: LCS Batch ID: R16673 Units: mg/L Analysis Date: 2/16/2015 11:30:18 AM RunNo: 16673 SeqNo: 288706										
Mercury	0.0052	0.0002	0.0050	105	90	110				

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range/Estimated Value O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

Analytical & Environmental Testing, Inc.

Sample Receipt Check List--Required for Regulatory Samples only!!

filepath: G:\SAMPLING DEPT

Last revised: 6/7/2011

AET Workorder Number

Date: <u>2/16/15</u>
Login Person: <u>R</u>

Work Order Number : 1502307

Samples received by [**AET**, UPS, FedEx, BUS] **CIRCLE ONE**
MUST ATTACH SHIPPING BILL OR COPY TO COC

	YES	NO	N/A	Comments
COC Present, Correct, & Complete? (name/address, sample id, division, client type)	<input checked="" type="checkbox"/>	*		
SAMPLES WITHIN HOLDING TIME?	<input checked="" type="checkbox"/>	*		
Customer must not be allowed to leave until this is verified				
Samples delivered on ice?		*	<input checked="" type="checkbox"/>	
Temperature of Samples		*	<input checked="" type="checkbox"/>	N/A if sample date=received date
COC and Sample Labels Agree?	<input checked="" type="checkbox"/>	*		
Preserved to <2 (Metals, TOC, COD, NH3, TKN TPHOS, O&G, PHENOL, HARD) Circle Failure		*	<input checked="" type="checkbox"/>	N/A if testing other than listed
Preserved to >12 CN, >9 S Circle Failure		*	<input checked="" type="checkbox"/>	N/A if testing other than listed
Correct Sample Containers?	<input checked="" type="checkbox"/>	*		
Containers intact?	<input checked="" type="checkbox"/>	*		
Volume adequate?	<input checked="" type="checkbox"/>	*		
Zero Headspace VOA/TOX		*	<input checked="" type="checkbox"/>	
Custody seal on shipping container?			<input checked="" type="checkbox"/>	not a requirement
Custody seal on bottles?			<input checked="" type="checkbox"/>	not a requirement

*** A "NO" response mandates a "Sample Condition Notification" to be either signed on dock upon delivery or faxed to the customer ASAP**