



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

March 03, 2015

Duane Piranio  
Arabie Environmental  
P O Box 928  
Lake Charles, LA 70602  
TEL: (337) 263-1596  
FAX (337) 436-3641

RE: Moore/11301

Order No.: 15020655

Dear Duane Piranio:

Element Materials Technology Lafayette, LLC received 61 sample(s) on 2/13/2015 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, appearing to read 'Cristina Thibeaux'.

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



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## Case Narrative

WO#: 15020655  
Date: 3/3/2015

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**CLIENT:** Arabie Environmental  
**Project:** Moore/11301

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3/9/15: This report is being re-issued and replaces the original report in its entirety. As requested by the client, the ID listed on page 2 of the COC as SB-02-15 (2-3) was to be corrected to SB-01-15 (2-3). This pertains to lab ID: 15020655-017.

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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 2:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-001

**Matrix:** SOIL

**Client Sample ID** B-45-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Cation Exchange Capacity	25.9	0.1		meq/100g	1	2/23/2015 2:00:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Electrical Conductivity	3.22	0.10		mmhos/cm	1	2/23/2015 11:12:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	5.8	0.1		%	1	2/23/2015 2:00:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	19.3	0.100	*		1	2/23/2015
Soluble Calcium	2.58	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.23	1.00		meq/L	1	2/23/2015
Soluble Sodium	26.7	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 2:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-002

**Matrix:** SOIL

**Client Sample ID** B-45-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Cation Exchange Capacity	25.1	0.1		meq/100g	1	2/23/2015 2:00:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Electrical Conductivity	6.57	0.10	*	mmhos/cm	1	2/23/2015 11:15:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	8.7	0.1		%	1	2/23/2015 2:00:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	16.3	0.100	*		1	2/23/2015
Soluble Calcium	10.3	1.00		meq/L	1	2/23/2015
Soluble Magnesium	6.71	1.00		meq/L	1	2/23/2015
Soluble Sodium	47.7	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 2:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-003

**Matrix:** SOIL

**Client Sample ID** B-45-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	29.6	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	5.16	0.10	*	mmhos/cm	1	2/23/2015 11:16:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	2.8	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	9.09	0.100			1	2/23/2015
Soluble Calcium	11.0	1.00		meq/L	1	2/23/2015
Soluble Magnesium	9.57	1.00		meq/L	1	2/23/2015
Soluble Sodium	29.2	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 2:35:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-004

**Matrix:** SOIL

**Client Sample ID** B-43-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	27.8	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	6.40	0.10	*	mmhos/cm	1	2/23/2015 11:16:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	7.2	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.4	0.100	*		1	2/23/2015
Soluble Calcium	8.97	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.78	1.00		meq/L	1	2/23/2015
Soluble Sodium	48.2	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 3:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-005

**Matrix:** SOIL

**Client Sample ID** B-42-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	23.4	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	7.81	0.10	*	mmhos/cm	1	2/23/2015 11:16:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.8	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	22.0	0.100	*		1	2/23/2015
Soluble Calcium	10.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.74	1.00		meq/L	1	2/23/2015
Soluble Sodium	60.6	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 3:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-006

**Matrix:** SOIL

**Client Sample ID** B-42-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	28.8	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	12.2	0.10	*	mmhos/cm	1	2/23/2015 11:17:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.1	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	14.4	0.100	*		1	2/23/2015
Soluble Calcium	33.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	18.2	1.00		meq/L	1	2/23/2015
Soluble Sodium	73.3	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/9/2015 3:10:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-007

**Matrix:** SOIL

**Client Sample ID** B-42-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	35.2	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	11.1	0.10	*	mmhos/cm	1	2/23/2015 11:17:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.6	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	11.1	0.100			1	2/23/2015
Soluble Calcium	35.9	1.00		meq/L	1	2/23/2015
Soluble Magnesium	23.4	1.00		meq/L	1	2/23/2015
Soluble Sodium	60.7	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/9/2015 4:15:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-008 **Matrix:** SOIL  
**Client Sample ID** SB-03-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	24.2	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	9.46	0.10	*	mmhos/cm	1	2/23/2015 11:17:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.4	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	28.0	0.100	*		1	2/23/2015
Soluble Calcium	10.8	1.00		meq/L	1	2/23/2015
Soluble Magnesium	5.31	1.00		meq/L	1	2/23/2015
Soluble Sodium	79.3	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/9/2015 4:15:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-009 **Matrix:** SOIL  
**Client Sample ID** SB-03-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	31.6	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	14.3	0.10	*	mmhos/cm	1	2/23/2015 11:17:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	3.2	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	30.2	0.100	*		1	2/23/2015
Soluble Calcium	18.9	1.00		meq/L	1	2/23/2015
Soluble Magnesium	12.5	1.00		meq/L	1	2/23/2015
Soluble Sodium	120	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/9/2015 4:15:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-010 **Matrix:** SOIL  
**Client Sample ID** SB-03-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	36.8	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	14.9	0.10	*	mmhos/cm	1	2/23/2015 11:18:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	2.2	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	25.0	0.100	*		1	2/23/2015
Soluble Calcium	24.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	20.7	1.00		meq/L	1	2/23/2015
Soluble Sodium	119	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/9/2015 4:25:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-011 **Matrix:** SOIL  
**Client Sample ID** SB-03-15-20N (1.5-2.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	29.4	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	8.28	0.10	*	mmhos/cm	1	2/23/2015 11:18:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	16.7	0.1	*	%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	45.3	0.100	*		1	2/23/2015
Soluble Calcium	4.14	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.37	1.00		meq/L	1	2/23/2015
Soluble Sodium	81.7	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 8:40:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-012 **Matrix:** SOIL  
**Client Sample ID** B-9-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.6	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.15	0.10	*	mmhos/cm	1	2/23/2015 11:18:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	4.8	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	20.5	0.100	*		1	2/23/2015
Soluble Calcium	3.71	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.76	1.00		meq/L	1	2/23/2015
Soluble Sodium	33.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 8:40:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-013 **Matrix:** SOIL  
**Client Sample ID** B-9-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	25.9	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.67	0.10	*	mmhos/cm	1	2/23/2015 11:18:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	7.9	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	22.8	0.100	*		1	2/23/2015
Soluble Calcium	8.65	1.00		meq/L	1	2/23/2015
Soluble Magnesium	5.93	1.00		meq/L	1	2/23/2015
Soluble Sodium	61.5	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 8:40:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-014 **Matrix:** SOIL  
**Client Sample ID** B-9-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	31.9	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.05	0.10	*	mmhos/cm	1	2/23/2015 11:19:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	9.0	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	14.1	0.100	*		1	2/23/2015
Soluble Calcium	4.50	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.46	1.00		meq/L	1	2/23/2015
Soluble Sodium	29.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 9:30:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-015 **Matrix:** SOIL  
**Client Sample ID** SB-01-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.3	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.11	0.10		mmhos/cm	1	2/23/2015 11:19:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	11.5	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.5	0.100	*		1	2/23/2015
Soluble Calcium	2.95	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	25.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 9:30:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-016 **Matrix:** SOIL  
**Client Sample ID** SB-01-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	29.0	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.53	0.10	*	mmhos/cm	1	2/23/2015 11:19:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	12.4	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	29.2	0.100	*		1	2/23/2015
Soluble Calcium	5.05	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.60	1.00		meq/L	1	2/23/2015
Soluble Sodium	64.1	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 9:30:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-017 **Matrix:** SOIL  
**Client Sample ID** SB-01-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	26.6	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	12.5	0.10	*	mmhos/cm	1	2/23/2015 11:19:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.4	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.7	0.100	*		1	2/23/2015
Soluble Calcium	19.6	1.00		meq/L	1	2/23/2015
Soluble Magnesium	26.9	1.00		meq/L	1	2/23/2015
Soluble Sodium	90.2	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:00:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-018 **Matrix:** SOIL  
**Client Sample ID** B-10-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	21.8	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.38	0.10		mmhos/cm	1	2/23/2015 11:20:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.5	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	22.5	0.100	*		1	2/23/2015
Soluble Calcium	2.01	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.34	1.00		meq/L	1	2/23/2015
Soluble Sodium	29.1	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:00:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-019 **Matrix:** SOIL  
**Client Sample ID** B-10-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	32.9	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.06	0.10		mmhos/cm	1	2/23/2015 11:20:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	4.0	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	14.1	0.100	*		1	2/23/2015
Soluble Calcium	2.88	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.89	1.00		meq/L	1	2/23/2015
Soluble Sodium	24.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:00:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-020 **Matrix:** SOIL  
**Client Sample ID** B-10-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	33.8	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	5.61	0.10	*	mmhos/cm	1	2/23/2015 11:20:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	2.3	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	7.53	0.100			1	2/23/2015
Soluble Calcium	12.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	14.7	1.00		meq/L	1	2/23/2015
Soluble Sodium	27.7	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 10:25:00 AM

**Project:** Moore/11301

**Lab ID:** 15020655-021

**Matrix:** SOIL

**Client Sample ID** B-5-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Cation Exchange Capacity	18.4	0.1		meq/100g	1	2/25/2015 8:41:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Electrical Conductivity	3.49	0.10		mmhos/cm	1	2/23/2015 11:23:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	10.9	0.1		%	1	2/25/2015 8:41:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	29.2	0.100	*		1	2/23/2015
Soluble Calcium	1.63	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	31.9	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 10:25:00 AM

**Project:** Moore/11301

**Lab ID:** 15020655-022

**Matrix:** SOIL

**Client Sample ID** B-5-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	22.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.78	0.10	*	mmhos/cm	1	2/23/2015 11:24:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	16.6	0.1	*	%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	32.1	0.100	*		1	2/23/2015
Soluble Calcium	5.23	1.00		meq/L	1	2/23/2015
Soluble Magnesium	3.73	1.00		meq/L	1	2/23/2015
Soluble Sodium	67.9	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:25:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-023 **Matrix:** SOIL  
**Client Sample ID** B-5-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	27.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.65	0.10	*	mmhos/cm	1	2/23/2015 11:24:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	8.2	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.1	0.100	*		1	2/23/2015
Soluble Calcium	9.17	1.00		meq/L	1	2/23/2015
Soluble Magnesium	11.1	1.00		meq/L	1	2/23/2015
Soluble Sodium	57.6	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:55:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-024 **Matrix:** SOIL  
**Client Sample ID** B-1-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	24.2	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.22	0.10	*	mmhos/cm	1	2/23/2015 11:24:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	9.3	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	26.6	0.100	*		1	2/23/2015
Soluble Calcium	1.75	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.18	1.00		meq/L	1	2/23/2015
Soluble Sodium	37.3	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:55:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-025 **Matrix:** SOIL  
**Client Sample ID** B-1-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	21.1	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: MMT
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	3.90	0.10		mmhos/cm	1	2/23/2015 11:24:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.2	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	29.2	0.100	*		1	2/23/2015
Soluble Calcium	1.45	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.45	1.00		meq/L	1	2/23/2015
Soluble Sodium	35.2	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 10:55:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-026 **Matrix:** SOIL  
**Client Sample ID** B-1-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	20.4	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	6.20	0.10	*	mmhos/cm	1	2/23/2015 11:25:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	12.2	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	28.4	0.100	*		1	2/23/2015
Soluble Calcium	3.17	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	53.7	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 11:15:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-027 **Matrix:** SOIL  
**Client Sample ID** B-2-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	20.8	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	25.8	0.10	*	mmhos/cm	1	2/23/2015 11:25:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	10.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	39.2	0.100	*		1	2/23/2015
Soluble Calcium	24.0	1.00		meq/L	1	2/23/2015
Soluble Magnesium	32.4	1.00		meq/L	1	2/23/2015
Soluble Sodium	208	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 11:15:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-028 **Matrix:** SOIL  
**Client Sample ID** B-2-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	22.9	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: MMT
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	6.84	0.10	*	mmhos/cm	1	2/23/2015 11:25:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	11.3	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	34.2	0.100	*		1	2/23/2015
Soluble Calcium	3.07	1.00		meq/L	1	2/23/2015
Soluble Magnesium	3.34	1.00		meq/L	1	2/23/2015
Soluble Sodium	61.2	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 11:15:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-029 **Matrix:** SOIL  
**Client Sample ID** B-2-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	19.4	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	5.25	0.10	*	mmhos/cm	1	2/23/2015 11:25:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	7.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	26.9	0.100	*		1	2/23/2015
Soluble Calcium	2.37	1.00		meq/L	1	2/23/2015
Soluble Magnesium	3.42	1.00		meq/L	1	2/23/2015
Soluble Sodium	45.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 11:45:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-030 **Matrix:** SOIL  
**Client Sample ID** B-7-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	17.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.84	0.10		mmhos/cm	1	2/23/2015 11:26:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	9.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	30.4	0.100	*		1	2/23/2015
Soluble Calcium	1.95	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	35.3	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 11:45:00 AM

**Project:** Moore/11301

**Lab ID:** 15020655-031

**Matrix:** SOIL

**Client Sample ID** B-7-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.4	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.84	0.10	*	mmhos/cm	1	2/23/2015 11:26:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	14.3	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	31.9	0.100	*		1	2/23/2015
Soluble Calcium	6.37	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.53	1.00		meq/L	1	2/23/2015
Soluble Sodium	67.3	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 11:45:00 AM  
**Project:** Moore/11301  
**Lab ID:** 15020655-032 **Matrix:** SOIL  
**Client Sample ID** B-7-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	30.3	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	7.38	0.10	*	mmhos/cm	1	2/23/2015 11:27:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	14.1	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	31.9	0.100	*		1	2/23/2015
Soluble Calcium	4.43	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.11	1.00		meq/L	1	2/23/2015
Soluble Sodium	66.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:05:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-033 **Matrix:** SOIL  
**Client Sample ID** B-12-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	13.9	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	0.91	0.10		mmhos/cm	1	2/23/2015 11:27:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	11.1	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	16.5	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	8.21	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:05:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-034 **Matrix:** SOIL  
**Client Sample ID** B-12-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	23.0	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	2.06	0.10		mmhos/cm	1	2/23/2015 11:27:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	17.0	0.1	*	%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	25.3	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	17.4	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:05:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-035 **Matrix:** SOIL  
**Client Sample ID** B-12-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	27.3	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	5.44	0.10	*	mmhos/cm	1	2/23/2015 11:28:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	13.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	32.8	0.100	*		1	2/23/2015
Soluble Calcium	2.71	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.91	1.00		meq/L	1	2/23/2015
Soluble Sodium	49.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 1:25:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-036

**Matrix:** SOIL

**Client Sample ID** B-21-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	27.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	1.69	0.10		mmhos/cm	1	2/23/2015 11:28:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	23.5	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	14.4	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:25:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-037 **Matrix:** SOIL  
**Client Sample ID** B-21-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.04	0.10		mmhos/cm	1	2/23/2015 11:28:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	11.3	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	33.0	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	25.2	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:25:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-038 **Matrix:** SOIL  
**Client Sample ID** B-21-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	18.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.63	0.10	*	mmhos/cm	1	2/23/2015 11:28:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	14.4	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	33.1	0.100	*		1	2/23/2015
Soluble Calcium	2.08	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.22	1.00		meq/L	1	2/23/2015
Soluble Sodium	42.4	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:55:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-039 **Matrix:** SOIL  
**Client Sample ID** B-32-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	13.8	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	0.58	0.10		mmhos/cm	1	2/23/2015 11:29:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	9.5	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	15.4	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	5.97	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:55:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-040 **Matrix:** SOIL  
**Client Sample ID** B-32-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	16.3	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	1.34	0.10		mmhos/cm	1	2/23/2015 11:29:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	8.7	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	23.6	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	11.1	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 1:55:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-041 **Matrix:** SOIL  
**Client Sample ID** B-32-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	20.5	0.1		meq/100g	1	2/26/2015 1:18:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.53	0.10	*	mmhos/cm	1	2/23/2015 11:33:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	8.8	0.1		%	1	2/26/2015 1:18:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	25.3	0.100	*		1	2/23/2015
Soluble Calcium	2.70	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.30	1.00		meq/L	1	2/23/2015
Soluble Sodium	40.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 2:20:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-042 **Matrix:** SOIL  
**Client Sample ID** B-20-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	15.1	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: MMT
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	0.32	0.10		mmhos/cm	1	2/23/2015 11:34:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.4	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	6.11	0.100			1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	2.80	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 2:20:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-043 **Matrix:** SOIL  
**Client Sample ID** B-20-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	22.7	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: MMT
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	0.98	0.10		mmhos/cm	1	2/23/2015 11:34:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.5	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	13.9	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	7.96	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 2:20:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-044 **Matrix:** SOIL  
**Client Sample ID** B-20-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	21.5	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.71	0.10	*	mmhos/cm	1	2/23/2015 11:34:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	5.9	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	31.2	0.100	*		1	2/23/2015
Soluble Calcium	2.10	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.67	1.00		meq/L	1	2/23/2015
Soluble Sodium	42.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 2:40:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-045 **Matrix:** SOIL  
**Client Sample ID** B-31-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	14.0	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	0.83	0.10		mmhos/cm	1	2/23/2015 11:34:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	11.2	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	17.9	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	7.25	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 2:55:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-046 **Matrix:** SOIL  
**Client Sample ID** B-51-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	21.1	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.16	0.10	*	mmhos/cm	1	2/23/2015 11:35:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.1	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.8	0.100	*		1	2/23/2015
Soluble Calcium	4.24	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.24	1.00		meq/L	1	2/23/2015
Soluble Sodium	33.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:05:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-047 **Matrix:** SOIL  
**Client Sample ID** B-52-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	24.0	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	5.96	0.10	*	mmhos/cm	1	2/23/2015 11:35:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	7.6	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	19.1	0.100	*		1	2/23/2015
Soluble Calcium	6.89	1.00		meq/L	1	2/23/2015
Soluble Magnesium	4.99	1.00		meq/L	1	2/23/2015
Soluble Sodium	46.6	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:05:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-048 **Matrix:** SOIL  
**Client Sample ID** B-52-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	29.6	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	6.96	0.10	*	mmhos/cm	1	2/23/2015 11:35:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	5.7	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	19.5	0.100	*		1	2/23/2015
Soluble Calcium	7.74	1.00		meq/L	1	2/23/2015
Soluble Magnesium	7.53	1.00		meq/L	1	2/23/2015
Soluble Sodium	54.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:25:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-049 **Matrix:** SOIL  
**Client Sample ID** B-53-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	12.4	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	16.3	0.10	*	mmhos/cm	1	2/23/2015 11:35:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	4.9	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	34.2	0.100	*		1	2/23/2015
Soluble Calcium	23.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	11.7	1.00		meq/L	1	2/23/2015
Soluble Sodium	143	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 3:25:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-050

**Matrix:** SOIL

**Client Sample ID** B-53-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	12.3	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	10.9	0.10	*	mmhos/cm	1	2/23/2015 11:36:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	5.3	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	28.7	0.100	*		1	2/23/2015
Soluble Calcium	13.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	7.06	1.00		meq/L	1	2/23/2015
Soluble Sodium	91.8	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:35:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-051 **Matrix:** SOIL  
**Client Sample ID** B-49-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	14.0	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.02	0.10		mmhos/cm	1	2/23/2015 11:36:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.3	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	19.7	0.100	*		1	2/23/2015
Soluble Calcium	2.28	1.00		meq/L	1	2/23/2015
Soluble Magnesium	1.16	1.00		meq/L	1	2/23/2015
Soluble Sodium	25.9	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:35:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-052 **Matrix:** SOIL  
**Client Sample ID** B-49-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.2	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	4.86	0.10	*	mmhos/cm	1	2/23/2015 11:36:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	4.6	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	20.1	0.100	*		1	2/23/2015
Soluble Calcium	4.80	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.86	1.00		meq/L	1	2/23/2015
Soluble Sodium	39.3	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 3:50:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-053 **Matrix:** SOIL  
**Client Sample ID** SB-09-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	25.9	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	12.6	0.10	*	mmhos/cm	1	2/23/2015 11:37:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	8.6	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	35.7	0.100	*		1	2/23/2015
Soluble Calcium	13.4	1.00		meq/L	1	2/23/2015
Soluble Magnesium	6.77	1.00		meq/L	1	2/23/2015
Soluble Sodium	113	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 4:00:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-054 **Matrix:** SOIL  
**Client Sample ID** SB-19-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	18.8	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	0.87	0.10		mmhos/cm	1	2/23/2015 11:37:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	7.4	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	12.6	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	7.58	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 4:00:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-055 **Matrix:** SOIL  
**Client Sample ID** SB-19-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	20.1	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	1.30	0.10		mmhos/cm	1	2/23/2015 11:37:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	6.4	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	15.3	0.100	*		1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	10.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 4:00:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-056 **Matrix:** SOIL  
**Client Sample ID** SB-19-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	20.9	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	3.22	0.10		mmhos/cm	1	2/23/2015 11:37:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	4.3	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	14.0	0.100	*		1	2/23/2015
Soluble Calcium	3.55	1.00		meq/L	1	2/23/2015
Soluble Magnesium	2.81	1.00		meq/L	1	2/23/2015
Soluble Sodium	25.0	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 4:35:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-057 **Matrix:** SOIL  
**Client Sample ID** B-46-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	16.2	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	2.29	0.10		mmhos/cm	1	2/23/2015 11:38:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	5.5	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	20.9	0.100	*		1	2/23/2015
Soluble Calcium	1.23	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	20.4	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 4:35:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-058 **Matrix:** SOIL  
**Client Sample ID** B-46-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	15.6	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	2.26	0.10		mmhos/cm	1	2/23/2015 11:38:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	3.9	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	18.7	0.100	*		1	2/23/2015
Soluble Calcium	1.35	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	19.5	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental

**Collection Date:** 2/10/2015 4:55:00 PM

**Project:** Moore/11301

**Lab ID:** 15020655-059

**Matrix:** SOIL

**Client Sample ID** B-47-15 (0-1)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	17.9	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	6.70	0.10	*	mmhos/cm	1	2/23/2015 11:38:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	2.0	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	14.0	0.100	*		1	2/23/2015
Soluble Calcium	9.73	1.00		meq/L	1	2/23/2015
Soluble Magnesium	8.24	1.00		meq/L	1	2/23/2015
Soluble Sodium	41.9	1.00		meq/L	1	2/23/2015

**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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 5:20:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-060 **Matrix:** SOIL  
**Client Sample ID** B-11-15 (1-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Cation Exchange Capacity	16.6	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SPE</b>					<b>LDNR 29-B</b>	Analyst: MMT
Electrical Conductivity	0.39	0.10		mmhos/cm	1	2/23/2015 11:38:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
Exchangeable Sodium %	2.5	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
Sodium Adsorption Ratio	7.15	0.100			1	2/23/2015
Soluble Calcium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	3.15	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655

Date Reported: 3/3/2015

**CLIENT:** Arabie Environmental **Collection Date:** 2/10/2015 5:20:00 PM  
**Project:** Moore/11301  
**Lab ID:** 15020655-061 **Matrix:** SOIL  
**Client Sample ID** B-11-15 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	20.5	0.1		meq/100g	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: MMT
<b>ELECTRICAL CONDUCTIVITY @ SPE</b>						
Electrical Conductivity	2.70	0.10		mmhos/cm	1	2/23/2015 11:41:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: MMT
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	6.8	0.1		%	1	2/27/2015 9:06:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: STS
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	26.3	0.100	*		1	2/23/2015
Soluble Calcium	1.09	1.00		meq/L	1	2/23/2015
Soluble Magnesium	< 1.00	1.00		meq/L	1	2/23/2015
Soluble Sodium	24.8	1.00		meq/L	1	2/23/2015

<b>Qualifiers:</b>	* 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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14353

Sample ID	<b>15020640-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41709</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>14353</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1001691</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		11.7		0.1						12.6	7.1	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14354

Sample ID	<b>15020640-001ADUP</b>	SampType:	<b>dup</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41707</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>14354</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000554</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		62.3		0.1						62.9	0.9 20

Sample ID	<b>lcs-14354</b>	SampType:	<b>lcs</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41707</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>14354</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000568</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		23.6		0.1	25.0	0	94.2	76	124		

Sample ID	<b>lcsd-14354</b>	SampType:	<b>lcsd</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41707</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>14354</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000569</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.4		0.1	25.0	0	89.4	76	124	23.6	5.2 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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental

**Project:** Moore/11301

**BatchID:** 14355

Sample ID	<b>15020655-003ADUP</b>	SampType:	<b>dup</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41757</b>
Client ID:	<b>B-45-15 (2-3)</b>	Batch ID:	<b>14355</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/25/2015</b>	SeqNo:	<b>1001738</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		2.6		0.1						2.8	8.9 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 |  |  |



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# QC SUMMARY REPORT

WO#: **15020655**  
**09-Mar-15**

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14356

Sample ID	<b>15020655-003ADUP</b>	SampType:	<b>dup</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41756</b>
Client ID:	<b>B-45-15 (2-3)</b>	Batch ID:	<b>14356</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/25/2015</b>	SeqNo:	<b>1001715</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		31.7		0.1						29.6	6.6 20

Sample ID	<b>LCS-14356</b>	SampType:	<b>ics</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41756</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>14356</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/25/2015</b>	SeqNo:	<b>1001734</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		23.1		0.1	25.0	0	92.3	76	124		

Sample ID	<b>LCSD-14356</b>	SampType:	<b>icsd</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41756</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>14356</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/25/2015</b>	SeqNo:	<b>1001735</b>
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	88.1	76	124	23.1	4.6 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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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14357

Sample ID	15020655-022ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	2/19/2015	RunNo:	41801		
Client ID:	B-5-15 (1-2)	Batch ID:	14357	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	2/26/2015	SeqNo:	1002527		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Exchangeable Sodium %	19.2	0.1								16.6	14.9	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14358

Sample ID	<b>15020655-022ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41800</b>
Client ID:	<b>B-5-15 (1-2)</b>	Batch ID:	<b>14358</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/26/2015</b>	SeqNo:	<b>1002504</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.4		0.1						22.5	5.3 20

Sample ID	<b>LCS-14358</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41800</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>14358</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/26/2015</b>	SeqNo:	<b>1002524</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.8		0.1	25.0	0	91.1	76	124		

Sample ID	<b>LCSD-14358</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41800</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>14358</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/26/2015</b>	SeqNo:	<b>1002525</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.4		0.1	25.0	0	89.6	76	124	22.8	1.7 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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14359

Sample ID	15020655-042ADUP	SampType:	DUP	TestCode:	ESP_S	Units:	%	Prep Date:	2/19/2015	RunNo:	41818		
Client ID:	B-20-15 (0-1)	Batch ID:	14359	TestNo:	LDNR 29-B	LDNR 29-B		Analysis Date:	2/27/2015	SeqNo:	1002785		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		2.5		0.1						2.4	4.3	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14360

Sample ID	<b>15020655-042ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41817</b>
Client ID:	<b>B-20-15 (0-1)</b>	Batch ID:	<b>14360</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/27/2015</b>	SeqNo:	<b>1002735</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Cation Exchange Capacity	15.0	0.1								15.1	0.7	20
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Sample ID	<b>LCS-14360</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41817</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>14360</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/27/2015</b>	SeqNo:	<b>1002766</b>
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	87.9	76	124
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Sample ID	<b>LCSD-14360</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>2/19/2015</b>	RunNo:	<b>41817</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>14360</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/27/2015</b>	SeqNo:	<b>1002769</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Cation Exchange Capacity	21.6	0.1	25.0	0	86.4	76	124	22.0	1.7	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14363

Sample ID	<b>15020640-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>2/22/2015</b>	RunNo:	<b>41716</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>14363</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000784</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		18.7		0.100						18.80	0.486	20	*
Soluble Calcium		22.8		1.00						22.82	0.0219	20	
Soluble Magnesium		11.1		1.00						11.09	0.0243	20	
Soluble Sodium		77.0		1.00						77.43	0.507	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14365

Sample ID	<b>15020655-003ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>2/22/2015</b>	RunNo:	<b>41716</b>
Client ID:	<b>B-45-15 (2-3)</b>	Batch ID:	<b>14365</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000955</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	9.06	0.100						9.091	0.365	20	
Soluble Calcium	10.3	1.00						11.03	6.83	20	
Soluble Magnesium	9.22	1.00						9.570	3.68	20	
Soluble Sodium	28.3	1.00						29.18	3.04	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14366

Sample ID	<b>15020655-022ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>2/22/2015</b>	RunNo:	<b>41716</b>		
Client ID:	<b>B-5-15 (1-2)</b>	Batch ID:	<b>14366</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1001109</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		32.5		0.100						32.10	1.12	20	*
Soluble Calcium		5.35		1.00						5.235	2.26	20	
Soluble Magnesium		3.81		1.00						3.728	2.10	20	
Soluble Sodium		69.5		1.00						67.95	2.22	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** 14367

Sample ID	<b>15020655-042ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>2/22/2015</b>	RunNo:	<b>41716</b>
Client ID:	<b>B-20-15 (0-1)</b>	Batch ID:	<b>14367</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1001130</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	5.84	0.100						6.111	4.52	20	
Soluble Calcium	< 1.00	1.00						0	0	20	
Soluble Magnesium	< 1.00	1.00						0	0	20	
Soluble Sodium	2.65	1.00						2.800	5.59	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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** R41684

Sample ID <b>MB-R41684</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>41684</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R41684</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/23/2015</b>	SeqNo: <b>1000117</b>						
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 <b>R41684LCS1</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>41684</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R41684</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/23/2015</b>	SeqNo: <b>1000118</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.50 0.10 0.47 0 105 89.87 110.12

Sample ID <b>R41684LCS2</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>41684</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R41684</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/23/2015</b>	SeqNo: <b>1000119</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 56.0 0.10 53.00 0 106 90 110

Sample ID <b>15020655-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>41684</b>						
Client ID: <b>B-45-15 (2-3)</b>	Batch ID: <b>R41684</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/23/2015</b>	SeqNo: <b>1000122</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 5.10 0.10 5.16 1.17 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#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** R41685

Sample ID	<b>R41685LCS1</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41685</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41685</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000143</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.50		0.10	0.47	0	106	89.87	110.12		

Sample ID	<b>R41685LCS2</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41685</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41685</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000144</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		56.4		0.10	53.00	0	106	90	110		

Sample ID	<b>MB-R41685</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41685</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R41685</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000145</b>
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	<b>15020655-022ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41685</b>
Client ID:	<b>B-5-15 (1-2)</b>	Batch ID:	<b>R41685</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000147</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		7.67		0.10						7.78	1.42 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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# QC SUMMARY REPORT

WO#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** R41686

Sample ID	<b>R41686LCS1</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41686</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41686</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000169</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 0.49 0.10 0.47 0 104 89.87 110.12

Sample ID	<b>R41686LCS2</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41686</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41686</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000170</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 56.2 0.10 53.00 0 106 90 110

Sample ID	<b>MB-R41686</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41686</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R41686</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000171</b>
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	<b>15020655-042ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41686</b>
Client ID:	<b>B-20-15 (0-1)</b>	Batch ID:	<b>R41686</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000173</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 0.31 0.10 0.32 4.09 20

- 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



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

# QC SUMMARY REPORT

WO#: 15020655  
 09-Mar-15

**Client:** Arabie Environmental  
**Project:** Moore/11301

**BatchID:** R41687

Sample ID	<b>R41687LCS1</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41687</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41687</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000195</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 0.49 0.10 0.47 0 104 89.87 110.12

Sample ID	<b>R41687LCS2</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41687</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41687</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000196</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 56.0 0.10 53.00 0 106 90 110

Sample ID	<b>MB-R41687</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41687</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R41687</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000197</b>
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	<b>15020640-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>41687</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R41687</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/23/2015</b>	SeqNo:	<b>1000200</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Electrical Conductivity 10.3 0.10 10.16 1.66 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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# Sample Log-In Check List

Client Name: **ARABIE\_ENV** Work Order Number: **15020655** RcptNo: **1**

Logged by:	<b>Danielle Hollier</b>	<b>2/13/2015 11:20:00 AM</b>	<i>Danielle Hollier</i>
Completed By:	<b>Danielle Hollier</b>	<b>2/13/2015 1:06:47 PM</b>	<i>Danielle Hollier</i>
Reviewed By:	<b>Caitlin Duplantis</b>	<b>2/16/2015 10:35:37 AM</b>	<i>Caitlin Duplantis</i>

### Chain of Custody

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

### Log In

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



Chain of Custody

Laboratory Number: **15020655**

Client Information: **ARRISE Env. Services** Billing Information: **Same** PO Number: Project Name/Number: **Moore / 1801** Page 1 of 7  
 Contact Name: **Dwaine Roberts** Quote Number: Sampler's Signature: *[Signature]* Matrix Code: **DW = Drinking Water**  
 Address: **Po Box 988** Required QC Level: Bill Monthly:  Yes  No Shipping Method: **UPS / FedEx / Airborne**  
 City, State Zip: **Lake Charles LA 70607** Ext: **3716-3018** Ext: **2907** **DHL (Element) Hand / Mail**  
 Phone Number: **3716-3018** **OT = Other** **SL = Sludge** **SOL = Solid**  
 Fax Number: **3716-3018** **O = Oil** **SO = Soil**  
 E-mail Address: **State 298** **F = Food** **SW = Swab**  
**USDA/FDA** **NG = Natural Gas**  
**RECAP/RISC** **Other** **NGL = Natural Gas Liquid**  
**Other** **PW = Produced Water**  
**Other** **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 <input type="checkbox"/> Other	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		Rush turn times (Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> O <sub>2</sub>	Requested Tests	Comments
			Date	Time					
B-45-15 (0-1)			2/9/15	14/0	CRAB	50	FC	ESD	DEC
B-45-15 (1-2)			2/9/15	14/0	"	"	"	"	"
B-45-15 (2-3)			2/9/15	14/0	"	"	"	"	"
B-43-15 (0-1)			2/9/15	14/35	"	"	"	"	"
B-42-15 (0-1)			2/9/15	15/0	"	"	"	"	"
B-42-15 (1-2)			2/9/15	15/0	"	"	"	"	"
B-42-15 (2-3)			2/9/15	15/0	"	"	"	"	"
SB-03-15 (0-1)			2/9/15	14/15	"	"	"	"	"
SB-03-15 (1-2)			2/9/15	14/15	"	"	"	"	"

Rollinguffs held by	Received by		Field Notes:	
	Date/Time	Received by	Date/Time	Received
<i>[Signature]</i>	2/13/15 850	John Hebert	2/13/15 850	Received ariab on ice?
John Hebert	2/13/15 11:20	Danielle Halls	2-13-15 11:20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

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 47334-9569 USA P 765-378-4103 F 765-378-4109  
 628 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 46680-2368 USA P 574-267-3305 F 574-269-8569  
 3371 Cleveland Road, Suite 100A South Bend, IN 46628-3780 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: **15020655**

Client Information: **ANASTE E.M. SOUTER** **JANE** **Duane DeWitt**

Company Name: **ANASTE E.M. SOUTER**

Contact Name: **Duane DeWitt**

Address: **337-136-3218** Ext: \_\_\_\_\_

City, State Zip: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Billing Information: **JANE**

PO Number: \_\_\_\_\_

Quote Number: \_\_\_\_\_

Required QC Level: \_\_\_\_\_

Bill Monthly:  Yes  No

Shipping Method: **UPS / FedEx / Airborne**

Sampler's Signature: *[Signature]*

Project Name/Number: **MOORE 11301**

Page **2** of **7**

Matrix Code: **DW = Drinking Water**  
**WW = Wastewater**  
**GW = Ground Water**  
**AQ = Aqueous**  
**OT = Other**  
**SL = Sludge**  
**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: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC	Turnp-Time <input checked="" type="checkbox"/> Standard RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests	Comments
			Date	Time				
SB-03-15 (2-3)			2/9/15	1415	GC	NOVAE	EC	
SB-03-15-201 (1-2-3)			2/9/15	1625	"	"	ESP	
B-9-15 (0-1)			2/10/15	0846	"	"	SPR	
B-9-15 (1-2)			2/10/15	0846	"	"		
B-9-15 (2-3)			2/10/15	0846	"	"		
SB-01-15 (0-1)			2/10/15	0930	"	"		
SB-01-15 (1-2)			2/10/15	0930	"	"		
SB-02-15 (2-3)			2/10/15	0930	"	"		
B-10-15 (0-1)			2/10/15	1000	"	"		

Refined by: *[Signature]*

Date/Time	Received by	Date/Time	Field Notes:
2/13/15 850	John Hebert	2/13/15 850	Received at lab on ice?
2/13/15 1120	Duane DeWitt	2-13-15 11:20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

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568 South Zimmer Road Warsaw, IN 46603-2368 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 574-273-6699

2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-235-0540



Chain of Custody

Laboratory Number: 15020655

Client Information: **ARABE ENV. SOLUTIONS SAME**  
**Frank Acosta**  
 Billing Information: PO Number: **11301**  
 Quote Number: **11301**  
 Required QC Level:  Yes  No  
 Bill Monthly:  Yes  No  
 Ext: **337-436-3248**  
 Shipping Method: **UPS / FedEx / Airborne**  
 DHL (Element) Hand / Mail

Project Name/Number: **15020655**  
 Page 3 of 7  
 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: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDDES <input type="checkbox"/> USDA/FDA <input checked="" type="checkbox"/> RECAP/RISC	Turnp Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	(Rush turn times will incur a surcharge and must be pre-approved by lab.)			Container Type P=Plastic, V=Vial	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> SO <sub>3</sub>	Requested Tests	Comments
			Collection Information		Quantity				
			Date	Time					
B-10-15 (1-2)			2/10/15	1000	50	1	EC		
B-10-15 (2-3)			2/10/15	1000	"	1	EC		
B-5-15 (0-1)			2/10/15	1025	"	1	EC		
B-5-15 (1-2)			2/10/15	1025	"	1	EC		
B-5-15 (2-3)			2/10/15	1025	"	1	EC		
B-1-15 (0-1)			2/10/15	1055	"	1	EC		
B-1-15 (1-2)			2/10/15	1055	"	1	EC		
B-1-15 (2-3)			2/10/15	1055	"	1	EC		
B-2-15 (0-1)			2/10/15	1115	"	1	EC		

Relinquished by: **John Hebert**  
 Date/Time: 2/13/15 850  
 Received by: **John Hebert**  
 Date/Time: 2/13/15 850  
 Field Notes: Received at lab on ice?  Yes  No Temp: 2-13-15 11:20

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 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 337-233-6540



Chain of Custody

Laboratory Number: 15020655

Client Information: **ARABIE ENV. SERVICES** Billing Information: **SAME** PO Number: Project Name/Number: **Moore 1301** Page 4 of 7

Contact Name: **Dwight DeBorja** Quote Number: Sampler's Signature: *[Signature]* Matrix Code: **DW = Drinking Water, WW = Waste Water, GW = Ground Water, AQ = Aqueous, 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: **337-136-3098 Ext:** Required QC Level: **Bill Monthly** Shipping Method: **UPS / FedEx / Airborne**

City, State Zip: **Ext:**  Yes  No **DHL (Element) Hand / Mail**

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input checked="" type="checkbox"/> RECAP/RIIS	Turn Time <input checked="" type="checkbox"/> Standard RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Requested Tests	Comments
			Date	Time					
B-2-15 (1-2)			2/10/15	1115	CRAB	50	1	At Note	FC
B-2-15 (2-3)			2/10/15	1115	"	"	1	"	ESP
B-7-15 (0-1)			2/10/15	1145	"	"	1	"	SAR
B-7-15 (1-2)			2/10/15	1145	"	"	1	"	"
B-7-15 (2-3)			2/10/15	1145	"	"	1	"	"
B-12-15 (0-1)			2/10/15	1305	"	"	1	"	"
B-12-15 (1-2)			2/10/15	1305	"	"	1	"	"
B-12-15 (2-3)			2/10/15	1305	"	"	1	"	"
B-21-15 (0-1)			2/10/15	1325	"	"	1	"	"

Retinquished by	Date/Time		Received by		Date/Time		Field Notes:
	Date	Time	Date	Time	Date	Time	
<i>[Signature]</i>	2/13/15	850	John Hebert	2/13/15	850		Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:
John Hebert	2/13/15	1120	Dawn Halls	2-13-15	11:20		

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3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699

2417 W. Pliehook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-235-0540



# Chain of Custody

Laboratory Number: **15020655**

Company Name: **AMSCO EPL. SOURCES SAME**  
 Contact Name: **Debra Archuleta**  
 Address: **337-496-3244 Ext:**  
 City, State Zip: **Ext:**  
 Phone Number:  
 Fax Number:  
 E-mail Address:

Client Information: **Billing Information: SAME**

Project Name/Number: **March 13/01**  
 Sampler's Signature: *[Signature]*  
 Shipping Method: **UPS / FedEx / Airborne**  
 DHL Element / Hand / Mail

PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No

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 **5** of **7**

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 checked="" type="checkbox"/> State <b>288</b> <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turnp-Time <input checked="" type="checkbox"/> Standard RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> SO <sub>3</sub>	Requested Tests	Comments
			(Rush turn times will incur a surcharge and must be pre-approved by lab.)					
			Date	Time				
B-21-15 (1-2)			2/10/15	1325	Grab / Composite	SO	EC	
B-21-15 (2-3)			2/10/15	1325	"	"	ESD	
B-32-15 (0-1)			2/10/15	1355	"	"	SP	
B-32-15 (1-2)			2/10/15	1355	"	"	EC	
B-32-15 (2-3)			2/10/15	1355	"	"		
B-20-15 (0-1)			2/10/15	1400	"	"		
B-20-15 (1-2)			2/10/15	1420	"	"		
B-20-15 (2-3)			2/10/15	1420	"	"		
B-31-15 (1-2)			2/10/15	1440	"	"		

Refined/Isolated by	Date/Time		Received by		Date/Time		Field Notes:
	Date	Time	Date	Time	Date	Time	
<i>[Signature]</i>	2/13/15	850	John Hebert		2/13/15	850	Received at lab on ice?
John Hebert	2/13/15	1120	Demuth Halls		2-13-15	11:20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

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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 46608-9780 USA P 574-277-0707 F 574-273-5699

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



# Chain of Custody

Laboratory Number: **15020655**

Client Information: **BOBIE E.V. SOUTHWELL SAME**  
**Duane Perkins**  
 Billing Information: PO Number: **130**  
 Quote Number: **130**  
 Required QC Level: **None**  
 Bill Monthly:  Yes  No  
 Ext: **337-430-3248**  
 Shipping Method: **UPS / FedEx / Airborne**  
 DHL (Element) Hand / Mail

Company Name: **BOBIE E.V. SOUTHWELL SAME**  
 Contact Name: **Duane Perkins**  
 Address: **337-430-3248**  
 City, State Zip: **337-430-3248**  
 Phone Number: **337-430-3248**  
 Fax Number: **337-430-3248**  
 E-mail Address:

Project Name/Number: **130**  
 Sampler's Signature: *[Signature]*  
 Shipping Method: **UPS / FedEx / Airborne**  
 DHL (Element) Hand / Mail

Page **6** of **7**  
 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: <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"/> USCA/FDA <input checked="" type="checkbox"/> State <b>MS</b> <input checked="" type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turnp-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		(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests	Comments
			Date	Time					
B-51-15 (0-1)			2/10/15	1455	1000	Ag	None	EC	
B-52-15 (0-1)			2/10/15	1505	"	"	"	SR	
B-52-15 (1-2)			2/10/15	1505	"	"	"	ESD	
B-53-15 (0-1)			2/10/15	1525	"	"	"	SR	
B-53-15 (1-2)			2/10/15	1525	"	"	"	ESD	
B-49-15 (0-1)			2/10/15	1535	"	"	"	SR	
B-49-15 (1-2)			2/10/15	1535	"	"	"	ESD	
SB-09-15 (0-1)			2/10/15	1550	"	"	"	SR	
SB-19-15 (0-1)			2/10/15	1600	"	"	"	ESD	

Relinquished by: *[Signature]*  
 Date/Time: **2/13/15 0850**  
 Received by: **John Hebert**  
 Date/Time: **2/13/15 0850**  
 Relinquished by: **John Hebert**  
 Date/Time: **2/13/15 11:20**  
 Received by: **Daniel Hall**  
 Date/Time: **2-13-15 11:20**

Field Notes:  
 Received at lab on ice?  Yes  No Temp: **2.2°C**

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 P 260-471-7000 F 260-471-7777  
 568 South Zimmer Road Warsaw, IN 46626-9780 USA  
 P 574-277-0707 F 574-273-5699  
 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 70508-3344 USA  
 P 337-235-0483 F 337-233-6540



# Chain of Custody

Laboratory Number: 15020655

Client Information: **ABARIE ENV. SERVICES SAME**  
**Double Quote**  
 Billing Information: PO Number: **1130**  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No  
 Ext: **337-436-3288**  
 Shipping Method: **UPS / FedEx / Airborne**  
 DHL (Element) Hand / Mail

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"/> USCA/FDA <input checked="" type="checkbox"/> State <b>298</b> <input checked="" type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	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		Matrix	Quantity	Container Type P=Plastic, V=Vial	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests	Comments
			Date	Time						
B-19-15 (1-2)			2/10/15	1600	50	1	Ag	None	EC	
B-19-15 (2-3)			2/10/15	1600	"	1	"	"	SR	
B-46-15 (0-1)			2/10/15	1635	"	1	"	"	SR	
B-46-15 (1-2)			2/10/15	1635	"	1	"	"	SR	
B-47-15 (0-1)			2/10/15	1655	"	1	"	"	SR	
B-11-15 (1-2)			2/10/15	1720	"	1	"	"	SR	
B-11-15 (2-3)			2/10/15	1740	"	1	"	"	SR	

Relinquished by: **[Signature]**  
 Date/Time: 2/13/15 050  
 Received by: **John Hebert**  
 Date/Time: 2-13-15 11:20  
 Field Notes: Received at lab on ice?  Yes  No Temp: 2.2°C

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



Report #15020655

Laurie Murphy

to:

Caitlin Duplantis (caitlin.duplantis@element.com)

03/09/2015 11:25 AM

Cc:

Duane Piranio

Hide Details

From: Laurie Murphy <lmurphy@arabie-env.com>

To: "Caitlin Duplantis (caitlin.duplantis@element.com)" <caitlin.duplantis@element.com>,

Cc: Duane Piranio <dpiranio@arabie-env.com>

History: This message has been replied to.

Caitlin,

The sample ID SB-02-15 (2-3) should be SB-01-15 (2-3). Please make the correction and reissue the report.

Thanks,

Laurie Broussard

Arabie Environmental Solutions, Inc.

510 Clarence Street

P.O. Box 928

Lake Charles, LA 70602-0928

(337) 436-3248