



**LELAP CERTIFICATE NUMBER: 01955**  
**DOD-ELAP ACCREDITATION NUMBER: 74960**

# ANALYTICAL RESULTS

**PERFORMED BY**

**Pace Analytical Gulf Coast**  
**7979 Innovation Park Dr.**  
**Baton Rouge, LA 70820**  
**(225) 769-4900**

**Report Date 09/29/2021**

**Report # 221091471**



**Project 0494259 - Neumin**

**Samples Collected 9/9/21**

<b><i>Deliver To</i></b>	<b><i>Additional Recipients</i></b>
Shawn Wiggins ERM 640 W Sam Houston Parkway Suite 600 Houston, TX 77024 971-303-2385	Michael Goodman, ERM



## Laboratory Endorsement

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

### Common Abbreviations that may be Utilized in this Report

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

### Reporting Flags that may be Utilized in this Report

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

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

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

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

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



Authorized Signature  
Pace Gulf Coast Report 221091471

## Certifications

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

## Case Narrative

**Client:** ERM-Baton Rouge      **Report:** 221091471

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

### PROJECT MANAGER COMMENTS

Per client e-mail received 09/28 - no additional analytical is needed. (Anna Kinchen 09/28/2021 16:25)

### SEMI-VOLATILES GAS CHROMATOGRAPHY

In the MADEP EPH Rev 1.1 (LA) RVT analysis, the recoveries for the surrogates, 2-Bromonaphthalene and 2-Fluorobiphenyl are above the upper control limit for sample 22109147101(MW-4). No target analytes were detected in the sample.

In the MADEP EPH Rev 1.1 (LA) RVT analysis for prep batch 721279, the LCS/LCSD RPD is a above the control limit for Unadjusted >C10-C12 Aromatics and Unadjusted >C12-C16. Aromatics. All recoveries are acceptable.



**Report#:** 221091471  
**Project ID:** 0494259 - Neumin

**Report Date:** 09/29/2021

## Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22109147101	MW-4	Water	9/09/21 14:45	9/14/21 10:54
22109147102	MW-3	Water	9/09/21 16:00	9/14/21 10:54
22109147103	MW-2	Water	9/09/21 09:30	9/14/21 10:54
22109147104	MW-1	Water	9/09/21 10:05	9/14/21 10:54



## Detect Summary

Results and Detection Limits are adjusted for dilution and moisture when applicable

EPA 6020B						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Arsenic	mg/L	0.0020	1	NA
22109147101	MW-4	Barium	mg/L	0.15	1	NA
22109147101	MW-4	Calcium	mg/L	76.6	1	NA
22109147101	MW-4	Chromium	mg/L	0.0020	1	NA
22109147101	MW-4	Iron	mg/L	1.79	1	NA
22109147101	MW-4	Lead	mg/L	0.0015	1	NA
22109147101	MW-4	Magnesium	mg/L	29.8	1	NA
22109147101	MW-4	Manganese	mg/L	5.74	10	NA
22109147101	MW-4	Potassium	mg/L	1.76	1	NA
22109147101	MW-4	Sodium	mg/L	231	10	NA
22109147101	MW-4	Strontium	mg/L	0.61	1	NA
22109147101	MW-4	Zinc	mg/L	0.032	1	NA
22109147102	MW-3	Barium	mg/L	0.079	1	NA
22109147102	MW-3	Calcium	mg/L	50.9	1	NA
22109147102	MW-3	Chromium	mg/L	0.0022	1	NA
22109147102	MW-3	Iron	mg/L	0.97	1	NA
22109147102	MW-3	Magnesium	mg/L	17.9	1	NA
22109147102	MW-3	Manganese	mg/L	0.40	1	NA
22109147102	MW-3	Potassium	mg/L	1.24	1	NA
22109147102	MW-3	Sodium	mg/L	52.1	1	NA
22109147102	MW-3	Strontium	mg/L	0.31	1	NA
22109147102	MW-3	Zinc	mg/L	0.020	1	NA
22109147103	MW-2	Barium	mg/L	0.018	1	NA
22109147103	MW-2	Calcium	mg/L	97.0	1	NA
22109147103	MW-2	Magnesium	mg/L	37.7	1	NA
22109147103	MW-2	Manganese	mg/L	0.088	1	NA
22109147103	MW-2	Potassium	mg/L	1.21	1	NA
22109147103	MW-2	Sodium	mg/L	126	10	NA
22109147103	MW-2	Strontium	mg/L	0.60	1	NA
22109147104	MW-1	Barium	mg/L	0.063	1	NA
22109147104	MW-1	Calcium	mg/L	60.7	1	NA
22109147104	MW-1	Iron	mg/L	0.12	1	NA
22109147104	MW-1	Magnesium	mg/L	23.5	1	NA
22109147104	MW-1	Manganese	mg/L	0.46	1	NA
22109147104	MW-1	Potassium	mg/L	1.29	1	NA
22109147104	MW-1	Sodium	mg/L	98.8	1	NA
22109147104	MW-1	Strontium	mg/L	0.46	1	NA

EPA 6020B Dissolved						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Barium	mg/L	0.11	1	NA

## Detect Summary (Continued)

Results and Detection Limits are adjusted for dilution and moisture when applicable

EPA 6020B Dissolved						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Manganese	mg/L	5.07	10	NA
22109147101	MW-4	Strontium	mg/L	0.60	1	NA
22109147101	MW-4	Zinc	mg/L	0.026	1	NA
22109147102	MW-3	Barium	mg/L	0.076	1	NA
22109147102	MW-3	Manganese	mg/L	0.55	1	NA
22109147102	MW-3	Strontium	mg/L	0.31	1	NA
22109147103	MW-2	Barium	mg/L	0.018	10	NA
22109147103	MW-2	Manganese	mg/L	0.092	10	NA
22109147103	MW-2	Strontium	mg/L	0.64	10	NA
22109147104	MW-1	Barium	mg/L	0.056	1	NA
22109147104	MW-1	Manganese	mg/L	0.37	1	NA
22109147104	MW-1	Strontium	mg/L	0.46	1	NA
EPA 9056A						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Chloride	mg/L	316	100	NA
22109147101	MW-4	Sulfate	mg/L	104	100	NA
22109147102	MW-3	Chloride	mg/L	57.8	20	NA
22109147102	MW-3	Sulfate	mg/L	68.4	20	NA
22109147103	MW-2	Chloride	mg/L	123	50	NA
22109147103	MW-2	Sulfate	mg/L	256	50	NA
22109147104	MW-1	Chloride	mg/L	156	50	NA
22109147104	MW-1	Sulfate	mg/L	175	50	NA
SM 2320 B-2011						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Bicarbonate Alkalinity	mg/L CaCO3	315	1	NA
22109147102	MW-3	Bicarbonate Alkalinity	mg/L CaCO3	172	1	NA
22109147103	MW-2	Bicarbonate Alkalinity	mg/L CaCO3	228	1	NA
22109147104	MW-1	Bicarbonate Alkalinity	mg/L CaCO3	92.4	1	NA
SM 2540 C-2011						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147101	MW-4	Total Dissolved Solids(TDS)	mg/L	834	1	NA
22109147102	MW-3	Total Dissolved Solids(TDS)	mg/L	272	1	NA
22109147103	MW-2	Total Dissolved Solids(TDS)	mg/L	703	1	NA
22109147104	MW-1	Total Dissolved Solids(TDS)	mg/L	500	1	NA

## Sample Results

<b>MW-4</b>	<b>Collect Date</b> 09/09/2021 14:45	<b>Lab ID</b> 22109147101
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/20/21 13:13	721266	SMR	

CAS#	Parameter	Result	LOQ	Units
71-43-2	Benzene	ND	0.00500	mg/L
100-41-4	Ethylbenzene	ND	0.00500	mg/L
108-88-3	Toluene	ND	0.00500	mg/L
1330-20-7	Xylene (total)	ND	0.015	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.046	mg/L	92	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.052	mg/L	104	77 - 127
2037-26-5	Toluene d8	0.05	.053	mg/L	105	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.052	mg/L	104	71 - 127

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 13:39	721492	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-10	Aliphatic >C8-C10	ND	0.020	mg/L
GCSV-02-30	Aliphatic C6-C8	ND	0.030	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.051	mg/L	102	70 - 130

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 13:39	721493	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-14	Aromatic >C8-C10	ND	0.030	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.048	mg/L	95	70 - 130

### MADEP EPH Rev 1.1 (LA) RVT Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/20/21 12:07	721275	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-11	Aliphatic >C10-C12	ND	0.100	mg/L
GCSV-02-12	Aliphatic >C12-C16	ND	0.100	mg/L
GCSV-02-31	Aliphatic >C16-C35	ND	0.150	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
3386-33-2	1-Chlorooctadecane	0.16	.069	mg/L	43	40 - 140



## Sample Results

<b>MW-4</b>	<b>Collect Date</b> 09/09/2021 14:45	<b>Lab ID</b> 22109147101
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### MADEP EPH Rev 1.1 (LA) RVT Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/20/21 12:07	721274	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-05-18	Aromatic >C21-C35	ND	100	ug/L
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	100	ug/L
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	100	ug/L
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	100	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
84-15-1	o-Terphenyl	160	135	ug/L	84	40 - 140
580-13-2	2-Bromonaphthalene	160	264	ug/L	165*	40 - 140
321-60-8	2-Fluorobiphenyl	160	255	ug/L	159*	40 - 140

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	1	09/16/21 18:41	721086	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	0.0020	0.0010	mg/L
7440-39-3	Barium	0.15	0.0010	mg/L
7440-43-9	Cadmium	ND	0.0010	mg/L
7440-70-2	Calcium	76.6	0.50	mg/L
7440-47-3	Chromium	0.0020	0.0010	mg/L
7439-89-6	Iron	1.79	0.10	mg/L
7439-92-1	Lead	0.0015	0.0010	mg/L
7439-95-4	Magnesium	29.8	0.10	mg/L
7440-09-7	Potassium	1.76	0.10	mg/L
7440-24-6	Strontium	0.61	0.0010	mg/L
7440-66-6	Zinc	0.032	0.020	mg/L

### EPA 6020B

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	10	09/25/21 19:42	721790	LWZ	

CAS#	Parameter	Result	LOQ	Units
7439-96-5	Manganese	5.74	0.050	mg/L
7440-23-5	Sodium	231	1.00	mg/L

### EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	1	09/17/21 17:51	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.0010	mg/L
7440-39-3	Barium	0.11	0.0010	mg/L
7440-43-9	Cadmium	ND	0.0010	mg/L

## Sample Results

<b>MW-4</b>	<b>Collect Date</b> 09/09/2021 14:45	<b>Lab ID</b> 22109147101
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 6020B Dissolved (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	1	09/17/21 17:51	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-47-3	Chromium	ND	0.0010	mg/L
7439-89-6	Iron	ND	0.10	mg/L
7439-92-1	Lead	ND	0.0010	mg/L
<b>7440-24-6</b>	<b>Strontium</b>	<b>0.60</b>	<b>0.0010</b>	<b>mg/L</b>
<b>7440-66-6</b>	<b>Zinc</b>	<b>0.026</b>	<b>0.020</b>	<b>mg/L</b>

### EPA 6020B Dissolved

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	10	09/17/21 17:48	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
<b>7439-96-5</b>	<b>Manganese</b>	<b>5.07</b>	<b>0.050</b>	<b>mg/L</b>

### EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A	1	09/16/21 10:20	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

### EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A Dissolved	1	09/16/21 10:22	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

### EPA 9056A

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	100	09/21/21 14:27	721499	CJS	

CAS#	Parameter	Result	LOQ	Units
<b>16887-00-6</b>	<b>Chloride</b>	<b>316</b>	<b>20.0</b>	<b>mg/L</b>
<b>14808-79-8</b>	<b>Sulfate</b>	<b>104</b>	<b>20.0</b>	<b>mg/L</b>

## Sample Results

<b>MW-4</b>	<b>Collect Date</b> 09/09/2021 14:45	<b>Lab ID</b> 22109147101
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b> T-005-B	<b>Parameter</b> Bicarbonate Alkalinity	<b>Result</b> 315	<b>LOQ</b> 1.0	<b>Units</b> mg/L CaCO3
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### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b> T-005-C	<b>Parameter</b> Carbonate Alkalinity	<b>Result</b> ND	<b>LOQ</b> 1.0	<b>Units</b> mg/L CaCO3
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### SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/15/21 13:25	720964	DJJ	

<b>CAS#</b> WET-035	<b>Parameter</b> Total Dissolved Solids(TDS)	<b>Result</b> 834	<b>LOQ</b> 10.0	<b>Units</b> mg/L
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<b>MW-3</b>	<b>Collect Date</b> 09/09/2021 16:00	<b>Lab ID</b> 22109147102
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/20/21 13:35	721266	SMR	

CAS#	Parameter	Result	LOQ	Units
71-43-2	Benzene	ND	0.00500	mg/L
100-41-4	Ethylbenzene	ND	0.00500	mg/L
108-88-3	Toluene	ND	0.00500	mg/L
1330-20-7	Xylene (total)	ND	0.015	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.048	mg/L	95	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.05	mg/L	100	77 - 127
2037-26-5	Toluene d8	0.05	.055	mg/L	109	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.052	mg/L	104	71 - 127

## Sample Results

<b>MW-3</b>	<b>Collect Date</b> 09/09/2021 16:00	<b>Lab ID</b> 22109147102
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 13:56	721492	JAR	

CAS#	Parameter	Result	LOQ	Units		
GCSV-02-10	Aliphatic >C8-C10	ND	0.020	mg/L		
GCSV-02-30	Aliphatic C6-C8	ND	0.030	mg/L		
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.05	mg/L	100	70 - 130

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 13:56	721493	JAR	

CAS#	Parameter	Result	LOQ	Units		
GCSV-02-14	Aromatic >C8-C10	ND	0.030	mg/L		
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.047	mg/L	93	70 - 130

### MADEP EPH Rev 1.1 (LA) RVT Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/17/21 18:32	721195	MFS	

CAS#	Parameter	Result	LOQ	Units		
GCSV-02-11	Aliphatic >C10-C12	ND	0.100	mg/L		
GCSV-02-12	Aliphatic >C12-C16	ND	0.100	mg/L		
GCSV-02-31	Aliphatic >C16-C35	ND	0.150	mg/L		
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
3386-33-2	1-Chlorooctadecane	0.16	.066	mg/L	41	40 - 140

### MADEP EPH Rev 1.1 (LA) RVT Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/20/21 12:25	721274	MFS	

CAS#	Parameter	Result	LOQ	Units		
GCSV-05-18	Aromatic >C21-C35	ND	0.100	mg/L		
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	0.100	mg/L		
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	0.100	mg/L		
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	0.100	mg/L		
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
84-15-1	o-Terphenyl	0.16	.095	mg/L	60	40 - 140
580-13-2	2-Bromonaphthalene	0.16	.179	mg/L	112	40 - 140
321-60-8	2-Fluorobiphenyl	0.16	.17	mg/L	106	40 - 140

## Sample Results

<b>MW-3</b>	<b>Collect Date</b> 09/09/2021 16:00	<b>Lab ID</b> 22109147102
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	1	09/16/21 18:44	721086	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.0010	mg/L
<b>7440-39-3</b>	<b>Barium</b>	<b>0.079</b>	<b>0.0010</b>	<b>mg/L</b>
7440-43-9	Cadmium	ND	0.0010	mg/L
<b>7440-70-2</b>	<b>Calcium</b>	<b>50.9</b>	<b>0.50</b>	<b>mg/L</b>
<b>7440-47-3</b>	<b>Chromium</b>	<b>0.0022</b>	<b>0.0010</b>	<b>mg/L</b>
<b>7439-89-6</b>	<b>Iron</b>	<b>0.97</b>	<b>0.10</b>	<b>mg/L</b>
7439-92-1	Lead	ND	0.0010	mg/L
<b>7439-95-4</b>	<b>Magnesium</b>	<b>17.9</b>	<b>0.10</b>	<b>mg/L</b>
<b>7439-96-5</b>	<b>Manganese</b>	<b>0.40</b>	<b>0.0050</b>	<b>mg/L</b>
<b>7440-09-7</b>	<b>Potassium</b>	<b>1.24</b>	<b>0.10</b>	<b>mg/L</b>
<b>7440-23-5</b>	<b>Sodium</b>	<b>52.1</b>	<b>0.10</b>	<b>mg/L</b>
<b>7440-24-6</b>	<b>Strontium</b>	<b>0.31</b>	<b>0.0010</b>	<b>mg/L</b>
<b>7440-66-6</b>	<b>Zinc</b>	<b>0.020</b>	<b>0.020</b>	<b>mg/L</b>

### EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	1	09/17/21 17:55	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.0010	mg/L
<b>7440-39-3</b>	<b>Barium</b>	<b>0.076</b>	<b>0.0010</b>	<b>mg/L</b>
7440-43-9	Cadmium	ND	0.0010	mg/L
7440-47-3	Chromium	ND	0.0010	mg/L
7439-89-6	Iron	ND	0.10	mg/L
7439-92-1	Lead	ND	0.0010	mg/L
<b>7439-96-5</b>	<b>Manganese</b>	<b>0.55</b>	<b>0.0050</b>	<b>mg/L</b>
<b>7440-24-6</b>	<b>Strontium</b>	<b>0.31</b>	<b>0.0010</b>	<b>mg/L</b>
7440-66-6	Zinc	ND	0.020	mg/L

### EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A	1	09/16/21 10:25	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

## Sample Results

<b>MW-3</b>	<b>Collect Date</b> 09/09/2021 16:00	<b>Lab ID</b> 22109147102
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A Dissolved	1	09/16/21 10:27	721000	BDP	

<b>CAS#</b> 7439-97-6	<b>Parameter</b> Mercury	<b>Result</b> ND	<b>LOQ</b> 0.00020	<b>Units</b> mg/L
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### EPA 9056A

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	20	09/21/21 16:14	721499	CJS	

<b>CAS#</b> 16887-00-6	<b>Parameter</b> Chloride	<b>Result</b> 57.8	<b>LOQ</b> 4.00	<b>Units</b> mg/L
14808-79-8	Sulfate	68.4	4.00	mg/L

### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b> T-005-B	<b>Parameter</b> Bicarbonate Alkalinity	<b>Result</b> 172	<b>LOQ</b> 1.0	<b>Units</b> mg/L CaCO3
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### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b> T-005-C	<b>Parameter</b> Carbonate Alkalinity	<b>Result</b> ND	<b>LOQ</b> 1.0	<b>Units</b> mg/L CaCO3
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### SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/15/21 13:25	720964	DJJ	

<b>CAS#</b> WET-035	<b>Parameter</b> Total Dissolved Solids(TDS)	<b>Result</b> 272	<b>LOQ</b> 10.0	<b>Units</b> mg/L
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## Sample Results

<b>MW-2</b>	<b>Collect Date</b> 09/09/2021 09:30	<b>Lab ID</b> 22109147103
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/20/21 13:57	721266	SMR	

CAS#	Parameter	Result	LOQ	Units
71-43-2	Benzene	ND	0.00500	mg/L
100-41-4	Ethylbenzene	ND	0.00500	mg/L
108-88-3	Toluene	ND	0.00500	mg/L
1330-20-7	Xylene (total)	ND	0.015	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.045	mg/L	90	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.052	mg/L	105	77 - 127
2037-26-5	Toluene d8	0.05	.054	mg/L	109	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.052	mg/L	104	71 - 127

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 14:11	721492	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-10	Aliphatic >C8-C10	ND	0.020	mg/L
GCSV-02-30	Aliphatic C6-C8	ND	0.030	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.053	mg/L	105	70 - 130

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 14:11	721493	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-14	Aromatic >C8-C10	ND	0.030	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	0.05	.049	mg/L	98	70 - 130

### MADEP EPH Rev 1.1 (LA) RVT Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/17/21 18:49	721195	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-11	Aliphatic >C10-C12	ND	0.100	mg/L
GCSV-02-12	Aliphatic >C12-C16	ND	0.100	mg/L
GCSV-02-31	Aliphatic >C16-C35	ND	0.150	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
3386-33-2	1-Chlorooctadecane	0.16	.087	mg/L	54	40 - 140

## Sample Results

<b>MW-2</b>	<b>Collect Date</b> 09/09/2021 09:30	<b>Lab ID</b> 22109147103
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### MADEP EPH Rev 1.1 (LA) RVT Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 19:26	720994	MADEP EPH (LA)	1	09/17/21 18:49	721194	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-05-18	Aromatic >C21-C35	ND	0.100	mg/L
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	0.100	mg/L
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	0.100	mg/L
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	0.100	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
84-15-1	o-Terphenyl	0.16	.089	mg/L	56	40 - 140
580-13-2	2-Bromonaphthalene	0.16	.139	mg/L	87	40 - 140
321-60-8	2-Fluorobiphenyl	0.16	.132	mg/L	83	40 - 140

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	1	09/16/21 18:48	721086	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.0010	mg/L
<b>7440-39-3</b>	<b>Barium</b>	<b>0.018</b>	<b>0.0010</b>	<b>mg/L</b>
7440-43-9	Cadmium	ND	0.0010	mg/L
<b>7440-70-2</b>	<b>Calcium</b>	<b>97.0</b>	<b>0.50</b>	<b>mg/L</b>
7440-47-3	Chromium	ND	0.0010	mg/L
7439-89-6	Iron	ND	0.10	mg/L
7439-92-1	Lead	ND	0.0010	mg/L
<b>7439-95-4</b>	<b>Magnesium</b>	<b>37.7</b>	<b>0.10</b>	<b>mg/L</b>
<b>7439-96-5</b>	<b>Manganese</b>	<b>0.088</b>	<b>0.0050</b>	<b>mg/L</b>
<b>7440-09-7</b>	<b>Potassium</b>	<b>1.21</b>	<b>0.10</b>	<b>mg/L</b>
<b>7440-24-6</b>	<b>Strontium</b>	<b>0.60</b>	<b>0.0010</b>	<b>mg/L</b>
7440-66-6	Zinc	ND	0.020	mg/L

### EPA 6020B

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	10	09/25/21 19:45	721790	LWZ	

CAS#	Parameter	Result	LOQ	Units
<b>7440-23-5</b>	<b>Sodium</b>	<b>126</b>	<b>1.00</b>	<b>mg/L</b>

### EPA 6020B Dissolved

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	10	09/17/21 13:05	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.010	mg/L
<b>7440-39-3</b>	<b>Barium</b>	<b>0.018</b>	<b>0.010</b>	<b>mg/L</b>
7440-43-9	Cadmium	ND	0.0050 L	mg/L





## Sample Results

<b>MW-2</b>	Collect Date	09/09/2021 09:30	Lab ID	22109147103
	Receive Date	09/14/2021 10:54	Matrix	Water

### EPA 6020B Dissolved (Continued)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	10	09/17/21 13:05	721169	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-47-3	Chromium	ND	0.010	mg/L
7439-89-6	Iron	ND	1.00	mg/L
7439-92-1	Lead	ND	0.010	mg/L
<b>7439-96-5</b>	<b>Manganese</b>	<b>0.092</b>	<b>0.050</b>	<b>mg/L</b>
<b>7440-24-6</b>	<b>Strontium</b>	<b>0.64</b>	<b>0.010</b>	<b>mg/L</b>
7440-66-6	Zinc	ND	0.20	mg/L

### EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A	1	09/16/21 10:37	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

### EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A Dissolved	1	09/16/21 10:40	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

### EPA 9056A

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	50	09/21/21 16:43	721499	CJS	

CAS#	Parameter	Result	LOQ	Units
<b>16887-00-6</b>	<b>Chloride</b>	<b>123</b>	<b>10.0</b>	<b>mg/L</b>
<b>14808-79-8</b>	<b>Sulfate</b>	<b>256</b>	<b>10.0</b>	<b>mg/L</b>

### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

CAS#	Parameter	Result	LOQ	Units
<b>T-005-B</b>	<b>Bicarbonate Alkalinity</b>	<b>228</b>	<b>1.0</b>	<b>mg/L CaCO3</b>

## Sample Results

<b>MW-2</b>	<b>Collect Date</b> 09/09/2021 09:30	<b>Lab ID</b> 22109147103
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b> T-005-C	<b>Parameter</b> Carbonate Alkalinity	<b>Result</b> ND	<b>LOQ</b> 1.0	<b>Units</b> mg/L CaCO3
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### SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/15/21 13:25	720964	DJJ	

<b>CAS#</b> <b>WET-035</b>	<b>Parameter</b> <b>Total Dissolved Solids(TDS)</b>	<b>Result</b> <b>703</b>	<b>LOQ</b> <b>10.0</b>	<b>Units</b> <b>mg/L</b>
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<b>MW-1</b>	<b>Collect Date</b> 09/09/2021 10:05	<b>Lab ID</b> 22109147104
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/20/21 14:19	721266	SMR	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
71-43-2	Benzene	ND	0.00500	mg/L
100-41-4	Ethylbenzene	ND	0.00500	mg/L
108-88-3	Toluene	ND	0.00500	mg/L
1330-20-7	Xylene (total)	ND	0.015	mg/L
<b>CAS#</b>	<b>Surrogate</b>	<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b> <b>% Recovery</b> <b>%Rec Limits</b>
460-00-4	4-Bromofluorobenzene	0.05	.046	mg/L   91   78 - 130
1868-53-7	Dibromofluoromethane	0.05	.053	mg/L   106   77 - 127
2037-26-5	Toluene d8	0.05	.054	mg/L   107   76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.054	mg/L   107   71 - 127

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 14:27	721492	JAR	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
GCSV-02-10	Aliphatic >C8-C10	ND	0.020	mg/L
GCSV-02-30	Aliphatic C6-C8	ND	0.030	mg/L
<b>CAS#</b>	<b>Surrogate</b>	<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b> <b>% Recovery</b> <b>%Rec Limits</b>
615-59-8	2,5-Dibromotoluene	0.05	.053	mg/L   106   70 - 130

## Sample Results

<b>MW-1</b>	Collect Date	09/09/2021 10:05	Lab ID	22109147104
	Receive Date	09/14/2021 10:54	Matrix	Water

### MADEP VPH Rev 1.1 (LA)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/22/21 14:27	721493	JAR	

CAS#	Parameter	Result	LOQ	Units			
GCSV-02-14	Aromatic >C8-C10	ND	0.030	mg/L			
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits	
615-59-8	2,5-Dibromotoluene	0.05	.049	mg/L	98	70 - 130	

### MADEP EPH Rev 1.1 (LA) RVT Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/21/21 08:00	721279	MADEP EPH (LA)	1	09/22/21 12:52	721518	MFS	

CAS#	Parameter	Result	LOQ	Units			
GCSV-02-11	Aliphatic >C10-C12	ND	0.100	mg/L			
GCSV-02-12	Aliphatic >C12-C16	ND	0.100	mg/L			
GCSV-02-31	Aliphatic >C16-C35	ND	0.150	mg/L			
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits	
3386-33-2	1-Chlorooctadecane	0.16	.069	mg/L	43	40 - 140	

### MADEP EPH Rev 1.1 (LA) RVT Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/21/21 08:00	721279	MADEP EPH (LA)	1	09/22/21 12:52	721516	MFS	

CAS#	Parameter	Result	LOQ	Units			
GCSV-05-18	Aromatic >C21-C35	ND	100	ug/L			
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	100	ug/L			
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	100	ug/L			
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	100	ug/L			
CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits	
84-15-1	o-Terphenyl	160	98.2	ug/L	61	40 - 140	
580-13-2	2-Bromonaphthalene	160	142	ug/L	89	40 - 140	
321-60-8	2-Fluorobiphenyl	160	137	ug/L	86	40 - 140	

### EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	1	09/16/21 18:51	721086	LWZ	

CAS#	Parameter	Result	LOQ	Units			
7440-38-2	Arsenic	ND	0.0010	mg/L			
<b>7440-39-3</b>	<b>Barium</b>	<b>0.063</b>	<b>0.0010</b>	<b>mg/L</b>			
7440-43-9	Cadmium	ND	0.0010	mg/L			
<b>7440-70-2</b>	<b>Calcium</b>	<b>60.7</b>	<b>0.50</b>	<b>mg/L</b>			
7440-47-3	Chromium	ND	0.0010	mg/L			
<b>7439-89-6</b>	<b>Iron</b>	<b>0.12</b>	<b>0.10</b>	<b>mg/L</b>			
7439-92-1	Lead	ND	0.0010	mg/L			
<b>7439-95-4</b>	<b>Magnesium</b>	<b>23.5</b>	<b>0.10</b>	<b>mg/L</b>			
<b>7439-96-5</b>	<b>Manganese</b>	<b>0.46</b>	<b>0.0050</b>	<b>mg/L</b>			
<b>7440-09-7</b>	<b>Potassium</b>	<b>1.29</b>	<b>0.10</b>	<b>mg/L</b>			

## Sample Results

<b>MW-1</b>	<b>Collect Date</b> 09/09/2021 10:05	<b>Lab ID</b> 22109147104
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

### EPA 6020B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:15	720900	EPA 3010A	1	09/16/21 18:51	721086	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-23-5	Sodium	98.8	0.10	mg/L
7440-24-6	Strontium	0.46	0.0010	mg/L
7440-66-6	Zinc	ND	0.020	mg/L

### EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 07:45	720899	EPA 3005A Dissolved	1	09/28/21 13:14	721920	LWZ	

CAS#	Parameter	Result	LOQ	Units
7440-38-2	Arsenic	ND	0.0010	mg/L
7440-39-3	Barium	0.056	0.0010	mg/L
7440-43-9	Cadmium	ND	0.0010	mg/L
7440-47-3	Chromium	ND	0.0010	mg/L
7439-89-6	Iron	ND	0.10	mg/L
7439-92-1	Lead	ND	0.0010	mg/L
7439-96-5	Manganese	0.37	0.0050	mg/L
7440-24-6	Strontium	0.46	0.0010	mg/L
7440-66-6	Zinc	ND	0.020	mg/L

### EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A	1	09/16/21 10:43	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

### EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/15/21 09:45	720901	EPA 7470A Dissolved	1	09/16/21 10:45	721000	BDP	

CAS#	Parameter	Result	LOQ	Units
7439-97-6	Mercury	ND	0.00020	mg/L

## Sample Results

<b>MW-1</b>	<b>Collect Date</b> 09/09/2021 10:05	<b>Lab ID</b> 22109147104
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Water

**EPA 9056A**

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	50	09/22/21 11:19	721499	CJS	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
16887-00-6	Chloride	156	10.0	mg/L
14808-79-8	Sulfate	175	10.0	mg/L

**SM 2320 B-2011**

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
T-005-B	Bicarbonate Alkalinity	92.4	1.0	mg/L CaCO3

**SM 2320 B-2011**

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/21/21 14:02	721407	RYC	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
T-005-C	Carbonate Alkalinity	ND	1.0	mg/L CaCO3

**SM 2540 C-2011**

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/15/21 13:25	720964	DJJ	

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>
WET-035	Total Dissolved Solids(TDS)	500	10.0	mg/L

## GC/MS Volatiles QC Summary

<b>Analytical Batch</b> 721266		Client ID	MB721266	LCS721266			LCSD721266					
		Lab ID	2240292	2240293			2240294					
		Sample Type	MB	LCS			LCSD					
		Prep Date	NA	NA			NA					
		Analysis Date	09/20/21 12:27	09/20/21 10:39			09/20/21 11:01					
		Matrix	Water	Water			Water					
<b>EPA 8260B</b>		Units	mg/L	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
		Result	LOQ	Added			Limits	Added				Limit
							%R					
Benzene	71-43-2	ND	0.00500	0.050	0.047	94	70 - 129	0.050	0.045	91	4	20
Ethylbenzene	100-41-4	ND	0.00500	0.050	0.050	99	74 - 126	0.050	0.050	100	0	30
Toluene	108-88-3	ND	0.00500	0.050	0.049	97	72 - 120	0.050	0.048	96	2	20
Xylene (total)	1330-20-7	ND	0.015	0.150	0.150	100	74 - 127	0.150	0.150	100	0	30
<b>Surrogate</b>												
1,2-Dichloroethane-d4	17060-07-0	.0526	105	.05	.0508	102	71 - 127	.05	.0502	100	NA	NA
4-Bromofluorobenzene	460-00-4	.0462	92	.05	.0501	100	78 - 130	.05	.05	100	NA	NA
Dibromofluoromethane	1868-53-7	.0516	103	.05	.0514	103	77 - 127	.05	.0501	100	NA	NA
Toluene d8	2037-26-5	.0509	102	.05	.0509	102	76 - 134	.05	.051	102	NA	NA

## GC Volatiles QC Summary

<b>Analytical Batch</b> 721492		Client ID	MB721492	LCS721492				LCSD721492					
		Lab ID	2241298	2241299				2241300					
		Sample Type	MB	LCS				LCSD					
		Prep Date	NA	NA				NA					
		Analysis Date	09/22/21 13:08	09/22/21 11:47				09/22/21 12:02					
		Matrix	Water	Water				Water					
<b>MADEP VPH Rev 1.1 (LA)</b>		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit	
Aliphatic >C8-C10	GCSV-02-10	ND	1.00	0.100	0.114	114	60 - 140	0.100	0.113	113	1	30	
Aliphatic C6-C8	GCSV-02-30	ND	1.50	0.150	0.176	117	60 - 140	0.150	0.174	116	1	30	
<b>Surrogate</b>													
2,5-Dibromotoluene	615-59-8	2.77	111	.05	.0553	111	70 - 130	.05	.0529	106	NA	NA	

<b>Analytical Batch</b> 721493		Client ID	MB721493	LCS721493				LCSD721493					
		Lab ID	2241301	2241302				2241303					
		Sample Type	MB	LCS				LCSD					
		Prep Date	NA	NA				NA					
		Analysis Date	09/22/21 13:08	09/22/21 11:47				09/22/21 12:02					
		Matrix	Water	Water				Water					
<b>MADEP VPH Rev 1.1 (LA)</b>		Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit	
Aromatic >C8-C10	GCSV-02-14	ND	0.030	0.150	0.165	110	60 - 140	0.150	0.160	107	3	30	
<b>Surrogate</b>													
2,5-Dibromotoluene	615-59-8	.0519	104	.05	.0531	106	70 - 130	.05	.0494	99	NA	NA	

## GC Semi-Volatiles QC Summary

<b>Analytical Batch</b> 721195		Client ID	MB720994	LCS720994			LCSD720994						
<b>Prep Batch</b> 720994		Lab ID	2238660	2238661			2238662						
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA) RVT		Sample Type	MB	LCS			LCSD						
		Prep Date	09/16/21 19:26	09/16/21 19:26			09/16/21 19:26						
		Analysis Date	09/17/21 15:28	09/17/21 17:36			09/17/21 17:55						
		Matrix	Water	Water			Water						
<b>MADEP EPH Rev 1.1 (LA) RVT</b>			Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aliphatic >C10-C12	GCSV-02-11	ND	0.100	0.400	0.289	72	30 - 140	0.400	0.290	73	0	25	
Aliphatic >C12-C16	GCSV-02-12	ND	0.100	0.400	0.297	74	40 - 140	0.400	0.299	75	1	25	
Aliphatic >C16-C35	GCSV-02-31	ND	0.150	1.80	1.49	83	40 - 140	1.80	1.48	82	1	25	
<b>Surrogate</b> 1-Chlorooctadecane	3386-33-2	.0891	56	.16	.097	61	40 - 140	.16	.123	77	NA	NA	

<b>Analytical Batch</b> 721518		Client ID	MB721279	LCS721279			LCSD721279						
<b>Prep Batch</b> 721279		Lab ID	2240355	2240356			2240357						
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA) RVT		Sample Type	MB	LCS			LCSD						
		Prep Date	09/21/21 08:00	09/21/21 08:00			09/21/21 08:00						
		Analysis Date	09/22/21 14:30	09/22/21 14:48			09/22/21 12:34						
		Matrix	Water	Water			Water						
<b>MADEP EPH Rev 1.1 (LA) RVT</b>			Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aliphatic >C10-C12	GCSV-02-11	ND	0.100	0.400	0.247	62	30 - 140	0.400	0.209	52	17	25	
Aliphatic >C12-C16	GCSV-02-12	ND	0.100	0.400	0.287	72	40 - 140	0.400	0.242	61	17	25	
Aliphatic >C16-C35	GCSV-02-31	ND	0.150	1.80	1.49	83	40 - 140	1.80	1.32	73	12	25	
<b>Surrogate</b> 1-Chlorooctadecane	3386-33-2	.111	69	.16	.0814	51	40 - 140	.16	.0861	54	NA	NA	

<b>Analytical Batch</b> 721194		Client ID	MB720994	LCS720994			LCSD720994						
<b>Prep Batch</b> 720994		Lab ID	2238660	2238661			2238662						
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA) RVT		Sample Type	MB	LCS			LCSD						
		Prep Date	09/16/21 19:26	09/16/21 19:26			09/16/21 19:26						
		Analysis Date	09/17/21 15:28	09/17/21 17:36			09/17/21 17:55						
		Matrix	Water	Water			Water						
<b>MADEP EPH Rev 1.1 (LA) RVT</b>			Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aromatic >C21-C35	GCSV-05-18	ND	100	2000	1490	75	40 - 140	2000	1680	84	12	25	
Unadjusted >C10-C12 Aromatics	GCSV-02-15	ND	100	200	171	86	30 - 140	200	177	89	3	25	
Unadjusted >C12-C16 Aromatics	GCSV-02-16	ND	100	800	656	82	40 - 140	800	678	85	3	25	
Unadjusted >C16-C21 Aromatics	GCSV-02-17	ND	100	400	331	83	40 - 140	400	345	86	4	25	
<b>Surrogate</b> 2-Bromonaphthalene	580-13-2	203	127	160	160	100	40 - 140	160	162	101	NA	NA	
2-Fluorobiphenyl	321-60-8	195	122	160	154	96	40 - 140	160	157	98	NA	NA	
o-Terphenyl	84-15-1	115	72	160	101	63	40 - 140	160	137	86	NA	NA	

<b>Analytical Batch</b> 721516		Client ID	MB721279	LCS721279			LCSD721279						
<b>Prep Batch</b> 721279		Lab ID	2240355	2240356			2240357						
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA) RVT		Sample Type	MB	LCS			LCSD						
		Prep Date	09/21/21 08:00	09/21/21 08:00			09/21/21 08:00						
		Analysis Date	09/22/21 11:58	09/22/21 12:16			09/22/21 12:34						
		Matrix	Water	Water			Water						
<b>MADEP EPH Rev 1.1 (LA) RVT</b>			Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aromatic >C21-C35	GCSV-05-18	ND	100	2000	1490	75	40 - 140	2000	1480	74	1	25	
Unadjusted >C10-C12 Aromatics	GCSV-02-15	ND	100	200	205	103	30 - 140	200	139	70	38*	25	
Unadjusted >C12-C16 Aromatics	GCSV-02-16	ND	100	800	753	94	40 - 140	800	540	68	33*	25	
Unadjusted >C16-C21 Aromatics	GCSV-02-17	ND	100	400	356	89	40 - 140	400	283	71	23	25	
<b>Surrogate</b> 2-Bromonaphthalene	580-13-2	166	104	160	195	122	40 - 140	160	133	83	NA	NA	
2-Fluorobiphenyl	321-60-8	160	100	160	191	119	40 - 140	160	127	79	NA	NA	
o-Terphenyl	84-15-1	115	72	160	140	88	40 - 140	160	113	71	NA	NA	



## Inorganics QC Summary

<b>Analytical Batch</b> 721000	Client ID MB720901	Lab ID 2238293	LCS720901				
<b>Prep Batch</b> 720901	Sample Type MB	Prep Date 09/15/21 09:45	2238294				
<b>Prep Method</b> EPA 7470A	Analysis Date 09/16/21 10:13	Matrix Water	LCS				
			09/15/21 09:45				
			09/16/21 10:16				
			Water				
<b>EPA 7470A</b>	Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	
Mercury	7439-97-6	ND	0.00020	0.0050	0.0055	111	80 - 120

<b>Analytical Batch</b> 721000	Client ID MB720901	Lab ID 2238293	LCS720901				
<b>Prep Batch</b> 720901	Sample Type MB	Prep Date 09/15/21 09:45	2238294				
<b>Prep Method</b> EPA 7470A	Analysis Date 09/16/21 10:13	Matrix Water	LCS				
			09/15/21 09:45				
			09/16/21 10:16				
			Water				
<b>EPA 7470A Dissolved</b>	Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	
Mercury	7439-97-6	ND	0.00020	0.0050	0.0055	111	80 - 120

<b>Analytical Batch</b> 721086	Client ID MB720900	Lab ID 2238290		
<b>Prep Batch</b> 720900	Sample Type MB	Prep Date 09/15/21 09:15		
<b>Prep Method</b> EPA 3010A	Analysis Date 09/16/21 18:34	Matrix Water		
<b>EPA 6020B</b>	Units Result	mg/L LOQ		
Arsenic	7440-38-2	ND	0.0010	
Barium	7440-39-3	ND	0.0010	
Cadmium	7440-43-9	ND	0.0010	
Calcium	7440-70-2	ND	0.50	
Chromium	7440-47-3	ND	0.0010	
Iron	7439-89-6	ND	0.10	
Lead	7439-92-1	ND	0.0010	
Magnesium	7439-95-4	ND	0.10	
Manganese	7439-96-5	ND	0.0050	
Potassium	7440-09-7	ND	0.10	
Sodium	7440-23-5	ND	0.10	
Strontium	7440-24-6	ND	0.0010	

<b>Analytical Batch</b> 721086	Client ID LCS720900	Lab ID 2238292	LCS720900						
<b>Prep Batch</b> 720900	Sample Type LCS	Prep Date 09/15/21 09:15	2238292						
<b>Prep Method</b> EPA 3010A	Analysis Date 09/16/21 18:37	Matrix Water	LCS						
			09/15/21 09:15						
			09/16/21 18:37						
			Water						
<b>EPA 6020B</b>	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	Control Limits%R	
Arsenic	7440-38-2	0.050	0.051	101	80 - 120	0.050	0.051	101	80 - 120
Barium	7440-39-3	0.050	0.051	101	80 - 120	0.050	0.051	101	80 - 120
Cadmium	7440-43-9	0.050	0.050	101	80 - 120	0.050	0.050	101	80 - 120
Calcium	7440-70-2	25.0	25.1	100	80 - 120	25.0	25.1	100	80 - 120
Chromium	7440-47-3	0.050	0.051	103	80 - 120	0.050	0.051	103	80 - 120
Iron	7439-89-6	5.00	5.14	103	80 - 120	5.00	5.14	103	80 - 120
Lead	7439-92-1	0.050	0.053	106	80 - 120	0.050	0.053	106	80 - 120
Magnesium	7439-95-4	5.00	5.15	103	80 - 120	5.00	5.15	103	80 - 120
Manganese	7439-96-5	0.050	0.052	104	80 - 120	0.050	0.052	104	80 - 120
Potassium	7440-09-7	5.00	5.03	101	80 - 120	5.00	5.03	101	80 - 120
Sodium	7440-23-5	5.00	5.17	103	80 - 120	5.00	5.17	103	80 - 120
Strontium	7440-24-6	0.050	0.051	102	80 - 120	0.050	0.051	102	80 - 120
Zinc	7440-66-6	1.00	1.03	103	80 - 120	1.00	1.03	103	80 - 120



## Inorganics QC Summary

<b>Analytical Batch</b>		Client ID	MB720899	LCS720899				LCSD720899					
721169		Lab ID	2238287	2238289				2238288					
<b>Prep Batch</b>		Sample Type	MB	LCS				LCSD					
720899		Prep Date	09/16/21 07:45	09/16/21 07:45				09/16/21 07:45					
<b>Prep Method</b>		Analysis Date	09/17/21 17:37	09/17/21 17:44				09/17/21 17:41					
EPA 3005A Dissolved		Matrix	Water	Water				Water					
<b>EPA 6020B Dissolved</b>			Units	mg/L	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
			Result	LOQ	Added			Limits	Added				Limit
Arsenic	7440-38-2	ND	0.0010	0.050	0.051	102	80 - 120	0.050	0.051	102	0	20	
Barium	7440-39-3	ND	0.0010	0.050	0.049	98	80 - 120	0.050	0.049	97	0	20	
Cadmium	7440-43-9	ND	0.00050	0.050	0.049	99	80 - 120	0.050	0.049	98	0	20	
Chromium	7440-47-3	ND	0.0010	0.050	0.049	98	80 - 120	0.050	0.049	98	0	20	
Iron	7439-89-6	ND	0.10	5.00	4.86	97	80 - 120	5.00	4.92	98	1	20	
Lead	7439-92-1	ND	0.0010	0.050	0.050	99	80 - 120	0.050	0.050	99	0	20	
Manganese	7439-96-5	ND	0.0050	0.050	0.047	95	80 - 120	0.050	0.048	96	2	20	
Strontium	7440-24-6	ND	0.0010	0.050	0.050	101	80 - 120	0.050	0.050	100	0	20	
Zinc	7440-66-6	ND	0.020	1.00	0.96	96	80 - 120	1.00	0.97	97	1	20	



## General Chemistry QC Summary

<b>Analytical Batch</b> 721499		Client ID 2241320	MB721499	LCS721499 2241321				LCSD721499 2241349					
		Lab ID 2241320	MB	LCS				LCSD					
		Sample Type NA	NA	NA				NA					
		Prep Date 09/21/21 22:42	09/21/21 22:42	09/22/21 09:25				09/22/21 11:48					
		Analysis Date Matrix	Water	Water				Water					
<b>EPA 9056A</b>			Units Result	mg/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Chloride	16887-00-6	ND	0.200	2.50	2.60	104	80 - 120	2.50	2.69	108	3	15	
Sulfate	14808-79-8	ND	0.200	2.50	2.70	108	80 - 120	2.50	2.72	109	1	15	

<b>Analytical Batch</b> 720964		Client ID 2238529	MB720964
		Lab ID 2238529	MB
		Sample Type NA	NA
		Prep Date 09/15/21 13:25	09/15/21 13:25
		Analysis Date Matrix	Water
<b>SM 2540 C-2011</b>			Units Result
Total Dissolved Solids(TDS)	WET-035	ND	mg/L LOQ 10.0



# CHAIN-OF-CUSTODY Analytical Request Document

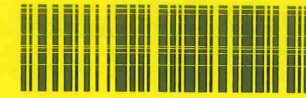
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Wo

Client ID: 4271 - ERM-Baton Rouge

SDG: 221091471

PM: AMK



Company: ERM

Billing Information: ERM

Address: 640 W Sam Houston Pkwy N Suite 600

Report To: Shawn Wiggins

Email To: Shawn.Wiggins@erm.com

Copy To: Michael Goodman

Site Collection Info/Address:

Customer Project Name/Number: Newmy 0494259

State: / County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET

Phone: 971-303-2385

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected By (print): Michael Goodman

Purchase Order #: Quote #:

DW PWS ID #: DW Location Code:

Collected By (signature): [Signature]

Turnaround Date Required:

Immediately Packed on Ice: [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [X] Hold: PAH

Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Total Metals	Dissolved metals	Anions Cations	Cl	TDS	Su / fate + Alkalinity	Fractions EPA/PH	BTEX &	Extract + Hold PAH
			Date	Time	Date	Time											
MW-4	GW	G	9-9-21	1445				12	X	X	X	X	X	X	X	X	X
MW-3	GW	G	9-9-21	1600					X	X	X	X	X	X	X	X	X
MW-2	GW	G	9-10-21	0930					X	X	X	X	X	X	X	X	X
MW-1	GW	G	9-10-21	1005					X	X	X	X	X	X	X	X	X

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses										Lab Profile/Line:
										Lab Sample Receipt Checklist:
										Custody Seals Present/Intact Y N NA
										Custody Signatures Present Y N NA
										Collector Signature Present Y N NA
										Bottles Intact Y N NA
										Correct Bottles Y N NA
										Sufficient Volume Y N NA
										Samples Received on Ice Y N NA
										VOA - Headspace Acceptable Y N NA
										USDA Regulated Soils Y N NA
										Samples in Holding Time Y N NA
										Residual Chlorine Present Y N NA
										Cl Strips: _____
										Sample pH Acceptable Y N NA
										pH Strips: _____
										Sulfide Present Y N NA
										Lead Acetate Strips: _____
										LAB USE ONLY:
										Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: Total metals - As Ba Cd Cr Fe Pb Mn Dissolved metals - Hg Sr Zn Cations - Ca, K, Mg, Na

Type of Ice Used: Wet Blue Dry None Packing Material Used: Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A Lab Tracking #: 2664444 Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info: Temp Blank Received: Y N NA Therm ID#: Cooler 1 Temp Upon Receipt: oC Cooler 1 Therm Corr. Factor: oC Cooler 1 Corrected Temp: oC Comments:

Relinquished by/Company: (Signature) Michael Goodman ERM [Signature]

Date/Time: 9-10-21 1404

Received by/Company: (Signature) Shawn Wiggins ERM [Signature]

Date/Time: 9/10/21 1404

Table #: Acctnum: Prelogin: MTJL LAB USE ONLY

Relinquished by/Company: (Signature) Shawn Wiggins ERM [Signature]

Date/Time: 9-10-21 1638

Received by/Company: (Signature) [Signature]

Date/Time: 9/10/21 1638

Template: PM: PB:

Relinquished by/Company: (Signature) [Signature]

Date/Time: 9/14/21 0945

Received by/Company: (Signature) Donald Phillips

Date/Time: 9-14-21 0845

Page: of:

1.3E4 29CPM Trip Blank Received: Y N NA HCL MeOH TSP Other

Non Conformance(s): YES / NO



# SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 221091471		CHECKLIST		YES	NO
<b>Client</b> PM AMK 4271 - ERM-Baton Rouge	<b>Transport Method</b> COURIER	Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Profile Number</b> 294297	<b>Received By</b> McCune, Dodie N.	COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Line Item(s)</b> 1 - Waters - BTEX	<b>Receive Date(s)</b> 09/14/21	All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Samples collected in containers provided by Pace Gulf Coast?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
COOLERS		DISCREPANCIES	LAB PRESERVATIONS		
<b>Airbill</b>	<b>Thermometer ID:</b> E34	<b>Temp °C</b>	None		
		1.3			
<b>NOTES</b>					



**LELAP CERTIFICATE NUMBER: 01955**  
**DOD-ELAP ACCREDITATION NUMBER: 74960**

# **ANALYTICAL RESULTS**

**PERFORMED BY**

**Pace Analytical Gulf Coast**  
**7979 Innovation Park Dr.**  
**Baton Rouge, LA 70820**  
**(225) 769-4900**

**Report Date 09/28/2021**

**Report # 221091472**



***Project* 0494259 - Neumin**

**Samples Collected 9/9/21**

<b><i>Deliver To</i></b>	<b><i>Additional Recipients</i></b>
Shawn Wiggins ERM 640 W Sam Houston Parkway Suite 600 Houston, TX 77024 971-303-2385	Michael Goodman, ERM



## Laboratory Endorsement

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

### Common Abbreviations that may be Utilized in this Report

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

### Reporting Flags that may be Utilized in this Report

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

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

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

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

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



Authorized Signature  
Pace Gulf Coast Report 221091472

## Certifications

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



## Case Narrative

**Client:** ERM-Baton Rouge      **Report:** 221091472

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

### **COC ANOMALIES**

The individual samples were not labeled only the bags they were received in. Sample receiving threw the outer bags away before labeling so we could not tell one sample from the other. Spoke to the client they asked that we label at will. Client asked that we add PAHs to sample 221091472-02. They also asked that we rename the samples - SE-SB09R 4-6 (221091472-01) is now SE-SB09R A, SE-SB09R 6-8 (221091472-02) is now SE-SB09R B and SE-SB09R 8-10 (221091472-03) is now SE-SB09R C. (Anna Kinchen 09/28/2021 09:32)

Client asked that we add PAHs to samples 221091472-01 and 221091472-03. (Anna Kinchen 09/28/2021 14:35)

### **SEMI-VOLATILES MASS SPECTROMETRY**

In the EPA 8270C SIM analysis, sample 22109147202 (SE-SB09R B) had to be diluted to bracket the concentration of target analytes within the calibration range of the instrument. This is reflected in elevated detection limits. The recoveries for the surrogates are reported as diluted out for those analyses performed at a 10 or higher dilution.



## Sample Summary

<b>Lab ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Collect Date</b>	<b>Receive Date</b>
22109147201	SE-SB09R A	Solid	9/09/21 12:45	9/14/21 10:54
22109147202	SE-SB09R B	Solid	9/09/21 12:47	9/14/21 10:54
22109147203	SE-SB09R C	Solid	9/09/21 12:50	9/14/21 10:54

## Detect Summary

Results and Detection Limits are adjusted for dilution and moisture when applicable

SM 2540 G-2011						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147201	SE-SB09R A	Total Moisture	%	18.3	1	NA
22109147202	SE-SB09R B	Total Moisture	%	11.2	1	NA
22109147203	SE-SB09R C	Total Moisture	%	16.3	1	NA

EPA 8270C SIM						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147201	SE-SB09R A	Benzo(b)fluoranthene	ug/Kg	3.56	1	NA
22109147201	SE-SB09R A	Benzo(g,h,i)perylene	ug/Kg	6.69	1	NA
22109147201	SE-SB09R A	Benzo(k)fluoranthene	ug/Kg	6.80	1	NA
22109147201	SE-SB09R A	Chrysene	ug/Kg	5.82	1	NA
22109147201	SE-SB09R A	Dibenz(a,h)anthracene	ug/Kg	7.97	1	NA
22109147201	SE-SB09R A	Indeno(1,2,3-cd)pyrene	ug/Kg	8.66	1	NA
22109147202	SE-SB09R B	1-Methylnaphthalene	ug/Kg	715	10	NA
22109147202	SE-SB09R B	2-Methylnaphthalene	ug/Kg	1100	10	NA
22109147202	SE-SB09R B	Fluorene	ug/Kg	40.0	10	NA
22109147202	SE-SB09R B	Naphthalene	ug/Kg	1570	10	NA
22109147202	SE-SB09R B	Phenanthrene	ug/Kg	50.7	10	NA
22109147203	SE-SB09R C	1-Methylnaphthalene	ug/Kg	27.7	1	NA
22109147203	SE-SB09R C	2-Methylnaphthalene	ug/Kg	42.2	1	NA
22109147203	SE-SB09R C	Naphthalene	ug/Kg	77.2	1	NA

MADEP EPH Rev 1.1 (LA) Aliph						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147202	SE-SB09R B	Aliphatic >C10-C12	mg/kg	59.7	5	NA
22109147202	SE-SB09R B	Aliphatic >C12-C16	mg/kg	51.2	5	NA
22109147202	SE-SB09R B	Aliphatic >C16-C35	mg/kg	200	5	NA
22109147203	SE-SB09R C	Aliphatic >C16-C35	mg/kg	20.3	1	NA

MADEP EPH Rev 1.1 (LA) Arom						
Lab ID	Client ID	Parameter	Units	Result	Dil.	%Moist
22109147202	SE-SB09R B	Aromatic >C21-C35	mg/kg	17.1	1	NA

## Sample Results

<b>SE-SB09R A</b>	<b>Collect Date</b> 09/09/2021 12:45	<b>Lab ID</b> 22109147201
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Solid

### EPA 8270C SIM

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:45	720977	EPA 3546	1	09/20/21 10:27	721120	DLB	

CAS#	Parameter	Result	LOQ	Units
90-12-0	1-Methylnaphthalene	ND	3.28	ug/Kg
91-57-6	2-Methylnaphthalene	ND	3.28	ug/Kg
83-32-9	Acenaphthene	ND	3.28	ug/Kg
208-96-8	Acenaphthylene	ND	3.28	ug/Kg
120-12-7	Anthracene	ND	3.28	ug/Kg
56-55-3	Benzo(a)anthracene	ND	3.28	ug/Kg
50-32-8	Benzo(a)pyrene	ND	3.28	ug/Kg
<b>205-99-2</b>	<b>Benzo(b)fluoranthene</b>	<b>3.56</b>	<b>3.28</b>	<b>ug/Kg</b>
<b>191-24-2</b>	<b>Benzo(g,h,i)perylene</b>	<b>6.69</b>	<b>3.28</b>	<b>ug/Kg</b>
<b>207-08-9</b>	<b>Benzo(k)fluoranthene</b>	<b>6.80</b>	<b>3.28</b>	<b>ug/Kg</b>
<b>218-01-9</b>	<b>Chrysene</b>	<b>5.82</b>	<b>3.28</b>	<b>ug/Kg</b>
<b>53-70-3</b>	<b>Dibenz(a,h)anthracene</b>	<b>7.97</b>	<b>3.28</b>	<b>ug/Kg</b>
206-44-0	Fluoranthene	ND	3.28	ug/Kg
86-73-7	Fluorene	ND	3.28	ug/Kg
<b>193-39-5</b>	<b>Indeno(1,2,3-cd)pyrene</b>	<b>8.66</b>	<b>3.28</b>	<b>ug/Kg</b>
91-20-3	Naphthalene	ND	3.28	ug/Kg
85-01-8	Phenanthrene	ND	3.28	ug/Kg
129-00-0	Pyrene	ND	3.28	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
7297-45-2	2-Methylnaphthalene-d10	265	177	ug/Kg	67	47 - 120
93951-69-0	Fluoranthene-d10	265	187	ug/Kg	71	47 - 120

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:01	721496	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-14	Aromatic >C8-C10	ND	29.9	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	39.20	37.9	mg/kg	97	60 - 140

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:01	721495	JAR	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-10	Aliphatic >C8-C10	ND	29.9	mg/kg
GCSV-02-30	Aliphatic C6-C8	ND	29.9	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
615-59-8	2,5-Dibromotoluene	39.20	39.9	mg/kg	102	60 - 140

## Sample Results

<b>SE-SB09R A</b>	<b>Collect Date</b> 09/09/2021 12:45	<b>Lab ID</b> 22109147201
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Solid

### MADEP EPH Rev 1.1 (LA) Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	1	09/17/21 12:45	721195	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-02-11	Aliphatic >C10-C12	ND	5.88	mg/kg
GCSV-02-12	Aliphatic >C12-C16	ND	5.88	mg/kg
GCSV-02-31	Aliphatic >C16-C35	ND	5.88	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
3386-33-2	1-Chlorooctadecane	3.92	3.04	mg/kg	78	40 - 140

### MADEP EPH Rev 1.1 (LA) Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	1	09/17/21 12:45	721194	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-05-18	Aromatic >C21-C35	ND	5.88	mg/kg
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	5.88	mg/kg
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	5.88	mg/kg
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	5.88	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
84-15-1	o-Terphenyl	3.92	3.55	mg/kg	91	40 - 140
580-13-2	2-Bromonaphthalene	3.92	1.93	mg/kg	49	40 - 140
321-60-8	2-Fluorobiphenyl	3.92	4.55	mg/kg	116	40 - 140

### SM 2540 G-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/16/21 16:09	721085	DJJ	NA

CAS#	Parameter	Result	LOQ	Units
<b>WET-037</b>	<b>Total Moisture</b>	<b>18.3</b>	<b>0.010</b>	<b>%</b>

<b>SE-SB09R B</b>	<b>Collect Date</b> 09/09/2021 12:47	<b>Lab ID</b> 22109147202
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Solid

### EPA 8270C SIM

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:45	720977	EPA 3546	10	09/20/21 11:04	721120	DLB	

CAS#	Parameter	Result	LOQ	Units
<b>90-12-0</b>	<b>1-Methylnaphthalene</b>	<b>715</b>	<b>32.6</b>	<b>ug/Kg</b>
<b>91-57-6</b>	<b>2-Methylnaphthalene</b>	<b>1100</b>	<b>32.6</b>	<b>ug/Kg</b>
83-32-9	Acenaphthene	ND	32.6	ug/Kg
208-96-8	Acenaphthylene	ND	32.6	ug/Kg
120-12-7	Anthracene	ND	32.6	ug/Kg
56-55-3	Benzo(a)anthracene	ND	32.6	ug/Kg
50-32-8	Benzo(a)pyrene	ND	32.6	ug/Kg

## Sample Results

<b>SE-SB09R B</b>	<b>Collect Date</b> 09/09/2021 12:47	<b>Lab ID</b> 22109147202
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Solid

### EPA 8270C SIM (Continued)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:45	720977	EPA 3546	10	09/20/21 11:04	721120	DLB	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
205-99-2	Benzo(b)fluoranthene			ND	32.6	ug/Kg	
191-24-2	Benzo(g,h,i)perylene			ND	32.6	ug/Kg	
207-08-9	Benzo(k)fluoranthene			ND	32.6	ug/Kg	
218-01-9	Chrysene			ND	32.6	ug/Kg	
53-70-3	Dibenz(a,h)anthracene			ND	32.6	ug/Kg	
206-44-0	Fluoranthene			ND	32.6	ug/Kg	
<b>86-73-7</b>	<b>Fluorene</b>			<b>40.0</b>	<b>32.6</b>	<b>ug/Kg</b>	
193-39-5	Indeno(1,2,3-cd)pyrene			ND	32.6	ug/Kg	
<b>91-20-3</b>	<b>Naphthalene</b>			<b>1570</b>	<b>32.6</b>	<b>ug/Kg</b>	
<b>85-01-8</b>	<b>Phenanthrene</b>			<b>50.7</b>	<b>32.6</b>	<b>ug/Kg</b>	
129-00-0	Pyrene			ND	32.6	ug/Kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
7297-45-2	2-Methylnaphthalene-d10		263	Diluted Out	ug/Kg	0*	47 - 120
93951-69-0	Fluoranthene-d10		263	Diluted Out	ug/Kg	0*	47 - 120

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:16	721496	JAR	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
GCSV-02-14	Aromatic >C8-C10			ND	26.3	mg/kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
615-59-8	2,5-Dibromotoluene		37.10	35.5	mg/kg	96	60 - 140

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:16	721495	JAR	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
GCSV-02-10	Aliphatic >C8-C10			ND	26.3	mg/kg	
GCSV-02-30	Aliphatic C6-C8			ND	26.3	mg/kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
615-59-8	2,5-Dibromotoluene		37.10	37.8	mg/kg	102	60 - 140

### MADEP EPH Rev 1.1 (LA) Aliph

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	5	09/20/21 12:25	721275	MFS	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
<b>GCSV-02-11</b>	<b>Aliphatic &gt;C10-C12</b>			<b>59.7</b>	<b>29.4</b>	<b>mg/kg</b>	
<b>GCSV-02-12</b>	<b>Aliphatic &gt;C12-C16</b>			<b>51.2</b>	<b>29.4</b>	<b>mg/kg</b>	

## Sample Results

<b>SE-SB09R B</b>	Collect Date	09/09/2021 12:47	Lab ID	22109147202
	Receive Date	09/14/2021 10:54	Matrix	Solid

### MADEP EPH Rev 1.1 (LA) Aliph (Continued)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	5	09/20/21 12:25	721275	MFS	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
<b>GCSV-02-31</b>	<b>Aliphatic &gt;C16-C35</b>			<b>200</b>	<b>29.4</b>	<b>mg/kg</b>	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
3386-33-2	1-Chlorooctadecane		3.92	3.69	mg/kg	94	40 - 140

### MADEP EPH Rev 1.1 (LA) Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	1	09/20/21 12:43	721274	MFS	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
<b>GCSV-05-18</b>	<b>Aromatic &gt;C21-C35</b>			<b>17.1</b>	<b>5.88</b>	<b>mg/kg</b>	
GCSV-02-15	Unadjusted >C10-C12 Aromatics			ND	5.88	mg/kg	
GCSV-02-16	Unadjusted >C12-C16 Aromatics			ND	5.88	mg/kg	
GCSV-02-17	Unadjusted >C16-C21 Aromatics			ND	5.88	mg/kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
84-15-1	o-Terphenyl		3.92	3.82	mg/kg	97	40 - 140
580-13-2	2-Bromonaphthalene		3.92	1.75	mg/kg	45	40 - 140
321-60-8	2-Fluorobiphenyl		3.92	4.21	mg/kg	107	40 - 140

### SM 2540 G-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/16/21 16:09	721085	DJJ	NA
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
<b>WET-037</b>	<b>Total Moisture</b>			<b>11.2</b>	<b>0.010</b>	<b>%</b>	

<b>SE-SB09R C</b>	Collect Date	09/09/2021 12:50	Lab ID	22109147203
	Receive Date	09/14/2021 10:54	Matrix	Solid

### EPA 8270C SIM

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:45	720977	EPA 3546	1	09/20/21 10:46	721120	DLB	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
<b>90-12-0</b>	<b>1-Methylnaphthalene</b>			<b>27.7</b>	<b>3.28</b>	<b>ug/Kg</b>	
<b>91-57-6</b>	<b>2-Methylnaphthalene</b>			<b>42.2</b>	<b>3.28</b>	<b>ug/Kg</b>	
83-32-9	Acenaphthene			ND	3.28	ug/Kg	
208-96-8	Acenaphthylene			ND	3.28	ug/Kg	
120-12-7	Anthracene			ND	3.28	ug/Kg	
56-55-3	Benzo(a)anthracene			ND	3.28	ug/Kg	
50-32-8	Benzo(a)pyrene			ND	3.28	ug/Kg	
205-99-2	Benzo(b)fluoranthene			ND	3.28	ug/Kg	
191-24-2	Benzo(g,h,i)perylene			ND	3.28	ug/Kg	

## Sample Results

<b>SE-SB09R C</b>	Collect Date	09/09/2021 12:50	Lab ID	22109147203
	Receive Date	09/14/2021 10:54	Matrix	Solid

### EPA 8270C SIM (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:45	720977	EPA 3546	1	09/20/21 10:46	721120	DLB	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
207-08-9	Benzo(k)fluoranthene			ND	3.28	ug/Kg	
218-01-9	Chrysene			ND	3.28	ug/Kg	
53-70-3	Dibenz(a,h)anthracene			ND	3.28	ug/Kg	
206-44-0	Fluoranthene			ND	3.28	ug/Kg	
86-73-7	Fluorene			ND	3.28	ug/Kg	
193-39-5	Indeno(1,2,3-cd)pyrene			ND	3.28	ug/Kg	
<b>91-20-3</b>	<b>Naphthalene</b>			<b>77.2</b>	<b>3.28</b>	<b>ug/Kg</b>	
85-01-8	Phenanthrene			ND	3.28	ug/Kg	
129-00-0	Pyrene			ND	3.28	ug/Kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
7297-45-2	2-Methylnaphthalene-d10		265	173	ug/Kg	65	47 - 120
93951-69-0	Fluoranthene-d10		265	182	ug/Kg	69	47 - 120

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:32	721496	JAR	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
GCSV-02-14	Aromatic >C8-C10			ND	27.7	mg/kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
615-59-8	2,5-Dibromotoluene		37.80	39.6	mg/kg	105	60 - 140

### MADEP VPH Rev 1.1 (LA)

\*Results And limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1000	09/22/21 16:32	721495	JAR	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
GCSV-02-10	Aliphatic >C8-C10			ND	27.7	mg/kg	
GCSV-02-30	Aliphatic C6-C8			ND	27.7	mg/kg	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
615-59-8	2,5-Dibromotoluene		37.80	42.3	mg/kg	112	60 - 140

### MADEP EPH Rev 1.1 (LA) Aliph

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	1	09/20/21 12:43	721275	MFS	
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>	
GCSV-02-11	Aliphatic >C10-C12			ND	6.00	mg/kg	
GCSV-02-12	Aliphatic >C12-C16			ND	6.00	mg/kg	
<b>GCSV-02-31</b>	<b>Aliphatic &gt;C16-C35</b>			<b>20.3</b>	<b>6.00</b>	<b>mg/kg</b>	
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>	<b>%Rec Limits</b>
3386-33-2	1-Chlorooctadecane		4	3.28	mg/kg	82	40 - 140



## Sample Results

<b>SE-SB09R C</b>	<b>Collect Date</b> 09/09/2021 12:50	<b>Lab ID</b> 22109147203
	<b>Receive Date</b> 09/14/2021 10:54	<b>Matrix</b> Solid

### MADEP EPH Rev 1.1 (LA) Arom

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
09/16/21 14:30	720978	MADEP EPH (LA)	1	09/17/21 13:17	721194	MFS	

CAS#	Parameter	Result	LOQ	Units
GCSV-05-18	Aromatic >C21-C35	ND	6.00	mg/kg
GCSV-02-15	Unadjusted >C10-C12 Aromatics	ND	6.00	mg/kg
GCSV-02-16	Unadjusted >C12-C16 Aromatics	ND	6.00	mg/kg
GCSV-02-17	Unadjusted >C16-C21 Aromatics	ND	6.00	mg/kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	%Rec Limits
84-15-1	o-Terphenyl	4	3.19	mg/kg	80	40 - 140
580-13-2	2-Bromonaphthalene	4	3.9	mg/kg	98	40 - 140
321-60-8	2-Fluorobiphenyl	4	4.21	mg/kg	105	40 - 140

### SM 2540 G-2011

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	1	09/16/21 16:09	721085	DJJ	NA

CAS#	Parameter	Result	LOQ	Units
<b>WET-037</b>	<b>Total Moisture</b>	<b>16.3</b>	<b>0.010</b>	<b>%</b>



## GC/MS Semi-Volatiles QC Summary

<b>Analytical Batch</b>		Client ID	MB720977	LCS720977	LCSD720977							
721120		Lab ID	2238566	2238567	2238568							
<b>Prep Batch</b>		Sample Type	MB	LCS	LCSD							
720977		Prep Date	09/16/21 14:45	09/16/21 14:45	09/16/21 14:45							
<b>Prep Method</b>		Analysis Date	09/20/21 08:09	09/20/21 08:28	09/20/21 08:47							
EPA 3546		Matrix	Solid	Solid	Solid							
<b>EPA 8270C SIM</b>		Units Result	ug/Kg LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1-Methylnaphthalene	90-12-0	ND	3.30	333	285	86	43 - 111	333	291	87	2	20
2-Methylnaphthalene	91-57-6	ND	3.30	333	245	74	39 - 114	333	247	74	1	20
Acenaphthene	83-32-9	ND	3.30	333	271	81	44 - 111	333	272	82	0	20
Acenaphthylene	208-96-8	ND	3.30	333	262	79	39 - 116	333	263	79	0	20
Anthracene	120-12-7	ND	3.30	333	229	69	50 - 114	333	229	69	0	20
Benzo(a)anthracene	56-55-3	ND	3.30	333	269	81	54 - 122	333	267	80	1	20
Benzo(a)pyrene	50-32-8	ND	3.30	333	280	84	50 - 125	333	280	84	0	20
Benzo(b)fluoranthene	205-99-2	ND	3.30	333	286	86	53 - 128	333	289	87	1	20
Benzo(g,h,i)perylene	191-24-2	ND	3.30	333	294	88	49 - 127	333	295	89	0	20
Benzo(k)fluoranthene	207-08-9	ND	3.30	333	278	83	56 - 123	333	277	83	0	20
Chrysene	218-01-9	ND	3.30	333	278	83	57 - 118	333	278	83	0	20
Dibenz(a,h)anthracene	53-70-3	ND	3.30	333	320	96	50 - 129	333	321	96	0	20
Fluoranthene	206-44-0	ND	3.30	333	272	82	55 - 119	333	272	82	0	20
Fluorene	86-73-7	ND	3.30	333	266	80	47 - 114	333	267	80	0	20
Indeno(1,2,3-cd)pyrene	193-39-5	ND	3.30	333	340	102	49 - 130	333	341	102	0	20
Naphthalene	91-20-3	ND	3.30	333	265	80	38 - 111	333	267	80	1	20
Phenanthrene	85-01-8	ND	3.30	333	268	80	49 - 113	333	268	80	0	20
Pyrene	129-00-0	ND	3.30	333	279	84	55 - 117	333	278	83	0	20
<b>Surrogate</b>												
2-Methylnaphthalene-d10	7297-45-2	178	67	267	176	66	47 - 120	267	177	66	NA	NA
Fluoranthene-d10	93951-69-0	192	72	267	194	73	47 - 120	267	194	73	NA	NA



## GC Volatiles QC Summary

<b>Analytical Batch</b> 721495		Client ID	MB721495	LCS721495			LCSD721495					
		Lab ID	2241310	2241311			2241312					
		Sample Type	MB	LCS			LCSD					
		Prep Date	NA	NA			NA					
		Analysis Date	09/22/21 13:24	09/22/21 11:47			09/22/21 12:02					
		Matrix	Solid	Solid			Solid					
<b>MADEP VPH Rev 1.1 (LA)</b>		Units	mg/kg	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
		Result	LOQ	Added			Limits%R	Added				Limit
Aliphatic >C8-C10	GCSV-02-10	ND	1.50	5.00	5.69	114	60 - 140	5.00	5.65	113	1	30
Aliphatic C6-C8	GCSV-02-30	ND	1.50	7.50	9.15	122	60 - 140	7.50	9.05	121	1	30
<b>Surrogate</b>												
2,5-Dibromotoluene	615-59-8	2.66	106	2.5	2.76	110	60 - 140	2.5	2.65	106	NA	NA

<b>Analytical Batch</b> 721496		Client ID	MB721496	LCS721496			LCSD721496					
		Lab ID	2241313	2241314			2241315					
		Sample Type	MB	LCS			LCSD					
		Prep Date	NA	NA			NA					
		Analysis Date	09/22/21 13:24	09/22/21 11:47			09/22/21 12:02					
		Matrix	Solid	Solid			Solid					
<b>MADEP VPH Rev 1.1 (LA)</b>		Units	mg/kg	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
		Result	LOQ	Added			Limits%R	Added				Limit
Aromatic >C8-C10	GCSV-02-14	ND	1.50	7.50	8.23	110	60 - 140	7.50	8.00	107	3	30
<b>Surrogate</b>												
2,5-Dibromotoluene	615-59-8	2.5	100	2.5	2.65	106	60 - 140	2.5	2.47	99	NA	NA

## GC Semi-Volatiles QC Summary

<b>Analytical Batch</b> 721195		Client ID	MB720978	<b>LCS720978</b> 2238571			<b>LCSD720978</b> 2238572					
<b>Prep Batch</b> 720978		Lab ID	2238570	<b>LCS</b> 09/16/21 14:30			<b>LCSD</b> 09/16/21 14:30					
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA)		Sample Type	MB	<b>09/17/21 17:06</b>			<b>09/17/21 12:27</b>					
		Prep Date	09/16/21 14:30	<b>Solid</b>			<b>Solid</b>					
		Analysis Date	09/17/21 11:51									
		Matrix	Solid									
<b>MADEP EPH Rev 1.1 (LA)</b>		Units	mg/kg	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
		Result	LOQ	Added			Limits%R	Added				Limit
Aliphatic >C10-C12	GCSV-02-11	ND	6.00	9.90	6.63	67	30 - 140	10.0	8.41	84	24	25
Aliphatic >C12-C16	GCSV-02-12	ND	6.00	9.90	7.12	72	40 - 140	10.0	7.84	78	10	25
Aliphatic >C16-C35	GCSV-02-31	ND	6.00	44.6	34.5	77	40 - 140	45.0	35.5	79	3	25
<b>Surrogate</b>												
1-Chlorooctadecane	3386-33-2	3.46	87	3.96	3.1	78	40 - 140	4	3.18	80	NA	NA

<b>Analytical Batch</b> 721194		Client ID	MB720978	<b>LCS720978</b> 2238571			<b>LCSD720978</b> 2238572					
<b>Prep Batch</b> 720978		Lab ID	2238570	<b>LCS</b> 09/16/21 14:30			<b>LCSD</b> 09/16/21 14:30					
<b>Prep Method</b> MADEP EPH Rev 1.1 (LA)		Sample Type	MB	<b>09/17/21 16:04</b>			<b>09/17/21 16:35</b>					
		Prep Date	09/16/21 14:30	<b>Solid</b>			<b>Solid</b>					
		Analysis Date	09/17/21 17:06									
		Matrix	Solid									
<b>MADEP EPH Rev 1.1 (LA)</b>		Units	mg/kg	Spike	Result	%R	Control	Spike	Result	%R	RPD	RPD
		Result	LOQ	Added			Limits%R	Added				Limit
Aromatic >C21-C35	GCSV-05-18	ND	6.00	49.5	52.9	107	40 - 140	50.0	51.4	103	3	25
Unadjusted >C10-C12 Aromatics	GCSV-02-15	ND	6.00	4.95	3.93	79	30 - 140	5.00	4.00	80	2	25
Unadjusted >C12-C16 Aromatics	GCSV-02-16	ND	6.00	19.8	21.3	108	40 - 140	20.0	21.8	109	2	25
Unadjusted >C16-C21 Aromatics	GCSV-02-17	ND	6.00	9.90	12.0	121	40 - 140	10.0	12.2	122	2	25
<b>Surrogate</b>												
2-Bromonaphthalene	580-13-2	2.49	62	3.96	2.02	51	40 - 140	4	2.12	53	NA	NA
2-Fluorobiphenyl	321-60-8	3.42	86	3.96	4.38	111	40 - 140	4	4.63	116	NA	NA
o-Terphenyl	84-15-1	3.06	77	3.96	3.95	100	40 - 140	4	4.09	102	NA	NA



## General Chemistry QC Summary

<b>Analytical Batch</b> 721085	Client ID Lab ID Sample Type Prep Date Analysis Date Matrix	SE-SB09R C 22109147203 SAMPLE NA 09/16/2021 16:09 Solid	2238219DUP 2239244 DUP NA 09/16/21 16:09 Solid			
<b>SM 2540 G-2011</b>		Units Result	% LOQ	Result	RPD	RPD Limit
Total Moisture	WET-037	16.3	0.010	15.9	3	25

**CHAIN-OF-CUSTODY Analytical Request Document**

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **ERM** Billing Information:

Address: **640 W Sam Houston Pkwy N Suite 600**

Report To: **Shawn Wiggins** Email To: **shawn.wiggins@erm.com**

Copy To: **Michael Goodman** Site Collection Info/Address:

Customer Project Name/Number: **Newmin 0494259** State: **/** County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET

Phone: **930 379 6098** Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No

Collected By (print): **Michael Goodman** Purchase Order #: DW PWS ID #: Quote #: DW Location Code:

Collected By (signature): **[Signature]** Turnaround Date Required: Immediately Packed on Ice: [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold: [ ] Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)


Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	TPH fractions (EPH/UPH)	PAH's - EXTRACT + HOLD	X Moisture
			Date	Time	Date	Time					
SE-SB09R 4-6'	SL	G	9-9	1245			3	X	X	X	
SE-SB09R 6-8'	SL	G	9-9	1247			3	X	X	X	
SE-SB09R 8-10'	SL	G	9-9	1250			3	X	X	X	

LAB USE ONLY- Affix Work

**Client ID: 4271 - ERM-Baton Rouge**

**SDG: 221091472**

**PM: AMK**



ALL SHAD

Container Preservative T

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses										Lab Profile/Line:	
Lab Sample Receipt Checklist:											
Custody Seals Present/Intact Y N NA											
Custody Signatures Present Y N NA											
Collector Signature Present Y N NA											
Bottles Intact Y N NA											
Correct Bottles Y N NA											
Sufficient Volume Y N NA											
Samples Received on Ice Y N NA											
VOA - Headspace Acceptable Y N NA											
USDA Regulated Soils Y N NA											
Samples in Holding Time Y N NA											
Residual Chlorine Present Y N NA											
Cl Strips: _____											
Sample pH Acceptable Y N NA											
pH Strips: _____											
Sulfide Present Y N NA											
Lead Acetate Strips: _____											
LAB USE ONLY:											
Lab Sample # / Comments:											

Customer Remarks / Special Conditions / Possible Hazards: Type of Ice Used: Wet Blue Dry None SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used: Lab Tracking #: **2681431**

Radchem sample(s) screened (<500 cpm): Y N NA Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info: Temp Blank Received: Y N NA Therm ID#: Cooler 1 Temp Upon Receipt: °C Cooler 1 Therm Corr. Factor: °C Cooler 1 Corrected Temp: °C Comments:

Relinquished by/Company: (Signature) <b>Michael Goodman ERM [Signature]</b>	Date/Time: <b>9-10-21 1405</b>	Received by/Company: (Signature) <b>Shawn Wiggins ERM [Signature]</b>	Date/Time: <b>9/10/21 1405</b>	MTJL LAB USE ONLY
Relinquished by/Company: (Signature) <b>Shawn Wiggins ERM [Signature]</b>	Date/Time: <b>9-10-21 1638</b>	Received by/Company: (Signature) <b>[Signature]</b>	Date/Time: <b>9/10/21 1638</b>	Table #: Acctnum: Template: Prelogin:
Relinquished by/Company: (Signature) <b>[Signature]</b>	Date/Time: <b>9/14/21 0845</b>	Received by/Company: (Signature) <b>[Signature]</b>	Date/Time: <b>9-14-21 0845</b>	PM: PB:

2.5 EB4 52LPM

Trip Blank Received: Y N NA  
HCL MeOH TSP Other

Non Conformance(s): YES / NO Page: of:



# SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 221091472		CHECKLIST		YES	NO
<b>Client</b> PM AMK 4271 - ERM-Baton Rouge	<b>Transport Method</b> COURIER	Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Profile Number</b> 294297	<b>Received By</b> McCune, Dodie N.	COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Line Item(s)</b> 2 - Solid	<b>Receive Date(s)</b> 09/14/21	All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		Samples collected in containers provided by Pace Gulf Coast?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
COOLERS		DISCREPANCIES	LAB PRESERVATIONS		
<b>Airbill</b>	<b>Thermometer ID:</b> E34	None	None		
	<b>Temp °C</b> 2.5				
NOTES					

## Shawn Wiggins

---

**From:** Anna Kinchen <Anna.Kinchen@pacelabs.com>  
**Sent:** Tuesday, September 28, 2021 12:07 PM  
**To:** Shawn Wiggins  
**Subject:** 221091472

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Shawn, a couple of things. See below for the pics you asked for. The first single pic is C then B then A. We do not have enough sample in B to run an SPLP. Let me know how you wish to proceed. Thanks



### Anna Kinchen

Project Manager II | Pace Environmental Sciences  
7979 Innovation Park Dr, Baton Rouge, LA 70820  
o: (225) 769-4900 | d: (225) 214-7052 | [pacelabs.com](http://pacelabs.com)



**Exciting news that will save you time and money!!! Pace Gulf Coast Laboratory is now offering Reduced Volume Technology for EPH, PAH 8270, PAH 8270SIM, 625 and 8270. Reduced Volume Technology allows for the use of two 100 ml amber glass bottles for sample collection.**

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Please consider the environment before printing this email

---

**From:** Liz Martin <Liz.Martin@pacelabs.com>  
**Sent:** Tuesday, September 28, 2021 12:03 PM  
**To:** Anna Kinchen <Anna.Kinchen@pacelabs.com>  
**Subject:**













Sent from my iPhone

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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)

September 24, 2021

Shawn Wiggins  
Environmental Resources Management  
CityCentre Four  
840 W. Sam Houston Pkwy North, Suite 600  
Houston, TX 77024  
TEL: (504) 831-6700  
FAX: 281 524 4625

RE: Neuman 0494259

Order No.: 21090282

Dear Shawn Wiggins:

Element Materials Technology Lafayette received 15 sample(s) on 9/10/2021 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

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

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

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

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

A handwritten signature in blue ink that reads "Cristina Johnson".

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



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

## Case Narrative

WO#: 21090282  
Date: 9/24/2021

---

**CLIENT:** Environmental Resources Management

**Project:** Neuman 0494259

---

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

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

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





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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 9:40:00 AM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-001 **Matrix:** SOIL  
**Client Sample ID** SS-2 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: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	25.6	0.100		meq/100g	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.29	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.72	0.10		%	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.03	0.10			1	9/21/2021
Soluble Calcium	4.28	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.78	0.05		meq/L	1	9/21/2021
Soluble Sodium	5.27	0.25		meq/L	1	9/21/2021
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	12.6	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 9:42:00 AM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-002 **Matrix:** SOIL  
**Client Sample ID** SS-2 1-2'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Cation Exchange Capacity	26.8	0.100		meq/100g	1	9/24/2021	
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.68	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Exchangeable Sodium %	1.30	0.10		%	1	9/24/2021	
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.15	0.10			1	9/21/2021	
Soluble Calcium	2.13	0.02		meq/L	1	9/21/2021	
Soluble Magnesium	0.99	0.05		meq/L	1	9/21/2021	
Soluble Sodium	2.68	0.25		meq/L	1	9/21/2021	
<b>PERCENT MOISTURE</b>							
					<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	12.5	1.00		wt%	1	9/13/2021 6:00:00 AM	

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 9:44:00 AM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-003 **Matrix:** SOIL  
**Client Sample ID** SS-2 2-3'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	31.5	0.100		meq/100g	1	9/24/2021
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.50	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM
					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.87	0.10		%	1	9/24/2021
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.71	0.10			1	9/21/2021
Soluble Calcium	1.58	0.02		meq/L	1	9/21/2021
Soluble Magnesium	0.81	0.05		meq/L	1	9/21/2021
Soluble Sodium	1.87	0.25		meq/L	1	9/21/2021
<b>PERCENT MOISTURE</b>						
Percent Moisture	15.5	1.00		wt%	1	9/13/2021 6:00:00 AM
					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>

**Qualifiers:**

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 11:40:00 AM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-004 **Matrix:** SOIL  
**Client Sample ID** B-7R 12.5-15'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	3.93	0.10		mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	36.0	1.25		mg/L	5	9/17/2021 1:55:46 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	21.3	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 11:55:00 AM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-005 **Matrix:** SOIL  
**Client Sample ID** B-7R 18-20'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.97	0.10		mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	30.4	2.50		mg/L	10	9/17/2021 2:36:58 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	21.1	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 2:45:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-006 **Matrix:** SOIL  
**Client Sample ID** SE-SB19R 13-15'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	4.99	0.10	*	mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	23.6	1.25		mg/L	5	9/17/2021 2:50:46 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	19.7	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 3:00:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-007 **Matrix:** SOIL  
**Client Sample ID** SE-SB19R 22-24'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	1.06	0.10		mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	19.9	1.25		mg/L	5	9/17/2021 3:04:34 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	23.6	1.00		wt%	1	9/13/2021 6:00:00 AM

**Qualifiers:**

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 4:45:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-008 **Matrix:** SOIL  
**Client Sample ID** B-12R 0-2.5'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	2.13	0.10		mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	4.52	1.25		mg/L	5	9/17/2021 3:18:22 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	14.2	1.00		wt%	1	9/13/2021 6:00:00 AM

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





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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 4:52:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-009 **Matrix:** SOIL  
**Client Sample ID** B-12R 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	1.07	0.10		mmhos/cm	1	9/16/2021 10:10:00 AM
<b>INORGANIC ANIONS, SPLP LEACHED BY SW1312/9056A</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	6.52	1.25		mg/L	5	9/17/2021 3:32:10 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	14.4	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 12:45:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-010 **Matrix:** SOIL  
**Client Sample ID** SE-SB09 R 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: HXW
HEM, Oil & Grease	0.06	0.05		% dry wt	1	9/14/2021 9:30:00 AM

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



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

# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 12:50:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-011 **Matrix:** SOIL  
**Client Sample ID** SE-SB09 R 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: HXW
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	9/14/2021 9:30:00 AM

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 1:30:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-012 **Matrix:** SOIL  
**Client Sample ID** SS-1 0-1'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	28.9	0.100		meq/100g	1	9/24/2021
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.60	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM
					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.88	0.10		%	1	9/24/2021
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.53	0.10			1	9/21/2021
Soluble Calcium	3.45	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.12	0.05		meq/L	1	9/21/2021
Soluble Sodium	8.36	0.25		meq/L	1	9/21/2021
<b>PERCENT MOISTURE</b>						
Percent Moisture	14.1	1.00		wt%	1	9/13/2021 6:00:00 AM
					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 1:32:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-013 **Matrix:** SOIL  
**Client Sample ID** SS-1 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: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	29.3	0.100		meq/100g	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.50	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.8	0.10		%	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.45	0.10			1	9/21/2021
Soluble Calcium	3.84	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.27	0.05		meq/L	1	9/21/2021
Soluble Sodium	7.11	0.25		meq/L	1	9/21/2021
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	15.1	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 1:35:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-014 **Matrix:** SOIL  
**Client Sample ID** SS-1 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: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	26.5	0.100		meq/100g	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.12	0.10		mmhos/cm	1	9/21/2021 1:20:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	< 0.10	0.10		%	1	9/24/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.55	0.10			1	9/21/2021
Soluble Calcium	3.65	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.30	0.05		meq/L	1	9/21/2021
Soluble Sodium	4.02	0.25		meq/L	1	9/21/2021
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	19.8	1.00		wt%	1	9/13/2021 6:00:00 AM

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



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

(consolidated)

WO#: 21090282

Date Reported: 9/24/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 3:25:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21090282-015 **Matrix:** SOIL  
**Client Sample ID** B-29R 10-12.5'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Arsenic	2.73	1.04		mg/Kg	1	9/15/2021 5:27:34 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	21.7	1.00		wt%	1	9/13/2021 6:00:00 AM

**Qualifiers:**

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



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282

24-Sep-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** 40937

Sample ID: <b>MB-40937</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102655</b>						
Client ID: <b>PBS</b>	Batch ID: <b>40937</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504613</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 1.00	1.00									

Sample ID: <b>LCS-40937</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102655</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40937</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504614</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	27.1	1.00	25.00	0	108	80	120				

Sample ID: <b>LCSD-40937</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102655</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40937</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504615</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.9	1.00	25.00	0	104	80	120	27.07	4.41	20	

Sample ID: <b>21090282-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102655</b>						
Client ID: <b>SS-2 0-1'</b>	Batch ID: <b>40937</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504617</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.8	0.990	24.75	1.227	91.2	75	125				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s <sub>i</sub>





Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** 40937

Sample ID: 21090282-001AMSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 9/13/2021	RunNo: 102655						
Client ID: SS-2 0-1'	Batch ID: 40937	TestNo: SW6010B	SW3050B	Analysis Date: 9/15/2021	SeqNo: 2504618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.6	0.991	24.77	1.227	90.5	75	125	23.80	0.629	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** 41012

Sample ID: <b>21090282-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>9/21/2021</b>	RunNo: <b>102774</b>						
Client ID: <b>SS-2 1-2'</b>	Batch ID: <b>41012</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2507404</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.12	0.10						2.15	1.26	20	
Soluble Calcium	2.15	0.02						2.13	0.70	20	
Soluble Magnesium	1.00	0.05						0.99	0.96	20	
Soluble Sodium	2.66	0.25						2.68	0.87	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- ND Not Detected at the Reporting Limit
- SDL Sample detection limit
- H Holding times for preparation or analysis exceeded
- RL Reporting Limit
- U Analyte not detected
- M Matrix Interference
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as s1



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** 41025

Sample ID: <b>21090282-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>9/22/2021</b>	RunNo: <b>102875</b>						
Client ID: <b>SS-2 1-2'</b>	Batch ID: <b>41025</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/24/2021</b>	SeqNo: <b>2510490</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	1.36	0.10						1.30	4.51	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** 41026

Sample ID: <b>21090282-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102875</b>						
Client ID: <b>SS-2 1-2'</b>	Batch ID: <b>41026</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/24/2021</b>	SeqNo: <b>2510447</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	26.8	0.100						26.84	0.186	20	

Sample ID: <b>lcs-41026</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102875</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>41026</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/24/2021</b>	SeqNo: <b>2510462</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	21.1	0.100	25.00	0	84.6	76	124				

Sample ID: <b>lcsd-41026</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102875</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>41026</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/24/2021</b>	SeqNo: <b>2510463</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	19.6	0.100	25.00	0	78.5	76	124	21.14	7.41	20	

**Qualifiers:**

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



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090282

24-Sep-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** R102603

Sample ID: <b>MB-R102603</b>	SampType: <b>MBLK</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>102603</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R102603</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>9/14/2021</b>	SeqNo: <b>2504890</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	< 0.05	0.05									

Sample ID: <b>LCS-R102603</b>	SampType: <b>LCS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>102603</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R102603</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>9/14/2021</b>	SeqNo: <b>2504891</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	0.23	0.05	0.20	0	116	70	130				

Sample ID: <b>LCSD-R102603</b>	SampType: <b>LCSD</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>102603</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R102603</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>9/14/2021</b>	SeqNo: <b>2504892</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	0.23	0.05	0.20	0	117	70	130	0.23	0.86	40	

Sample ID: <b>21090282-010AMS</b>	SampType: <b>MS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>102603</b>						
Client ID: <b>SE-SB09 R 4-6'</b>	Batch ID: <b>R102603</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>9/14/2021</b>	SeqNo: <b>2504893</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	0.48	0.05	0.27	0.06	156	70	130				S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected	W Sample container temperature is out of limit as s <sub>i</sub>



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102603

Sample ID: <b>21090282-010ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>102603</b>						
Client ID: <b>SE-SB09 R 4-6'</b>	Batch ID: <b>R102603</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>9/14/2021</b>	SeqNo: <b>2504895</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	0.06	0.05						0.06	1.08	40	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6546  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102634

Sample ID: <b>21090298-007Adup</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>102634</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R102634</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504064</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.9	1.00						16.80	5.50	20	

Sample ID: <b>21090298-025Adup</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>102634</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R102634</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504083</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	13.8	1.00						13.00	5.97	20	

Sample ID: <b>21090308-002Adup</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>102634</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R102634</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504098</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	17.8	1.00						16.00	10.7	20	

Sample ID: <b>21090308-021Adup</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>102634</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R102634</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504118</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.8	1.00						14.80	0	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** R102634

Sample ID: <b>21090308-041Adup</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>102634</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R102634</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504140</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	13.8	1.00						12.10	13.1	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1





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# QC SUMMARY REPORT

WO#: 21090282

24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102659

Sample ID: <b>MB-R102659</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102659</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R102659</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2504756</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>LCS1-R102659</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102659</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102659</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2504757</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.49	0.10	0.46	0	107	90	110				

Sample ID: <b>LCS2-R102659</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102659</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102659</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2504758</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	50.6	0.10	53.00	0	95.5	90	110				

Sample ID: <b>21090086-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102659</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102659</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2504760</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	2.00	0.10						2.00	0.05	20	

**Qualifiers:**

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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



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# QC SUMMARY REPORT

WO#: 21090282

24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102698

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_SPLP</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102698</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R102698</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505562</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>9056_SPLP</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102698</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R102698</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505563</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.92	0.250	10.00	0	99.2	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_SPLP</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102698</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R102698</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505564</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.64	0.250	10.00	0	96.4	80	120	9.916	2.79	15	

Sample ID: <b>21090282-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_SPLP</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102698</b>						
Client ID: <b>B-7R 12.5-15'</b>	Batch ID: <b>R102698</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505566</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	65.3	1.25	25.00	35.96	117	80	120				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102698

Sample ID: <b>21090282-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>9056_SPLP</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102698</b>						
Client ID: <b>B-7R 12.5-15'</b>	Batch ID: <b>R102698</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505567</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	65.7	1.25	25.00	35.96	119	80	120	65.29	0.690	15	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s1



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# QC SUMMARY REPORT

WO#: 21090282  
 24-Sep-21

**Client:** Environmental Resources Management  
**Project:** Neuman 0494259

**BatchID:** R102762

Sample ID: <b>MB-R102762</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102762</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R102762</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506959</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>LCS1-R102762</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102762</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102762</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506960</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.46	0.10	0.46	0	99.6	90	110				

Sample ID: <b>LCS2-R102762</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102762</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102762</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506961</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	53.5	0.10	53.00	0	101	90	110				

Sample ID: <b>21090282-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102762</b>						
Client ID: <b>SS-2 1-2'</b>	Batch ID: <b>R102762</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506964</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.67	0.10						0.68	0.15	20	

**Qualifiers:**

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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as s <sub>i</sub>



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## Sample Log-In Check List

Client Name: ERM\_HOUSTON

Work Order Number: 21090282

RcptNo: 1

Logged by: Tammy Thibodeaux 9/10/2021 11:43:00 AM  
 Completed By: Tammy Thibodeaux 9/10/2021 12:50:06 PM  
 Reviewed By: Caitlin Duplantis 9/17/2021 12:51:53 PM

*Tammy Thibodeaux*  
*Tammy Thibodeaux*  
*Caitlin Duplantis*

### Chain of Custody

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

### Log In

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

### Special Handling (if applicable)

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

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

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

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Not Present			



# Chain of Custody

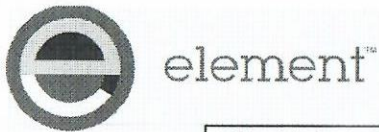
Laboratory Number: 21090282

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ERM Shawn Wiggins Michael Goodman 930 379 6098 Shawn.Wiggins@erm.com	<b>Billing Information:</b> ERM	PO Number: Quote Number: Required QC Level: Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Name/Number: Neuman 0494259 Sampler's Signature:  Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	Page of <b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
---	--	------------------------------------	--	--	---

Which Regulations Apply:	Turn Time	Collection Information	Matrix	Container		Pres.	Requested Tests						Comments
				Quantity	Type		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>	% Moisture	29B Salts	EC	SPLPCI		
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: Time: Grab / Composite:											

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		9/10/21 1143	Alicia Bandman	9/10/21 1143	Received at lab on ice?
2					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>2.2</u>
3					

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.



# Chain of Custody

Laboratory Number: 21090282

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ERM Shawn Wiggins	<b>Billing Information:</b> ERM	PO Number:	Project Name/Number: Neuman 0494259	Page of <b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	Quote Number:	Sampler's Signature: 			
	Required QC Level:	Shipping Method: UPS / FedEx / Airborne DHL / Element / <u>Hand</u> / Mail			
	Bill Monthly:	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	Phone Ext: Michael Goodman 536 379 6048 Fax Ext:	E-mail Address: Shawn.Wiggins@erm.com			

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"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard 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		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		
			Quantity	Type P=Plastic, G=Glass, V=Vial		HEM O+G	29B Salts	X Moisture	Arsenic					
<b>Collection Information</b> Date Time Grab / Composite Matrix														
SE-SB09R 4-6'	9-9-21	1245	G	So	1	G	-	X						
SE-SB09R 8-10'	"	1250	G	So	1	G	-	X						
SS-1 0-1'	"	1330	G	So	1	P			X	X				
SS-1 1-2'	"	1332	G	So	1	P			X	X				
SS-1 2-3'	"	1335	G	So	1	P			X	X				
B-29R 10-12.5'	"	1525	G	So	1	P				X	X			

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		9/10/21 1143	Alicia Bourdane	9/10/21 1143	
2					Received at lab on ice?
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 22 AS-1110

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



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Lafayette, LA 70508-3344  
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October 22, 2021

Shawn Wiggins  
Environmental Resources Management  
CityCentre Four  
840 W. Sam Houston Pkwy North, Suite 600  
Houston, TX 77024  
TEL:  
FAX

RE: Neuman 0494259

Order No.: 21100071

Dear Shawn Wiggins:

Element Materials Technology Lafayette received 3 sample(s) on 9/10/2021 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

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

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

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

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



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



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

## Case Narrative

WO#: 21100071  
Date: 10/22/2021

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**CLIENT:** Environmental Resources Management

**Project:** Neuman 0494259

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This report contains additional analytical data for the sample(s) originally received on 9/10/21 and assigned to Order Number 21090282. Per client request, the samples were analyzed for additional parameter(s). At the time of activation, the client was informed the SPLP PAH sample was not stored under temperature preservation, nor is in the 14 day hold time for the SPLP leachate prep. As per the client, the lab was to continue with analysis and report the data with the hold time (H) qualifier.

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

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

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



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

# Analytical Report

(consolidated)

WO#: **21100071**

Date Reported: **10/22/2021**

**CLIENT:** Environmental Resources Management **Collection Date:** 9/8/2021 4:52:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21100071-001 **Matrix:** SOIL  
**Client Sample ID** B-12R 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>PERCENT ORGANIC MATTER</b>		<b>ASTM-D2974</b>			Analyst: <b>BXB</b>	
Percent Organic Matter	2.50	0.0100	%	1	10/4/2021 12:24:00 PM	

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



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

# Analytical Report

(consolidated)

WO#: 21100071

Date Reported: 10/22/2021

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 12:45:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21100071-002 **Matrix:** SOIL  
**Client Sample ID** SE-SB09R 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES, SPLP LEACHED</b>					<b>SW8270C</b>	<b>E625/SW351</b> Analyst: <b>KSK</b>
Naphthalene	0.0106	0.00510	H	mg/L	1	10/20/2021 9:23:00 PM
Surr: 2,4,6-Tribromophenol	87.6	47.2 - 144	H	%Rec	1	10/20/2021 9:23:00 PM
Surr: 2-Fluorobiphenyl	67.7	52.2 - 116	H	%Rec	1	10/20/2021 9:23:00 PM
Surr: 2-Fluorophenol	37.8	27.3 - 80.6	H	%Rec	1	10/20/2021 9:23:00 PM
Surr: 4-Terphenyl-d14	34.3	48.1 - 134	S MH	%Rec	1	10/20/2021 9:23:00 PM
Surr: Nitrobenzene-d5	80.6	42.5 - 144	H	%Rec	1	10/20/2021 9:23:00 PM
Surr: Phenol-d5	23.8	10 - 67.1	H	%Rec	1	10/20/2021 9:23:00 PM

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



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

# Analytical Report

(consolidated)

WO#: **21100071**

Date Reported: **10/22/2021**

**CLIENT:** Environmental Resources Management **Collection Date:** 9/9/2021 3:25:00 PM  
**Project:** Neuman 0494259  
**Lab ID:** 21100071-003 **Matrix:** SOIL  
**Client Sample ID** B-29R 10-12.5'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>PERCENT ORGANIC MATTER</b>		<b>ASTM-D2974</b>			Analyst: <b>BXB</b>	
Percent Organic Matter	7.01	0.0100	%	1	10/4/2021 12:24:00 PM	

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



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

# QC SUMMARY REPORT

WO#: 21100071  
 22-Oct-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** 41338

Sample ID: <b>LCSD-41338</b>	SampType: <b>LCSD</b>	TestCode: <b>8270_SPLP</b>	Units: <b>mg/L</b>	Prep Date: <b>10/20/2021</b>	RunNo: <b>103662</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>41338</b>	TestNo: <b>SW8270C</b>	<b>E625/SW351</b>	Analysis Date: <b>10/20/2021</b>	SeqNo: <b>2529872</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	0.0430	0.00500	0.05000	0	86.0	65.1	107	0.04043	6.12	40	
Surr: 2,4,6-Tribromophenol	0.0349		0.03000		116	47.2	144		0	40	
Surr: 2-Fluorobiphenyl	0.0173		0.02000		86.5	52.2	116		0	40	
Surr: 2-Fluorophenol	0.0126		0.03000		42.2	27.3	80.6		0	40	
Surr: 4-Terphenyl-d14	0.0128		0.02000		64.1	48.1	134		0	40	
Surr: Nitrobenzene-d5	0.0220		0.02000		110	42.5	144		0	40	
Surr: Phenol-d5	0.00720		0.03000		24.0	10	67.1		0	40	

Sample ID: <b>LCS-41338</b>	SampType: <b>LCS</b>	TestCode: <b>8270_SPLP</b>	Units: <b>mg/L</b>	Prep Date: <b>10/20/2021</b>	RunNo: <b>103662</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>41338</b>	TestNo: <b>SW8270C</b>	<b>E625/SW351</b>	Analysis Date: <b>10/20/2021</b>	SeqNo: <b>2529873</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	0.0404	0.00500	0.05000	0	80.9	65.1	107				
Surr: 2,4,6-Tribromophenol	0.0331		0.03000		110	47.2	144				
Surr: 2-Fluorobiphenyl	0.0166		0.02000		82.9	52.2	116				
Surr: 2-Fluorophenol	0.0127		0.03000		42.3	27.3	80.6				
Surr: 4-Terphenyl-d14	0.0124		0.02000		62.0	48.1	134				
Surr: Nitrobenzene-d5	0.0211		0.02000		105	42.5	144				
Surr: Phenol-d5	0.00730		0.03000		24.3	10	67.1				

**Qualifiers:**

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



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

# QC SUMMARY REPORT

WO#: 21100071  
 22-Oct-21

**Client:** Environmental Resources Management

**Project:** Neuman 0494259

**BatchID:** 41338

Sample ID: <b>MB-splp-41338</b>	SampType: <b>MBLK</b>	TestCode: <b>8270_SPLP</b>	Units: <b>mg/L</b>	Prep Date: <b>10/20/2021</b>	RunNo: <b>103662</b>						
Client ID: <b>PBW</b>	Batch ID: <b>41338</b>	TestNo: <b>SW8270C</b>	<b>E625/SW351</b>	Analysis Date: <b>10/20/2021</b>	SeqNo: <b>2529888</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	< 0.00500	0.00500									
Surr: 2,4,6-Tribromophenol	0.0287		0.03000		95.6	47.2	144				
Surr: 2-Fluorobiphenyl	0.0177		0.02000		88.6	52.2	116				
Surr: 2-Fluorophenol	0.0107		0.03000		35.6	27.3	80.6				
Surr: 4-Terphenyl-d14	0.0135		0.02000		67.5	48.1	134				
Surr: Nitrobenzene-d5	0.0219		0.02000		109	42.5	144				
Surr: Phenol-d5	0.00620		0.03000		20.7	10	67.1				

**Qualifiers:**

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



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 Lafayette, LA 70508-3344  
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# Sample Log-In Check List

Client Name: ERM\_HOUSTON

Work Order Number: 21100071

RcptNo: 1

Logged by:	Caitlin Duplantis	9/10/2021	
Completed By:	Caitlin Duplantis	10/4/2021 10:42:20 AM	
Reviewed By:	Cristina Thibeaux	10/12/2021 5:37:01 PM	

### Chain of Custody

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

### Log In

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

### Special Handling (if applicable)

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

Person Notified:	<input type="text" value="Shawn Wiggins"/>	Date:	<input type="text" value="9/29/2021"/>
By Whom:	<input type="text" value="Caitlin Duplantis"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="8270 SPLP Nap testing requested outside of 14 day hold time. Orig sample was not stored"/>		
Client Instructions:	<input type="text" value="Proceed with testing."/>		

18. Additional remarks:  
 Improper error correction(s) made by client.  
 relog of 21090282. 8270 SPLP Nap testing requested outside of 14 day hold time. Orig sample was not stored in refrigeration

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Not Present			





# Chain of Custody

21100071  
 Laboratory Number: 21090282 10/4/21 CD

Company Name: Contact Name: Address:  City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ERM Shawn Wiggins  Michael Goodman 930 379 6099 Shawn.Wiggins@erm.com	<b>Billing Information:</b> ERM  Ext:	PO Number:  Quote Number:  Required QC Level:  Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Name/Number: Neu.m.n 0494259  Sampler's Signature:   Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	Page 1 of 2 <b>Matrix Code</b> 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
---	--	--	--	---	---

<b>Which Regulations Apply:</b> <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<b>Turn Time</b> <input type="checkbox"/> Standard <input checked="" 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.)	<b>Container</b>		<b>Pres.</b> 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>	<b>Requested Tests</b>							<b>Comments</b> 10/4/21 CD *additional testing as per Shawn Wiggins
			<input type="checkbox"/> P=Plastic <input type="checkbox"/> G=Glass, V=Vial	Quantity		% Moisture 29.8 Salts	EC	SP/PC1	organic matter	(blank)	(blank)	(blank)	
<b>Collection Information</b>													
Sample ID/Description	Date	Time	Grab / Composite	Matrix									
SS-2 0-1'	9-8-21	0940		So	1	P		X	X				
SS-2 1-2'	9-8-21	0942		So	1	P		X	X				
SS-2 2-3'	9-8-21	0944		So	1	P		X	X				
B-7R 12.5-15'	9-8-21	1140		So	1	P		X	X	X			
B-7R 18-20'	9-8-21	1155		So	1	P		X	X	X			
SE-SB19R 13-15'	9-8-21	1445		So	1	P		X	X	X			
SE-SB19R 22-24'	9-8-21	1500		So	1	P		X	X	X			
B-12R C-2.5'	9-8-21	1645		So	1	P		X	X	X			
B-12R 4-6'	9-8-21	1652		So	1	P		X	X	X	X		

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
	9/10/21 1143	Alicia Boudreau	9/10/21 1143	Received at lab on ice?
				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.2

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



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# Chain of Custody

21100071

Laboratory Number: 21090282

10/14/21 CD

Page 2 of 2

Company Name: Contact Name: Address:  City, State Zip:  Phone Number: Fax Number:  E-mail Address:	<b>Client Information:</b> ERM Shawn Wiggins	<b>Billing Information:</b> ERM	PO Number:	Project Name/Number: Neuman 0494259	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	Address:	Quote Number:	Sampler's Signature: 		
	City, State Zip:	Required QC Level:	Shipping Method: UPS / FedEx / Airborne DHL / Element / <u>Hand</u> / Mail		
	Phone Number: Michael Goodman Ext: 336.379.6098 Ext:	Bill Monthly: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
	E-mail Address: Shawn.Wiggins@erm.com				

(-110)

(-015)

Which Regulations Apply:	Turn Time	Collection Information	Matrix	Quantity	Container	Pres.	Requested Tests							Comments
							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>	HEM O+G	29B Salts	X Moisture	Arsenic	Organic (not for)	X SCLP Naphthalene	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: 9-9-21 Time: 1245 Grab / Composite: G	So	1	G	-	X							10/14/21 CD *additional testing as per Shawn Wiggins
		Date: " Time: 1250 Grab / Composite: G	So	1	G	-	X							
		Date: " Time: 1330 Grab / Composite: G	So	1	P	-		X	X					
		Date: " Time: 1332 Grab / Composite: G	So	1	P	-		X	X					
		Date: " Time: 1335 Grab / Composite: G	So	1	P	-		X	X					
		Date: " Time: 1525 Grab / Composite: G	So	1	P	-				X	X	X		

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		9/10/21 1143	Alicia Boudreau	9/10/21 1143	
2					Received at lab on ice?
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 22

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

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*e-Hardcopy 2.0*  
*Automated Report*

### Technical Report for

**Acadian Eng & Envir Cons Inc**

**H.C. Drew Manuel**

**16-36**

**SGS Accutest Job Number: LA28187**

**Sampling Dates: 11/30/16 - 12/01/16**



#### Report to:

**Acadian Eng & Environmental Cons, Inc**  
**P.O. Box 1126**  
**Eunice, LA 70535**  
**andre@acadianengineers.com; lydiag@acadianengineers.com**  
**ATTN: Andre Aucoin**

**Total number of pages in report: 108**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

*Ron Benjamin*  
**Ron Benjamin**  
**Lab Director**

**Client Service contact: Rebecca Hebert 337-237-4775**

Certifications: LDEQ(2048), LDHH(LA150012), AR(14-045-04), AZ(AZ0805), FL(E87657), IL(200082), KY(#31), NC(487), SC(73004001), NJ(LA007), TX(T104704186-15-7), WV(257)

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## Sample Summary

Acadian Eng & Envir Cons Inc

**Job No:** LA28187

H. C. Drew Manuel  
Project No: 16-36

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
LA28187-1	11/30/16	10:34	12/05/16	SO	Soil	114 (12.5')
LA28187-1A	11/30/16	10:34	12/05/16	SO	Soil	114 (12.5')
LA28187-2	11/30/16	11:00	12/05/16	SO	Soil	113 (12.5')
LA28187-2A	11/30/16	11:00	12/05/16	SO	Soil	113 (12.5')
LA28187-3	11/30/16	11:22	12/05/16	SO	Soil	112 (10')
LA28187-3A	11/30/16	11:22	12/05/16	SO	Soil	112 (10')
LA28187-4	11/30/16	11:55	12/05/16	SO	Soil	111 (15')
LA28187-4A	11/30/16	11:55	12/05/16	SO	Soil	111 (15')
LA28187-5	11/30/16	13:53	12/05/16	SO	Soil	110 (15')
LA28187-5A	11/30/16	13:53	12/05/16	SO	Soil	110 (15')
LA28187-6	11/30/16	14:15	12/05/16	SO	Soil	103 (10')
LA28187-6A	11/30/16	14:15	12/05/16	SO	Soil	103 (10')
LA28187-7	11/30/16	15:06	12/05/16	SO	Soil	104 (15')

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.



## Sample Summary

(continued)

Acadian Eng & Envir Cons Inc

**Job No:** LA28187

H.C. Drew Manuel  
Project No: 16-36

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
LA28187-7A	11/30/16	15:06	12/05/16	SO	Soil	104 (15')
LA28187-8	11/30/16	15:24	12/05/16	SO	Soil	101 (10')
LA28187-8A	11/30/16	15:24	12/05/16	SO	Soil	101 (10')
LA28187-9	12/01/16	09:36	12/05/16	SO	Soil	102 (15')
LA28187-9A	12/01/16	09:36	12/05/16	SO	Soil	102 (15')
LA28187-10	12/01/16	10:13	12/05/16	SO	Soil	100 (12.5')
LA28187-10A	12/01/16	10:13	12/05/16	SO	Soil	100 (12.5')
LA28187-11	12/01/16	10:43	12/05/16	SO	Soil	106 (2.5')
LA28187-11A	12/01/16	10:43	12/05/16	SO	Soil	106 (2.5')
LA28187-12	12/01/16	11:19	12/05/16	SO	Soil	107 (2.5')
LA28187-12A	12/01/16	11:19	12/05/16	SO	Soil	107 (2.5')
LA28187-13	12/01/16	13:33	12/05/16	SO	Soil	108 (12.5')
LA28187-13A	12/01/16	13:33	12/05/16	SO	Soil	108 (12.5')

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.



## Sample Summary

(continued)

Acadian Eng & Envir Cons Inc

**Job No:** LA28187

H.C. Drew Manuel

Project No: 16-36

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
LA28187-14	12/01/16	14:16	12/05/16	SO	Soil	109 (15')
LA28187-14A	12/01/16	14:16	12/05/16	SO	Soil	109 (15')
LA28187-15	12/01/16	14:14	12/05/16	SO	Soil	105 (10')
LA28187-15A	12/01/16	14:14	12/05/16	SO	Soil	105 (10')

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.



## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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**LA28187-1 114 (12.5')**

Calcium	137	2.0			mg/l	SW846 6010B
Magnesium	54.2	2.0			mg/l	SW846 6010B
Sodium	365	10			mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>	14.3	5.0			mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>	1030	100			mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>	6.68				ratio	LADNR29B
Sulfate <sup>a</sup>	32.8	3.0			mg/l	SW846 9056A/SAR

**LA28187-1A 114 (12.5')**

CEC Na	237000	50000			ug/l	SW846 7000B
Extract Na	43600	10000			ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>	20.6	4.3			meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>	3.8	0.87			meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>	0.34	0.0092			meq/100g	LADNR 29B/SW846 700B
Percent Saturation	21.2				%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>	16.8	0.10			%	LADNR 29B
Electrical Conductivity	3.7	1.0			mmhos/cm	LADNR 29B
pH <sup>g</sup>	7.03				su	SW846 9045D

**LA28187-2 113 (12.5')**

Calcium	46.8	2.0			mg/l	SW846 6010B
Magnesium	17.4	2.0			mg/l	SW846 6010B
Sodium	82.8	10			mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>	42.8	5.0			mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>	207	25			mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>	2.62				ratio	LADNR29B
Sulfate <sup>a</sup>	32.0	3.0			mg/l	SW846 9056A/SAR

**LA28187-2A 113 (12.5')**

CEC Na	215000	50000			ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>	18.7	4.3			meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>	0.077	0.0094			meq/100g	LADNR 29B/SW846 700B
Percent Saturation	21.5				%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>	3.65	0.10			%	LADNR 29B
pH <sup>g</sup>	7.39				su	SW846 9045D

**LA28187-3 112 (10')**

Calcium	36.4	2.0			mg/l	SW846 6010B
Magnesium	13.6	2.0			mg/l	SW846 6010B

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

2

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Sodium		93.9	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		40.0	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		158	10		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		3.37			ratio	LADNR29B
Sulfate <sup>a</sup>		56.5	3.0		mg/l	SW846 9056A/SAR

**LA28187-3A 112 (10')**

CEC Na		255000	50000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		22.2	4.3		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.077	0.0082		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		18.9			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		2.63	0.10		%	LADNR 29B
pH <sup>g</sup>		7.50			su	SW846 9045D

**LA28187-4 111 (15')**

Calcium		187	2.0		mg/l	SW846 6010B
Magnesium		77.1	2.0		mg/l	SW846 6010B
Sodium		331	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		30.7	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		992	50		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		5.14			ratio	LADNR29B
Sulfate <sup>a</sup>		72.5	3.0		mg/l	SW846 9056A/SAR

**LA28187-4A 111 (15')**

CEC Na		255000	50000		ug/l	SW846 7000B
Extract Na		25600	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		22.2	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		2.2	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.24	0.0072		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		16.5			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		8.83	0.10		%	LADNR 29B
Electrical Conductivity		3.2	1.0		mmhos/cm	LADNR 29B
pH <sup>g</sup>		7.32			su	SW846 9045D

**LA28187-5 110 (15')**

Calcium		95.4	2.0		mg/l	SW846 6010B
Magnesium		38.4	2.0		mg/l	SW846 6010B
Sodium		183	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		57.0	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		470	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		4.00			ratio	LADNR29B

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sulfate <sup>a</sup>		33.3	3.0		mg/l	SW846 9056A/SAR
<b>LA28187-5A 110 (15')</b>						
CEC Na		204000	50000		ug/l	SW846 7000B
Extract Na		11500	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		17.7	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		1.0	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.21	0.012		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		27.0			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		4.46	0.10		%	LADNR 29B
Electrical Conductivity		1.7	1.0		mmhos/cm	LADNR 29B
pH <sup>g</sup>		7.40			su	SW846 9045D
<b>LA28187-6 103 (10')</b>						
Calcium		67.9	2.0		mg/l	SW846 6010B
Magnesium		28.1	2.0		mg/l	SW846 6010B
Sodium		73.6	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		14.3	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		336	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		1.90			ratio	LADNR29B
Sulfate <sup>a</sup>		28.6	3.0		mg/l	SW846 9056A/SAR
<b>LA28187-6A 103 (10')</b>						
CEC Na		210000	50000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		18.3	4.3		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.071	0.0097		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		22.2			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		3.00	0.10		%	LADNR 29B
Electrical Conductivity		1.1	1.0		mmhos/cm	LADNR 29B
pH <sup>g</sup>		6.99			su	SW846 9045D
<b>LA28187-7 104 (15')</b>						
Calcium		528	2.0		mg/l	SW846 6010B
Magnesium		230	2.0		mg/l	SW846 6010B
Sodium		422	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		14.3	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		2270	100		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		3.86			ratio	LADNR29B
Sulfate <sup>a</sup>		67.9	6.0		mg/l	SW846 9056A/SAR

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>LA28187-7A 104 (15')</b>						
CEC Na		359000	50000		ug/l	SW846 7000B
Extract Na		22500	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		31.2	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		2.0	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.47	0.011		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		25.8			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		4.90	0.10		%	LADNR 29B
Electrical Conductivity		7.3	1.0		mmhos/cm	LADNR 29B
pH <sup>g</sup>		7.17			su	SW846 9045D
<b>LA28187-8 101 (10')</b>						
Calcium		73.9	2.0		mg/l	SW846 6010B
Magnesium		31.4	2.0		mg/l	SW846 6010B
Sodium		85.1	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		9.1	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		376	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		2.09			ratio	LADNR29B
Sulfate <sup>a</sup>		9.3	3.0		mg/l	SW846 9056A/SAR
<b>LA28187-8A 101 (10')</b>						
CEC Na		198000	50000		ug/l	SW846 7000B
Extract Na		12500	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		17.2	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		1.1	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.078	0.0091		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		21.0			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		5.94	0.10		%	LADNR 29B
Electrical Conductivity		1.2	1.0		mmhos/cm	LADNR 29B
pH <sup>g</sup>		7.16			su	SW846 9045D
<b>LA28187-9 102 (15')</b>						
Calcium		115	2.0		mg/l	SW846 6010B
Magnesium		39.1	2.0		mg/l	SW846 6010B
Sodium		108	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		79.6	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		422	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		2.22			ratio	LADNR29B
Sulfate <sup>a</sup>		68.7	3.0		mg/l	SW846 9056A/SAR

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

2

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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**LA28187-9A 102 (15')**

CEC Na	256000	50000			ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>	22.3	4.3			meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>	0.095	0.0088			meq/100g	LADNR 29B/SW846 700B
Percent Saturation	20.3				%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>	2.80	0.10			%	LADNR 29B
Electrical Conductivity	1.6	1.0			mmhos/cm	LADNR 29B
pH	7.18				su	SW846 9045D

**LA28187-10 100 (12.5')**

Calcium	253	2.0			mg/l	SW846 6010B
Magnesium	84.0	2.0			mg/l	SW846 6010B
Sodium	708	10			mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>	49.8	5.0			mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>	1820	100			mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>	9.85				ratio	LADNR29B
Sulfate <sup>a</sup>	15.5	3.0			mg/l	SW846 9056A/SAR

**LA28187-10A 100 (12.5')**

CEC Na	215000	50000			ug/l	SW846 7000B
Extract Na	36300	10000			ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>	18.7	4.3			meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>	3.2	0.87			meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>	0.78	0.011			meq/100g	LADNR 29B/SW846 700B
Percent Saturation	25.2				%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>	12.9	0.10			%	LADNR 29B
Electrical Conductivity	5.9	1.0			mmhos/cm	LADNR 29B
pH	8.20				su	SW846 9045D

**LA28187-11 106 (2.5')**

Calcium	442	2.0			mg/l	SW846 6010B
Magnesium	89.1	2.0			mg/l	SW846 6010B
Sodium	1580	10			mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>	49.9	5.0			mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>	3390	100			mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>	17.9				ratio	LADNR29B
Sulfate <sup>a</sup>	221	12			mg/l	SW846 9056A/SAR

**LA28187-11A 106 (2.5')**

CEC Na	285000	50000			ug/l	SW846 7000B
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## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

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Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Extract Na		91400	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		24.8	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		8.0	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		1.1	0.0071		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		16.4			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		27.8	0.10		%	LADNR 29B
Electrical Conductivity		10.5	1.0		mmhos/cm	LADNR 29B
pH		8.06			su	SW846 9045D

**LA28187-12 107 (2.5')**

Calcium		59.5	2.0		mg/l	SW846 6010B
Magnesium		13.8	2.0		mg/l	SW846 6010B
Sodium		127	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		99.6	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		248	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		3.85			ratio	LADNR29B
Sulfate <sup>a</sup>		44.3	3.0		mg/l	SW846 9056A/SAR

**LA28187-12A 107 (2.5')**

CEC Na		185000	50000		ug/l	SW846 7000B
Extract Na		14700	10000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		16.1	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		1.3	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.083	0.0065		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		15.0			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		7.56	0.10		%	LADNR 29B
Electrical Conductivity		1.1	1.0		mmhos/cm	LADNR 29B
pH		7.69			su	SW846 9045D

**LA28187-13 108 (12.5')**

Calcium		57.9	2.0		mg/l	SW846 6010B
Magnesium		18.4	2.0		mg/l	SW846 6010B
Sodium		50.6	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		99.6	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		148	5.0		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		1.48			ratio	LADNR29B
Sulfate <sup>a</sup>		79.9	6.0		mg/l	SW846 9056A/SAR

**LA28187-13A 108 (12.5')**

CEC Na		312000	50000		ug/l	SW846 7000B
Extract Na		12400	10000		ug/l	SW846 7000B

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Cation Exchange Capacity <sup>c</sup>		27.1	4.3		meq/100g	LADNR 29B/SW846 700B
Extractable Sodium <sup>d</sup>		1.1	0.87		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.034	0.0067		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		15.3			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		3.93	0.10		%	LADNR 29B
pH		7.95			su	SW846 9045D

### LA28187-14 109 (15')

Calcium		25.9	2.0		mg/l	SW846 6010B
Magnesium		9.68	2.0		mg/l	SW846 6010B
Sodium		31.7	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		11.1	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		109	5.0		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		1.35			ratio	LADNR29B
Sulfate <sup>a</sup>		44.0	6.0		mg/l	SW846 9056A/SAR

### LA28187-14A 109 (15')

CEC Na		209000	50000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		18.2	4.3		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.018	0.0056		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		12.9			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		3.47	0.10		%	LADNR 29B
pH		7.44			su	SW846 9045D

### LA28187-15 105 (10')

Calcium		81.2	2.0		mg/l	SW846 6010B
Magnesium		21.4	2.0		mg/l	SW846 6010B
Sodium		63.5	10		mg/l	SW846 6010B
Alkalinity, Bicarbonate <sup>a</sup>		16.7	5.0		mg/l	SM2320 B-11/SAR
Chloride <sup>a</sup>		340	25		mg/l	SW846 9056A/SAR
Sodium Adsorption Ratio <sup>b</sup>		1.62			ratio	LADNR29B
Sulfate <sup>a</sup>		20.4	1.2		mg/l	SW846 9056A/SAR

### LA28187-15A 105 (10')

CEC Na		214000	50000		ug/l	SW846 7000B
Cation Exchange Capacity <sup>c</sup>		18.6	4.3		meq/100g	LADNR 29B/SW846 700B
Soluble Sodium <sup>e</sup>		0.054	0.0085		meq/100g	LADNR 29B/SW846 700B
Percent Saturation		19.6			%	LADNR 29B
Exchangeable Sodium % <sup>f</sup>		3.58	0.10		%	LADNR 29B
Electrical Conductivity		1.1	1.0		mmhos/cm	LADNR 29B
pH		6.87			su	SW846 9045D

## Summary of Hits

**Job Number:** LA28187  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 11/30/16 thru 12/01/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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- (a) Analysis performed at SGS Accutest, Houston, TX.
- (b) Calculated as:  $(\text{Na meq/L}) / \text{sqrt} [(\text{Ca meq/L}) + (\text{Mg meq/L})/2]$
- (c) Calculated as:  $(\text{CEC Na mg/l from flame} * \text{Final vol}) / (\text{Init wgt} * 22.99 * 10)$
- (d) Calculated as:  $(\text{Extract Na mg/l from flame} * \text{Final vol}) / (\text{Init wgt} * 22.99 * 10)$
- (e) Calculated as:  $(\text{SAR Na mg/l from ICP} * \text{PSAT}) / (22.99 * 1000)$
- (f) Calculated as:  $((\text{Extractable Sodium} - \text{Soluble Sodium}) * 100) / \text{Cation Exchange Capacity}$
- (g) Sample received outside the holding time.



Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b> 114 (12.5')	<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-1	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 77.6 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	137	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	54.2	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	365	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 114 (12.5')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-1		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 77.6 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	14.3	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	1030	100	mg/l	200	12/20/16 12:32	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	22.4		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	6.68		ratio	1	12/15/16 15:01	RD	LADNR29B
Sulfate <sup>b</sup>	32.8	3.0	mg/l	5	12/20/16 17:43	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 114 (12.5')	
<b>Lab Sample ID:</b> LA28187-1A	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 77.6 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	237000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	43600	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

32  
3

<b>Client Sample ID:</b> 114 (12.5') <b>Lab Sample ID:</b> LA28187-1A <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 11/30/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 77.6 <sup>a</sup>
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### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	20.6	4.3	meq/100g	1	12/16/16 15:35	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	3.8	0.87	meq/100g	1	12/16/16 16:04	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.34	0.0092	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	21.2		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	16.8	0.10	%	1	12/16/16 16:04	SA	LADNR 29B
Electrical Conductivity	3.7	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.03		su	1	12/07/16 10:25	HD	SW846 9045D

- (a) All results with the exception of 29B parameters are reported on a wet weight basis.
- (b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$
- (c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$
- (d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$
- (e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$
- (f) Sample received outside the holding time.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 113 (12.5')	
<b>Lab Sample ID:</b> LA28187-2	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 72.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	46.8	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	17.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	82.8	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 113 (12.5') <b>Lab Sample ID:</b> LA28187-2 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 11/30/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 72.3 <sup>a</sup>
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### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	42.8	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	207	25	mg/l	50	12/20/16 13:20	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	27.7		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	2.62		ratio	1	12/15/16 15:18	RD	LADNR29B
Sulfate <sup>b</sup>	32.0	3.0	mg/l	5	12/20/16 19:02	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 113 (12.5')	<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-2A	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 72.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	215000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> 113 (12.5')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-2A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 72.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	18.7	4.3	meq/100g	1	12/16/16 15:35	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:05	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.077	0.0094	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	21.5		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	3.65	0.10	%	1	12/16/16 16:05	SA	LADNR 29B
Electrical Conductivity	< 1.0	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.39		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as: (CEC Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(c) Calculated as: (Extract Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(d) Calculated as: (SAR Na mg/l from ICP \* PSAT) / (22.99 \* 1000)

(e) Calculated as: ((Extractable Sodium - Soluble Sodium) \* 100) / Cation Exchange Capacity

(f) Sample received outside the holding time.

RL = Reporting Limit

## Report of Analysis

3.5  
3

<b>Client Sample ID:</b> 112 (10')	<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-3	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 72.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	36.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	13.6	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	93.9	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 112 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-3		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 72.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	40.0	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	158	10	mg/l	20	12/20/16 13:36	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	27.9		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	3.37		ratio	1	12/15/16 15:23	RD	LADNR29B
Sulfate <sup>b</sup>	56.5	3.0	mg/l	5	12/20/16 19:18	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 112 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-3A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 72.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	255000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 112 (10')	<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-3A	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 72.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	22.2	4.3	meq/100g	1	12/16/16 15:37	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:07	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.077	0.0082	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	18.9		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	2.63	0.10	%	1	12/16/16 16:07	SA	LADNR 29B
Electrical Conductivity	< 1.0	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.50		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as: (CEC Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(c) Calculated as: (Extract Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(d) Calculated as: (SAR Na mg/l from ICP \* PSAT) / (22.99 \* 1000)

(e) Calculated as: ((Extractable Sodium - Soluble Sodium) \* 100) / Cation Exchange Capacity

(f) Sample received outside the holding time.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 111 (15')	
<b>Lab Sample ID:</b> LA28187-4	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 72.8 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	187	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	77.1	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	331	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 111 (15') <b>Lab Sample ID:</b> LA28187-4 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 11/30/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 72.8 <sup>a</sup>
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### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	30.7	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	992	50	mg/l	100	12/20/16 13:52	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	27.2		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	5.14		ratio	1	12/15/16 15:29	RD	LADNR29B
Sulfate <sup>b</sup>	72.5	3.0	mg/l	5	12/20/16 19:34	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 111 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-4A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 72.8 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	255000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	25600	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



# Report of Analysis



<b>Client Sample ID:</b> 111 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-4A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 72.8 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	22.2	4.3	meq/100g	1	12/16/16 15:37	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	2.2	0.87	meq/100g	1	12/16/16 16:07	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.24	0.0072	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	16.5		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	8.83	0.10	%	1	12/16/16 16:07	SA	LADNR 29B
Electrical Conductivity	3.2	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.32		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

(f) Sample received outside the holding time.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 110 (15')	
<b>Lab Sample ID:</b> LA28187-5	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 79.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	95.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	38.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	183	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 110 (15')	
<b>Lab Sample ID:</b> LA28187-5	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 79.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	57.0	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	470	25	mg/l	50	12/20/16 14:08	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	20.8		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	4.00		ratio	1	12/15/16 15:35	RD	LADNR29B
Sulfate <sup>b</sup>	33.3	3.0	mg/l	5	12/20/16 19:50	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 110 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-5A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	204000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	11500	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 110 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-5A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	17.7	4.3	meq/100g	1	12/16/16 15:38	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	1.0	0.87	meq/100g	1	12/16/16 16:07	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.21	0.012	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	27.0		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	4.46	0.10	%	1	12/16/16 16:07	SA	LADNR 29B
Electrical Conductivity	1.7	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.40		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

(f) Sample received outside the holding time.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 103 (10') <b>Lab Sample ID:</b> LA28187-6 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 11/30/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 80.4 <sup>a</sup>
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### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	67.9	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	28.1	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	73.6	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 103 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-6		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 80.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	14.3	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	336	25	mg/l	50	12/20/16 14:24	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	19.6		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	1.90		ratio	1	12/15/16 15:51	RD	LADNR29B
Sulfate <sup>b</sup>	28.6	3.0	mg/l	5	12/20/16 20:06	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 103 (10')	
<b>Lab Sample ID:</b> LA28187-6A	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 80.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	210000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> 103 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-6A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 80.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	18.3	4.3	meq/100g	1	12/16/16 15:38	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:08	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.071	0.0097	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	22.2		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	3.00	0.10	%	1	12/16/16 16:08	SA	LADNR 29B
Electrical Conductivity	1.1	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	6.99		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

(f) Sample received outside the holding time.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 104 (15')	
<b>Lab Sample ID:</b> LA28187-7	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 80.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	528	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	230	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	422	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 104 (15')	<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-7	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 80.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	14.3	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	2270	100	mg/l	200	12/20/16 14:40	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	19.9		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	3.86		ratio	1	12/15/16 15:57	RD	LADNR29B
Sulfate <sup>b</sup>	67.9	6.0	mg/l	10	12/20/16 20:22	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 104 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-7A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 80.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	359000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	22500	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 104 (15')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-7A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 80.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	31.2	4.3	meq/100g	1	12/16/16 15:39	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	2.0	0.87	meq/100g	1	12/16/16 16:08	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.47	0.011	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	25.8		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	4.90	0.10	%	1	12/16/16 16:08	SA	LADNR 29B
Electrical Conductivity	7.3	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.17		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as: (CEC Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(c) Calculated as: (Extract Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(d) Calculated as: (SAR Na mg/l from ICP \* PSAT) / (22.99 \* 1000)

(e) Calculated as: ((Extractable Sodium - Soluble Sodium) \* 100) / Cation Exchange Capacity

(f) Sample received outside the holding time.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 101 (10')	
<b>Lab Sample ID:</b> LA28187-8	<b>Date Sampled:</b> 11/30/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 83.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	73.9	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	31.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	85.1	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 101 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-8		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 83.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	9.1	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	376	25	mg/l	50	12/20/16 14:56	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	16.1		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	2.09		ratio	1	12/15/16 16:02	RD	LADNR29B
Sulfate <sup>b</sup>	9.3	3.0	mg/l	5	12/20/16 20:38	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 101 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-8A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 83.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	198000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	12500	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> 101 (10')		<b>Date Sampled:</b> 11/30/16
<b>Lab Sample ID:</b> LA28187-8A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 83.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	17.2	4.3	meq/100g	1	12/16/16 15:39	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	1.1	0.87	meq/100g	1	12/16/16 16:09	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.078	0.0091	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	21.0		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	5.94	0.10	%	1	12/16/16 16:09	SA	LADNR 29B
Electrical Conductivity	1.2	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH <sup>f</sup>	7.16		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

(f) Sample received outside the holding time.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 102 (15')	
<b>Lab Sample ID:</b> LA28187-9	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 79.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	115	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	39.1	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	108	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 102 (15')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-9		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	79.6	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	422	25	mg/l	50	12/20/16 15:43	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	20.6		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	2.22		ratio	1	12/15/16 16:08	RD	LADNR29B
Sulfate <sup>b</sup>	68.7	3.0	mg/l	5	12/20/16 20:54	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 102 (15')	
<b>Lab Sample ID:</b> LA28187-9A	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 79.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	256000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 102 (15')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-9A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.4 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	22.3	4.3	meq/100g	1	12/16/16 15:40	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:09	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.095	0.0088	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	20.3		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	2.80	0.10	%	1	12/16/16 16:09	SA	LADNR 29B
Electrical Conductivity	1.6	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	7.18		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as: (CEC Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(c) Calculated as: (Extract Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(d) Calculated as: (SAR Na mg/l from ICP \* PSAT) / (22.99 \* 1000)

(e) Calculated as: ((Extractable Sodium - Soluble Sodium) \* 100) / Cation Exchange Capacity

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 100 (12.5')	
<b>Lab Sample ID:</b> LA28187-10	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 81.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	253	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	84.0	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	708	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 100 (12.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-10		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 81.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	49.8	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	1820	100	mg/l	200	12/20/16 15:59	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	18.8		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	9.85		ratio	1	12/15/16 16:14	RD	LADNR29B
Sulfate <sup>b</sup>	15.5	3.0	mg/l	5	12/20/16 21:10	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 100 (12.5')	
<b>Lab Sample ID:</b> LA28187-10A	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 81.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	215000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	36300	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> 100 (12.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-10A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 81.2 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	18.7	4.3	meq/100g	1	12/16/16 15:40	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	3.2	0.87	meq/100g	1	12/16/16 16:09	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.78	0.011	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	25.2		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	12.9	0.10	%	1	12/16/16 16:09	SA	LADNR 29B
Electrical Conductivity	5.9	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	8.20		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 106 (2.5')	
<b>Lab Sample ID:</b> LA28187-11	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 78.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	442	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	89.1	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	1580	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 106 (2.5') <b>Lab Sample ID:</b> LA28187-11 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 12/01/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 78.3 <sup>a</sup>
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### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	49.9	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	3390	100	mg/l	200	12/20/16 16:15	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	21.7		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	17.9		ratio	1	12/15/16 16:19	RD	LADNR29B
Sulfate <sup>b</sup>	221	12	mg/l	20	12/20/16 21:26	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 106 (2.5')	
<b>Lab Sample ID:</b> LA28187-11A	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 78.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	285000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	91400	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 106 (2.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-11A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 78.3 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	24.8	4.3	meq/100g	1	12/16/16 15:40	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	8.0	0.87	meq/100g	1	12/16/16 16:10	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	1.1	0.0071	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	16.4		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	27.8	0.10	%	1	12/16/16 16:10	SA	LADNR 29B
Electrical Conductivity	10.5	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	8.06		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 107 (2.5')	<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-12	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 77.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	59.5	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	13.8	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	127	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 107 (2.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-12		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 77.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	99.6	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	248	25	mg/l	50	12/20/16 16:31	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	22.9		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	3.85		ratio	1	12/15/16 16:25	RD	LADNR29B
Sulfate <sup>b</sup>	44.3	3.0	mg/l	5	12/20/16 22:13	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 107 (2.5')	
<b>Lab Sample ID:</b> LA28187-12A	<b>Date Sampled:</b> 12/01/16
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 12/05/16
	<b>Percent Solids:</b> 77.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	185000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>4</sup>
Extract Na	14700	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5921
- (2) Instrument QC Batch: MA5922
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b> 107 (2.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-12A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 77.1 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	16.1	4.3	meq/100g	1	12/16/16 15:41	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	1.3	0.87	meq/100g	1	12/16/16 16:13	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.083	0.0065	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	15.0		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	7.56	0.10	%	1	12/16/16 16:13	SA	LADNR 29B
Electrical Conductivity	1.1	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	7.69		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(\text{CEC Na mg/l from flame} * \text{Final vol}) / (\text{Init wgt} * 22.99 * 10)$

(c) Calculated as:  $(\text{Extract Na mg/l from flame} * \text{Final vol}) / (\text{Init wgt} * 22.99 * 10)$

(d) Calculated as:  $(\text{SAR Na mg/l from ICP} * \text{PSAT}) / (22.99 * 1000)$

(e) Calculated as:  $((\text{Extractable Sodium} - \text{Soluble Sodium}) * 100) / \text{Cation Exchange Capacity}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 108 (12.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-13		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	57.9	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	18.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	50.6	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 108 (12.5') <b>Lab Sample ID:</b> LA28187-13 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 12/01/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 79.9 <sup>a</sup>
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### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	99.6	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	148	5.0	mg/l	10	12/20/16 16:47	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	20.1		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	1.48		ratio	1	12/15/16 16:30	RD	LADNR29B
Sulfate <sup>b</sup>	79.9	6.0	mg/l	10	12/20/16 16:47	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

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RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 108 (12.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-13A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	312000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>4</sup>
Extract Na	12400	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5922
- (2) Instrument QC Batch: MA5923
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 108 (12.5')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-13A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 79.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	27.1	4.3	meq/100g	1	12/16/16 15:56	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	1.1	0.87	meq/100g	1	12/16/16 16:14	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.034	0.0067	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	15.3		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	3.93	0.10	%	1	12/16/16 16:14	SA	LADNR 29B
Electrical Conductivity	< 1.0	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	7.95		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 109 (15')	<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-14	<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 74.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel	

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	25.9	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	9.68	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	31.7	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

---

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 109 (15')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-14		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 74.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	11.1	5.0	mg/l	1	12/21/16 15:45	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	109	5.0	mg/l	10	12/20/16 17:03	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	25.1		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	1.35		ratio	1	12/15/16 16:36	RD	LADNR29B
Sulfate <sup>b</sup>	44.0	6.0	mg/l	10	12/20/16 17:03	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 109 (15')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-14A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 74.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	209000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5922
- (2) Instrument QC Batch: MA5923
- (3) Prep QC Batch: MP6132
- (4) Prep QC Batch: MP6133

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

---

RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> 109 (15')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-14A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 74.9 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	18.2	4.3	meq/100g	1	12/16/16 15:57	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:15	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.018	0.0056	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	12.9		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	3.47	0.10	%	1	12/16/16 16:15	SA	LADNR 29B
Electrical Conductivity	< 1.0	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	7.44		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as:  $(CEC\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(c) Calculated as:  $(Extract\ Na\ mg/l\ from\ flame * Final\ vol) / (Init\ wgt * 22.99 * 10)$

(d) Calculated as:  $(SAR\ Na\ mg/l\ from\ ICP * PSAT) / (22.99 * 1000)$

(e) Calculated as:  $((Extractable\ Sodium - Soluble\ Sodium) * 100) / Cation\ Exchange\ Capacity$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 105 (10') <b>Lab Sample ID:</b> LA28187-15 <b>Matrix:</b> SO - Soil <b>Project:</b> H.C. Drew Manuel	<b>Date Sampled:</b> 12/01/16 <b>Date Received:</b> 12/05/16 <b>Percent Solids:</b> 75.5 <sup>a</sup>
--	---

### SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	81.2	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	21.4	2.0	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	63.5	10	mg/l	20	12/15/16	12/15/16 RD	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA5913

(2) Prep QC Batch: MP6136

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 105 (10')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-15		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 75.5 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate <sup>b</sup>	16.7	5.0	mg/l	1	12/21/16 16:55	ATX	SM2320 B-11/SAR
Chloride <sup>b</sup>	340	25	mg/l	50	12/20/16 17:19	ATX	SW846 9056A/SAR
Moisture, Percent <sup>a</sup>	24.5		%	1	12/16/16	JY	ASTM 2216
Sodium Adsorption Ratio <sup>c</sup>	1.62		ratio	1	12/15/16 16:42	RD	LADNR29B
Sulfate <sup>b</sup>	20.4	1.2	mg/l	2	12/20/16 22:29	ATX	SW846 9056A/SAR

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Analysis performed at SGS Accutest, Houston, TX.

(c) Calculated as:  $(Na \text{ meq/L}) / \sqrt{[(Ca \text{ meq/L}) + (Mg \text{ meq/L})/2]}$

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 105 (10')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-15A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 75.5 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
CEC Na	214000	50000	ug/l	5	12/14/16	12/16/16 SA	SW846 7000B <sup>2</sup>	LADNR 29B <sup>4</sup>
Extract Na	< 10000	10000	ug/l	1	12/14/16	12/16/16 SA	SW846 7000B <sup>1</sup>	LADNR 29B <sup>3</sup>

- (1) Instrument QC Batch: MA5922
- (2) Instrument QC Batch: MA5923
- (3) Prep QC Batch: MP6134
- (4) Prep QC Batch: MP6135

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 105 (10')		<b>Date Sampled:</b> 12/01/16
<b>Lab Sample ID:</b> LA28187-15A		<b>Date Received:</b> 12/05/16
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 75.5 <sup>a</sup>
<b>Project:</b> H.C. Drew Manuel		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>LADNR 29B Analysis</b>							
Cation Exchange Capacity <sup>b</sup>	18.6	4.3	meq/100g	1	12/16/16 15:58	SA	LADNR 29B/SW846 700B
Extractable Sodium <sup>c</sup>	< 0.87	0.87	meq/100g	1	12/16/16 16:16	SA	LADNR 29B/SW846 700B
Soluble Sodium <sup>d</sup>	0.054	0.0085	meq/100g	1	12/16/16	JY	LADNR 29B/SW846 700B
Percent Saturation	19.6		%	1	12/16/16	JY	LADNR 29B
Exchangeable Sodium % <sup>e</sup>	3.58	0.10	%	1	12/16/16 16:16	SA	LADNR 29B
Electrical Conductivity	1.1	1.0	mmhos/cm	1	12/15/16 14:05	HD	LADNR 29B
pH	6.87		su	1	12/07/16 10:25	HD	SW846 9045D

(a) All results with the exception of 29B parameters are reported on a wet weight basis.

(b) Calculated as: (CEC Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(c) Calculated as: (Extract Na mg/l from flame \* Final vol) / (Init wgt \* 22.99 \* 10)

(d) Calculated as: (SAR Na mg/l from ICP \* PSAT) / (22.99 \* 1000)

(e) Calculated as: ((Extractable Sodium - Soluble Sodium) \* 100) / Cation Exchange Capacity

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

LA 28187

Acadian Environmental Inc.  
 Post Office Box 1126  
 Eunice, Louisiana 70535

CHAIN OF CUSTODY RECORD

PROJECT NO. 16-36		PROJECT NAME: H.C. Drew Manure				NUMBER OF CONTAINERS	PARAMETERS						REMARKS
SAMPLERS (SIGNATURE) <i>James Michael III</i>							TPH	BENZ	EBENZ	TOLUENE	XYLENE	2916 salts	
STA. NO.	DATE	TIME	COMP.	GRAU.	SAMPLE IDENTIFICATION								
1	114 (12.5')	11-30-16	10:34am		SOIL	1						1	
2	113 (12.5')	11-30-16	11:00am			1							1
3	112 (10')	11-30-16	11:22am			1							1
4	111 (15')	11-30-16	11:53am			1							1
5	110 (15')	11-30-16	1:53pm			1							1
6	103 (10')	11-30-16	2:56pm			1							1
7	104 (15')	11-30-16	3:06pm			1							1
8	101 (10')	11-30-16	3:24pm			1							1
9	102 (15')	12-1-16	9:36am			1							1
10	100 (12.5')	12-1-16	10:13am			1							1
11	106 (2.5')	12-1-16	10:43am			1							1
12	107 (2.5')	12-1-16	11:19am			1							1
13	108 (12.5')	12-1-16	1:33pm			1							1
14	109 (15')	12-1-16	2:16pm			1							1
15	105 (10')	12-1-16	2:44pm			1							1
Relinquished By: <i>James Michael III</i>		Date/Time 12-5-16 1:00pm		Received By: <i>Walter Newman</i>			Relinquished By: <i>Walter Newman</i>			Date/Time 12-8-16 1300		Received By: <i>Kaylyn Kidd</i>	
Relinquished By:		Date/Time		Received By:			Relinquished By:			Date/Time		Received By:	
Relinquished By:		Date/Time		Received for Laboratory By:			Remarks:						

NAME OF LABORATORY SGS Accutest LOCATION Scott Louisiana

no/cs Temp 20.6 DU 260 YX33 2W

4.1  
4

## SGS Accutest Sample Receipt Summary

Job Number: LA28187

Client: ACADIAN ENVIRONMENTAL

Project: H. C. DREW MANUEL

Date / Time Received: 12/5/2016 1:00:00 PM

Delivery Method: Client

Airbill #s: \_\_\_\_\_

Cooler Temps (Initial/Adjusted): #1: (20.6/20.6):

**Cooler Security**

- |   |  |
|---|--|
| <p><u>Y or N</u></p> <p>1. Custody Seals Present: <input type="checkbox"/> <input checked="" type="checkbox"/></p> <p>2. Custody Seals Intact: <input type="checkbox"/> <input checked="" type="checkbox"/></p> | <p><u>Y or N</u></p> <p>3. COC Present: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>4. Smp Dates/Time OK: <input checked="" type="checkbox"/> <input type="checkbox"/></p> |
|---|--|

**Cooler Temperature**

- |   |
|---|
| <p><u>Y or N</u></p> <p>1. Temp criteria achieved: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>2. Thermometer ID: <u>DV260;</u></p> <p>3. Cooler media: <u>No Ice</u></p> <p>4. No. Coolers: <u>1</u></p> |
|---|

**Quality Control Preservation**

- |                                 | <u>Y</u>                            | <u>or</u>                | <u>N</u>                            | <u>N/A</u> |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |            |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |            |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                                     |            |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |            |

**Sample Integrity - Documentation**

- |  |
|--|
| <p><u>Y or N</u></p> <p>1. Sample labels present on bottles: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>2. Container labeling complete: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>3. Sample container label / COC agree: <input checked="" type="checkbox"/> <input type="checkbox"/></p> |
|--|

**Sample Integrity - Condition**

- |   |
|---|
| <p><u>Y or N</u></p> <p>1. Sample recvd within HT: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>2. All containers accounted for: <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>3. Condition of sample: <u>Intact</u></p> |
|---|

**Sample Integrity - Instructions**

- |  | <u>Y</u>                            | <u>or</u>                           | <u>N</u> | <u>N/A</u>                          |
|--|-------------------------------------|-------------------------------------|----------|-------------------------------------|
| 1. Analysis requested is clear:            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |          |                                     |
| 2. Bottles received for unspecified tests: | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |          |                                     |
| 3. Sufficient volume recvd for analysis:   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |          |                                     |
| 4. Compositing instructions clear:         | <input type="checkbox"/>            | <input type="checkbox"/>            |          | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:           | <input type="checkbox"/>            | <input type="checkbox"/>            |          | <input checked="" type="checkbox"/> |

Comments

LA28187: Chain of Custody

Page 2 of 2

4.1  
4



## Metals Analysis

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6132  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	RL	IDL	MDL	MB raw	final
Extract Na	10000	420	4600	-760	<10000

Associated samples MP6132: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.1.1  
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6132  
 Matrix Type: AQUEOUS

Methods: SW846 7000B  
 Units: ug/l

Prep Date: 12/14/16

Metal	LA28187-1A Original	DUP	RPD	QC Limits
-------	------------------------	-----	-----	--------------

Extract Na      43600      41300      5.4      0-20

Associated samples MP6132: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

5.1.2  
 5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6132  
 Matrix Type: AQUEOUS

Methods: SW846 7000B  
 Units: ug/l

Prep Date: 12/14/16

Metal	BSP Result	Spikelot LA29BSPIKE% Rec	QC Limits
-------	---------------	-----------------------------	--------------

Extract Na 85900 100000 85.9 80-120

Associated samples MP6132: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

5.1.3  
5

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6133  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	RL	IDL	MDL	MB raw	final
CEC Na	10000	420	4600	944	<10000

Associated samples MP6133: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.2.1  
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6133  
 Matrix Type: AQUEOUS

Methods: SW846 7000B  
 Units: ug/l

Prep Date: 12/14/16

Metal	LA28187-1A Original	DUP	RPD	QC Limits
-------	------------------------	-----	-----	--------------

CEC Na            237000    247000    4.1    0-20

Associated samples MP6133: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

5.2.2  
 5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6133  
 Matrix Type: AQUEOUS

Methods: SW846 7000B  
 Units: ug/l

Prep Date: 12/14/16

Metal	BSP Result	Spikelot LA29BSPIKE% Rec	QC Limits
-------	---------------	-----------------------------	--------------

CEC Na            85700    100000    85.7    80-120

Associated samples MP6133: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

5.2.3  
 5

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6134  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	RL	IDL	MDL	MB raw	final
Extract Na	10000	420	4600	-1200	<10000

Associated samples MP6134: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.3.1  
5



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6134  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	LA28187-15A Original DUP	RPD	QC Limits
-------	-----------------------------	-----	--------------

Extract Na 8270 6930 17.6 0-20

Associated samples MP6134: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

5.3.2  
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6134  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	BSP Result	Spikelot LA29BSPIKE% Rec	QC Limits
-------	---------------	-----------------------------	--------------

Extract Na 93600 100000 93.6 80-120

Associated samples MP6134: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.3.3  
5

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6135  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	RL	IDL	MDL	MB raw	final
CEC Na	10000	420	4600	-1200	<10000

Associated samples MP6135: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.4.1

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6135  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	LA28187-15A Original DUP	RPD	QC Limits
-------	-----------------------------	-----	--------------

CEC Na            214000    225000    5.0    0-20

Associated samples MP6135: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

5.4.2  
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6135  
Matrix Type: AQUEOUS

Methods: SW846 7000B  
Units: ug/l

Prep Date: 12/14/16

Metal	BSP Result	Spikelot LA29BSPIKE% Rec	QC Limits
CEC Na	94300	100000	94.3 80-120

Associated samples MP6135: LA28187-15A

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.4.3  
5

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6136  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 12/15/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	35	46		
Antimony	6.0	1.2	3.7		
Arsenic	10	1.1	2.6		
Barium	10	1.3	1.3		
Beryllium	4.0	.03	.3		
Boron	100	2.4	10		
Cadmium	5.0	.67	.9		
Calcium	100	6.5	58	28.1	<100
Chromium	10	.94	.9		
Cobalt	10	.33	.8		
Copper	10	1.6	4		
Iron	100	11	33		
Lead	10	1.7	1.8		
Lithium	10	3.9	6.3		
Magnesium	100	41	37	-1.3	<100
Manganese	10	.19	1.1		
Molybdenum	10	.26	1.1		
Nickel	10	.62	1		
Potassium	500	280	50		
Selenium	10	3.6	3.6		
Silver	10	1	1.4		
Sodium	500	75	53	57.7	<500
Strontium	10	.29	1		
Thallium	5.0	1.9	1.6		
Tin	10	.47	.9		
Titanium	10	.79	1.7		
Vanadium	10	.76	.9		
Zinc	20	4	4.3		

Associated samples MP6136: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6136  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/15/16

Metal	LA28187-1 Original	DUP	RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	137000	132000	3.7	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	54200	52100	4.0	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	365000	349000	4.5	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP6136: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

5.5.2  
 5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28187  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6136  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/15/16 12/15/16

Metal	BSP Result	Spikelot LA29B	SPIKE% Rec	QC Limits	BSP Result	Spikelot SARQC2	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium	4130	4000	103.3	80-120				
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Lithium								
Magnesium	1950	2000	97.5	80-120				
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium								
Silver								
Sodium	99400	100000	99.4	80-120				
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc								

Associated samples MP6136: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

5.5.3  
 5



**General Chemistry**

**QC Data Summaries**

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Electrical Conductivity	GN9713			mmhos/cm	1.408	1.3	94.4	90-110%

Associated Samples:

Batch GN9670: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A, LA28187-15A

Batch GN9713: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A, LA28187-15A

(\*) Outside of QC limits

6.1  
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DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28187  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Electrical Conductivity	GN9713	LA28187-11A	mmhos/cm	10.5	10.2	3.2	0-10%
Electrical Conductivity	GN9713	LA28187-1A	mmhos/cm	3.7	3.7	0.7	0-10%
Moisture, Percent	GN9722	LA28285-4	%	28.1	28.4	1.1	0-5%
Percent Saturation	GN9726	LA28187-1A	%	21.2	21.4	0.9	0-20%
pH	GN9670	LA28187-14A	su	7.44	7.39	0.7	0-20%

Associated Samples:

Batch GN9670: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A, LA28187-15A

Batch GN9713: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A, LA28187-15A

Batch GN9722: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

Batch GN9726: LA28187-1A, LA28187-2A, LA28187-3A, LA28187-4A, LA28187-5A, LA28187-6A, LA28187-7A, LA28187-8A, LA28187-9A, LA28187-10A, LA28187-11A, LA28187-12A, LA28187-13A, LA28187-14A, LA28187-15A

(\*) Outside of QC limits

6.2  
6

Misc. Forms

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Custody Documents and Other Forms

(SGS Accutest Gulf Coast)

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Includes the following where applicable:

- Chain of Custody



ACCUTEST

CHAIN OF CUSTODY

500 Ambassador Caffery Parkway, Scott, LA 70583
Phone: 800-304-5227 Fax: 337-237-7838
www.sgs.com

Form containing client/reporting information, project information, requested analysis, matrix codes, and a table of sample collection data with columns for date, time, matrix, and various chemical tests.

Handwritten signatures and vertical text: TAGGED BY: [Signature], VERIFIED BY: [Signature]

7.1
7

LA28187: Chain of Custody
Page 1 of 6
SGS Accutest Gulf Coast



ACCUTEST

CHAIN OF CUSTODY

500 Ambassador Caffery Parkway, Scott, LA 70583
Phone: 800-304-5227 Fax: 337-237-7838
www.sgs.com

Form containing client/reporting information, project information, requested analysis, matrix codes, collection data table, and chain of custody signatures.

LA28187: Chain of Custody

Page 2 of 6

Cooler!

Date / Time: 12/15/2016 4:11:10 PM  
CSR: REBECCA1  
Job #: LA28187  
Client Project: H.C. Drew Manuel  
Deliverable: COMMB  
TAT: Due 12/15/2016

Sub Lab: Accutest Gulf Coast  
Address: 10165 Harwin Drive  
City: Houston  
State: TX Zip: 77036  
Contact: Sample Management  
Phone: (713) 692-9151

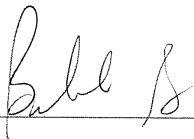
SGS Accutest Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
<u>LA28187-1</u>	<u>114 (12.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>10:34:00 AM</u>	
<u>LA28187-2</u>	<u>113 (12.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>11:00:00 AM</u>	
<u>LA28187-3</u>	<u>112 (10')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>11:22:00 AM</u>	
<u>LA28187-4</u>	<u>111 (15')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>11:55:00 AM</u>	
<u>LA28187-5</u>	<u>110 (15')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>1:53:00 PM</u>	
<u>LA28187-6</u>	<u>103 (10')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>2:15:00 PM</u>	
<u>LA28187-7</u>	<u>104 (15')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>3:06:00 PM</u>	
<u>LA28187-8</u>	<u>101 (10')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>11/30/2016</u>	<u>3:24:00 PM</u>	
<u>LA28187-9</u>	<u>102 (15')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>9:36:00 AM</u>	
<u>LA28187-10</u>	<u>100 (12.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>10:13:00 AM</u>	
<u>LA28187-11</u>	<u>106 (2.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>10:43:00 AM</u>	
<u>LA28187-12</u>	<u>107 (2.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>11:19:00 AM</u>	
<u>LA28187-13</u>	<u>108 (12.5')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>1:33:00 PM</u>	
<u>LA28187-14</u>	<u>109 (15')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>2:16:00 PM</u>	
<u>LA28187-15</u>	<u>105 (10')</u>	<u>BICSAR ,CHLICSAR ,SO4ICSAR .</u>	<u>YX33 2W .</u>		<u>12/1/2016</u>	<u>2:14:00 PM</u>	

7.1  
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## LA28187: Chain of Custody

Comments: \*\*\*\*\*SEND SAR EXTRACTS TO HOUSTON

Sample Management Receipt:



Date:

12/19/14 1108

LA28187: Chain of Custody  
Page 4 of 6



## SGS Accutest Sample Receipt Summary

**Job Number:** LA28187      **Client:** SGS ACCUTEST      **Project:** HC DREW MANUEL  
**Date / Time Received:** \_\_\_\_\_      **Delivery Method:** \_\_\_\_\_      **Airbill #s:** \_\_\_\_\_  
**No. Coolers:** 1      **Therm ID:** IR9;      **Temp Adjustment Factor:** 0;  
**Cooler Temps (Initial/Adjusted):** #1: (1.1/1.1);

<b>Cooler Security</b>	<u>Y or N</u>		<u>Y or N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/> <input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>
<b>Cooler Temperature</b>	<u>Y or N</u>		
1. Temp criteria achieved:	<input checked="" type="checkbox"/> <input type="checkbox"/>		
2. Cooler temp verification:	_____		
3. Cooler media:	Ice (Bag)		
<b>Quality Control Preservation</b>	<u>Y or N</u>	<u>N/A</u>	<u>WTB STB</u>
1. Trip Blank present / cooler:	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/> <input type="checkbox"/>		
4. VOCs headspace free:	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Sample Integrity - Documentation</b>	<u>Y or N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/> <input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/> <input type="checkbox"/>
<b>Sample Integrity - Condition</b>	<u>Y or N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/> <input type="checkbox"/>
3. Condition of sample:	Intact
<b>Sample Integrity - Instructions</b>	<u>Y or N</u> <u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/> <input checked="" type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/> <input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>

Comments

7.1  
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# Sample Receipt Log

Job #: LA28187

Date / Time Received: 12/19/2016 11:08:00 AM

Initials: BG

Client: SGS ACCUTEST

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	LA28187-1	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.	IR9	1.1	0	1.1
1	LA28187-1	Spec Cup	2	M3C	N/P	Note #2 - Preservative check not applicable.	IR9	1.1	0	1.1
	LA28187-2	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-3	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-4	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-5	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-6	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-7	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-8	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-9	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-10	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-11	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-12	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-13	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-14	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				
	LA28187-15	Spec Cup	1	M3C	N/P	Note #2 - Preservative check not applicable.				

7.1  
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**LA28187: Chain of Custody**

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**General Chemistry**

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**QC Data Summaries**

(SGS Accutest Gulf Coast)

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28187  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate	GN78315			mg/l	xxxxxxxx	91.0	91.0	-%
Alkalinity, Bicarbonate	GN78315	5.0	0.0	mg/l	xxxxxxxx	91.0	91.0	-%
Alkalinity, Bicarbonate	GN78317			mg/l	xxxxxxxx	91.0	91.0	-%
Alkalinity, Bicarbonate	GN78317	5.0	0.0	mg/l	xxxxxxxx	91.0	91.0	-%
Chloride	GP39864/GN78284	0.50	0.0	mg/l	10	9.15	91.5	90-110%
Chloride	GP39864/GN78284	0.50	0.0	mg/l				
Sulfate	GP39864/GN78284	0.60	0.0	mg/l	10	9.15	91.5	90-110%
Sulfate	GP39864/GN78284	0.60	0.60*	mg/l				

Associated Samples:

Batch GN78315: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14

Batch GN78317: LA28187-15

Batch GP39864: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

(\*) Outside of QC limits



DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28187  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP39864/GN78284	LA28187-1	mg/l	1030	1070	3.8	0-13%
Sulfate	GP39864/GN78284	LA28187-1	mg/l	32.8	30.2	8.3	0-20%

Associated Samples:

Batch GP39864: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

(\*) Outside of QC limits

8.2

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MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28187  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP39864/GN78284	LA28187-1	mg/l	1030	2000	3320	114.5	80-120%
Sulfate	GP39864/GN78284	LA28187-1	mg/l	32.8	50	77.8	90.0	80-120%

Associated Samples:

Batch GP39864: LA28187-1, LA28187-2, LA28187-3, LA28187-4, LA28187-5, LA28187-6, LA28187-7, LA28187-8, LA28187-9, LA28187-10, LA28187-11, LA28187-12, LA28187-13, LA28187-14, LA28187-15

(\* ) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



### Technical Report for

Acadian Eng & Envir Cons Inc

H.C. Drew Manuel

16-36

SGS Accutest Job Number: LA28191

Sampling Date: 12/02/16

Report to:

Acadian Eng & Environmental Cons, Inc  
P.O. Box 1126  
Eunice, LA 70535  
andre@acadianengineers.com; lydiag@acadianengineers.com  
  
ATTN: Andre Aucoin

Total number of pages in report: **34**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Ron Benjamin  
Lab Director

Client Service contact: Rebecca Hebert 337-237-4775

Certifications: LDEQ(2048), LDHH(LA150012), AR(14-045-04), AZ(AZ0805), FL(E87657), IL(200082), KY(#31), NC(487), SC(73004001), NJ(LA007), TX(T104704186-15-7), WV(257)

This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.  
Test results relate only to samples analyzed.

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## Sample Summary

Acadian Eng & Envir Cons Inc

Job No: LA28191

H.C. Drew Manuel  
Project No: 16-36

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
LA28191-1	12/02/16	09:10	12/03/16	AQ	Ground Water	110
LA28191-2	12/02/16	09:50	12/03/16	AQ	Ground Water	100
LA28191-3	12/02/16	10:15	12/03/16	AQ	Ground Water	105

## Summary of Hits

**Job Number:** LA28191  
**Account:** Acadian Eng & Envir Cons Inc  
**Project:** H.C. Drew Manuel  
**Collected:** 12/02/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>LA28191-1</b>	<b>110</b>					
Arsenic		83.6	10		ug/l	SW846 6010B
Chromium		299	10		ug/l	SW846 6010B
Lead		115	10		ug/l	SW846 6010B
Zinc		336	20		ug/l	SW846 6010B
Chloride <sup>a</sup>		1650	100		mg/l	SM 4500CL C-2011
Specific Conductivity <sup>a</sup>		2020	1.0		umhos/cm	EPA 120.1
pH <sup>b</sup>		7.22			su	SM 4500H+ B-2011
<b>LA28191-2</b>	<b>100</b>					
Chromium <sup>c</sup>		112	100		ug/l	SW846 6010B
Lead <sup>c</sup>		124	100		ug/l	SW846 6010B
Zinc		255	20		ug/l	SW846 6010B
Chloride <sup>a</sup>		7200	200		mg/l	SM 4500CL C-2011
Specific Conductivity <sup>a</sup>		5560	1.0		umhos/cm	EPA 120.1
pH <sup>d</sup>		6.74			su	SM 4500H+ B-2011
<b>LA28191-3</b>	<b>105</b>					
Chromium <sup>c</sup>		139	50		ug/l	SW846 6010B
Lead <sup>c</sup>		59.2	50		ug/l	SW846 6010B
Zinc		219	20		ug/l	SW846 6010B
Chloride <sup>a</sup>		1280	50		mg/l	SM 4500CL C-2011
Specific Conductivity <sup>a</sup>		1470	1.0		umhos/cm	EPA 120.1
pH <sup>d</sup>		7.17			su	SM 4500H+ B-2011

(a) Analysis performed at SGS Accutest, Houston, TX.

(b) Field analysis required. Received out of hold time and analyzed by request.temp 22.5 c Analysis performed at SGS Accutest, Houston, TX.

(c) Elevated reporting limit due to dilution required for matrix interference.

(d) Field analysis required. Received out of hold time and analyzed by request.temp 22.3 c Analysis performed at SGS Accutest, Houston, TX.

Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b> 110	<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-1	<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel	

### Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	83.6	10	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Cadmium	< 5.0	5.0	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Chromium	299	10	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Lead	115	10	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Mercury	< 0.20	0.20	ug/l	1	12/08/16	12/09/16 SA	SW846 7470A <sup>2</sup>	SW846 7470A <sup>4</sup>
Selenium	< 10	10	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Silver	< 10	10	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Zinc	336	20	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>

- (1) Instrument QC Batch: MA5835
- (2) Instrument QC Batch: MA5864
- (3) Prep QC Batch: MP6030
- (4) Prep QC Batch: MP6060

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 110	<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-1	<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	1650	100	mg/l	100	12/13/16 09:30	ATX	SM 4500CL C-2011
HEM Oil And Grease <sup>a</sup>	< 2.1	2.1	mg/l	1	12/12/16	ATX	EPA 1664A
Specific Conductivity <sup>a</sup>	2020	1.0	umhos/cm	1	12/09/16 10:00	ATX	EPA 120.1
pH <sup>b</sup>	7.22		su	1	12/12/16 19:15	ATX	SM 4500H+ B-2011

(a) Analysis performed at SGS Accutest, Houston, TX.

(b) Field analysis required. Received out of hold time and analyzed by request. temp 22.5 c Analysis performed at SGS Accutest, Houston, TX.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 100	<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-2	<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel	

### Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic <sup>a</sup>	< 100	100	ug/l	10	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Cadmium	< 5.0	5.0	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Chromium <sup>a</sup>	112	100	ug/l	10	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Lead <sup>a</sup>	124	100	ug/l	10	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Mercury	< 0.20	0.20	ug/l	1	12/08/16	12/09/16 SA	SW846 7470A <sup>3</sup>	SW846 7470A <sup>5</sup>
Selenium <sup>a</sup>	< 100	100	ug/l	10	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Silver <sup>a</sup>	< 100	100	ug/l	10	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Zinc	255	20	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>

- (1) Instrument QC Batch: MA5835
- (2) Instrument QC Batch: MA5847
- (3) Instrument QC Batch: MA5864
- (4) Prep QC Batch: MP6030
- (5) Prep QC Batch: MP6060

(a) Elevated reporting limit due to dilution required for matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> 100		<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-2		<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel		

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	7200	200	mg/l	200	12/13/16 09:30	ATX	SM 4500CL C-2011
HEM Oil And Grease <sup>a</sup>	< 2.1	2.1	mg/l	1	12/12/16	ATX	EPA 1664A
Specific Conductivity <sup>a</sup>	5560	1.0	umhos/cm	1	12/09/16 10:00	ATX	EPA 120.1
pH <sup>b</sup>	6.74		su	1	12/12/16 19:15	ATX	SM 4500H+ B-2011

(a) Analysis performed at SGS Accutest, Houston, TX.

(b) Field analysis required. Received out of hold time and analyzed by request.temp 22.3 c Analysis performed at SGS Accutest, Houston, TX.

RL = Reporting Limit

# Report of Analysis

<b>Client Sample ID:</b> 105	<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-3	<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic <sup>a</sup>	< 50	50	ug/l	5	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Cadmium	< 5.0	5.0	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Chromium <sup>a</sup>	139	50	ug/l	5	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Lead <sup>a</sup>	59.2	50	ug/l	5	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Mercury	< 0.20	0.20	ug/l	1	12/08/16	12/09/16 SA	SW846 7470A <sup>3</sup>	SW846 7470A <sup>5</sup>
Selenium <sup>a</sup>	< 50	50	ug/l	5	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Silver <sup>a</sup>	< 50	50	ug/l	5	12/06/16	12/07/16 RD	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Zinc	219	20	ug/l	1	12/06/16	12/07/16 RD	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>

- (1) Instrument QC Batch: MA5835
- (2) Instrument QC Batch: MA5847
- (3) Instrument QC Batch: MA5864
- (4) Prep QC Batch: MP6030
- (5) Prep QC Batch: MP6060

(a) Elevated reporting limit due to dilution required for matrix interference.

RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b> 105	<b>Date Sampled:</b> 12/02/16
<b>Lab Sample ID:</b> LA28191-3	<b>Date Received:</b> 12/03/16
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> H.C. Drew Manuel	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	1280	50	mg/l	50	12/13/16 09:30	ATX	SM 4500CL C-2011
HEM Oil And Grease <sup>a</sup>	< 2.1	2.1	mg/l	1	12/12/16	ATX	EPA 1664A
Specific Conductivity <sup>a</sup>	1470	1.0	umhos/cm	1	12/09/16 10:00	ATX	EPA 120.1
pH <sup>b</sup>	7.17		su	1	12/12/16 19:15	ATX	SM 4500H+ B-2011

(a) Analysis performed at SGS Accutest, Houston, TX.

(b) Field analysis required. Received out of hold time and analyzed by request. temp 22.3 c Analysis performed at SGS Accutest, Houston, TX.

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

Acadian Environmental Inc.  
 Post Office Box 1126  
 Eunice, Louisiana 70535

CHAIN OF CUSTODY RECORD

LA 28191

PROJECT NO. 16-36		PROJECT NAME: H.C. JEW MANUEL				NUMBER OF CONTAINERS	PARAMETERS					THIS COLUMN INDICATES THE CONTAMINANT SUSPECTED	
SAMPLERS (SIGNATURE) <i>[Signature]</i>							TPH	BENZ	EENZ	TOLUENE	XYLENE		REMARKS
STA. NO.	DATE	TIME	COMP.	GRAU.	SAMPLE IDENTIFICATION								
110	12-2-16	9:10am			G. WATER	1					✓		
110	12-2-16	9:12am			}	1					✓		
110	12-2-16	9:14am				1						✓	
100	12-2-16	9:58am				1						✓	
100	12-2-16	9:52am				1						✓	
100	12-2-16	9:54am				1						✓	
105	12-2-16	10:15am				1						✓	
105	12-2-16	10:17am				1						✓	
105	12-2-16	10:19am				1						✓	
Relinquished By: <i>[Signature]</i>			Date/Time: 12-5-16 1:00pm			Received By: <i>Walter Newma</i>		Relinquished By: <i>Walter Newma</i>		Date/Time: 12-5-16 1:30pm		Received By: <i>Raymond Kidd</i>	
Relinquished By:			Date/Time:		Received By:		Relinquished By:		Date/Time:		Received By:		
Relinquished By:			Date/Time:		Received for Laboratory By:			Remarks:					

NAME OF LABORATORY SGS Accutest LOCATION Scott Louisiana  
 NO/Cs Temp 5.5 DU N18 (OL) (3w)<sub>2</sub> client d/o

4.1  
4

# SGS Accutest Sample Receipt Summary

**Job Number:** LA28191

**Client:** ACADIAN ENVIRONMENTAL, INC.

**Project:** H.C. DREW MANUEL

**Date / Time Received:** 12/3/2016 1:00:00 PM

**Delivery Method:** Client

**Airbill #s:**

**Cooler Temps (Initial/Adjusted):** #1: (5.5/5.5):

<u>Cooler Security</u>		<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Custody Seals Intact:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Cooler Temperature</u>		<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Cooler temp verification:	_____		
3. Cooler media:	Ice (direct contact)		
4. No. Coolers:	1		

<u>Quality Control Preservation</u>			
	<u>Y</u>	<u>or</u>	<u>N</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>		<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

<u>Sample Integrity - Condition</u>		<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>			
	<u>Y</u>	<u>or</u>	<u>N</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Comments**

all containers are labeled 29b  
 received 1-liter w/ hcl for oil & grease, 1-liter unp for chloride  
 and 500ml w/ nitric for metals

4.1  
4

LA28191: Chain of Custody

Page 2 of 2

## Metals Analysis

---

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28191  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6030  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 12/06/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	35	46		
Antimony	6.0	1.2	3.7		
Arsenic	10	1.1	2.6	1.0	<10
Barium	10	1.3	1.3		
Beryllium	4.0	.03	.3		
Boron	100	2.4	10		
Cadmium	5.0	.67	.9	-0.060	<5.0
Calcium	100	6.5	58		
Chromium	10	.94	.9	-0.38	<10
Cobalt	10	.33	.8		
Copper	10	1.6	4		
Iron	100	11	33		
Lead	10	1.7	1.8	0.12	<10
Lithium	10	3.9	6.3		
Magnesium	100	41	37		
Manganese	10	.19	1.1		
Molybdenum	10	.26	1.1		
Nickel	10	.62	1		
Potassium	500	280	50		
Selenium	10	3.6	3.6	-1.6	<10
Silver	10	1	1.4	0.0	<10
Sodium	500	75	53		
Strontium	10	.29	1		
Thallium	5.0	1.9	1.6		
Tin	10	.47	.9		
Titanium	10	.79	1.7		
Vanadium	10	.76	.9		
Zinc	20	4	4.3	1.7	<20

Associated samples MP6030: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6030  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/06/16

Metal	TC95672-1 Original MS		SpikeLot ICPSPK1% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	1.9	1040	1000	103.8 75-125
Barium	anr			
Beryllium				
Boron				
Cadmium	0.0	1050	1000	105.0 75-125
Calcium				
Chromium	0.0	1060	1000	106.0 75-125
Cobalt				
Copper				
Iron				
Lead	0.0	1080	1000	108.0 75-125
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	0.0	1060	1000	106.0 75-125
Silver	0.0	1050	1000	105.0 75-125
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	106	1170	1000	106.4 75-125

Associated samples MP6030: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

5.12  
 5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6030  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/06/16

Metal	TC95672-1 Original MSD		SpikeLot ICPSPIKE1% Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	1.9	917	1000	91.5	12.6	20
Barium	anr					
Beryllium						
Boron						
Cadmium	0.0	916	1000	91.6	13.6	20
Calcium						
Chromium	0.0	904	1000	90.4	15.9	20
Cobalt						
Copper						
Iron						
Lead	0.0	941	1000	94.1	13.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium	0.0	928	1000	92.8	13.3	20
Silver	0.0	907	1000	90.7	14.6	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	106	1030	1000	92.4	12.7	20

Associated samples MP6030: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

5.12  
 5



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6030  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/06/16

Metal	BSP Result	Spikelot ICP SPIKE1% Rec	QC Limits
Aluminum			
Antimony			
Arsenic	1040	1000	104.0 80-120
Barium	anr		
Beryllium			
Boron			
Cadmium	1050	1000	105.0 80-120
Calcium			
Chromium	1050	1000	105.0 80-120
Cobalt			
Copper			
Iron			
Lead	1080	1000	108.0 80-120
Lithium			
Magnesium			
Manganese			
Molybdenum			
Nickel			
Potassium			
Selenium	1060	1000	106.0 80-120
Silver	1050	1000	105.0 80-120
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc	1060	1000	106.0 80-120

Associated samples MP6030: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6030  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/06/16

Metal	TC95672-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	1.90	0.00	100.0 (a)	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	0.00	0.00	NC	0-10
Cobalt				
Copper				
Iron				
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	106	104	1.3	0-10

Associated samples MP6030: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: LA28191  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6060  
Matrix Type: AQUEOUS

Methods: SW846 7470A  
Units: ug/l

Prep Date: 12/08/16

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.20	.06	.15	-0.020	<0.20

Associated samples MP6060: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.2.1  
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6060  
 Matrix Type: AQUEOUS

Methods: SW846 7470A  
 Units: ug/l

Prep Date: 12/08/16

Metal	LA28191-1 Original MS	Spikelot HGSPIKE1 % Rec	QC Limits
-------	--------------------------	----------------------------	--------------

Mercury	0.0	1.9	5	38.0N(a)	75-125
---------	-----	-----	---	----------	--------

Associated samples MP6060: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference or sample non-homogeneity.

5.2.2  
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6060  
 Matrix Type: AQUEOUS

Methods: SW846 7470A  
 Units: ug/l

Prep Date: 12/08/16

Metal	LA28191-1 Original MSD	Spikelot HGSPIKE1	% Rec	MSD RPD	QC Limit
Mercury	0.0	1.9	5	38.0N(a) 0.0	20

Associated samples MP6060: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference or sample non-homogeneity.

5.2.2  
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: LA28191  
 Account: AEELAE - Acadian Eng & Envir Cons Inc  
 Project: H.C. Drew Manuel

QC Batch ID: MP6060  
 Matrix Type: AQUEOUS

Methods: SW846 7470A  
 Units: ug/l

Prep Date: 12/08/16

Metal	BSP Result	Spikelot HGSPIKE1	% Rec	QC Limits
Mercury	5.0	5	100.0	80-120

Associated samples MP6060: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

5.2.3  
5

SERIAL DILUTION RESULTS SUMMARY

Login Number: LA28191  
Account: AEELAE - Acadian Eng & Envir Cons Inc  
Project: H.C. Drew Manuel

QC Batch ID: MP6060  
Matrix Type: AQUEOUS

Methods: SW846 7470A  
Units: ug/l

Prep Date: 12/08/16

Metal	LA28191-1	Original	SDL 1:5	%DIF	QC Limits
-------	-----------	----------	---------	------	-----------

Mercury 0.00 0.00 NC 0-

Associated samples MP6060: LA28191-1, LA28191-2, LA28191-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

5.2.4  
5

Misc. Forms

Custody Documents and Other Forms

(SGS Accutest Gulf Coast)

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Includes the following where applicable:

- Chain of Custody





ACCUTEST

CHAIN OF CUSTODY

500 Ambassador Caffery Parkway, Scott, LA 70583
Phone: 800-304-5227 Fax: 337-237-7838
www.sgs.com

FED-EX Tracking #
Bottle Order Control #

SGS Accutest Quote #
SGS Accutest Job LA28191

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turnaround Time, Data Deliverable Information, and Sample Custody tracking table.

6.1
6

LA28191: Chain of Custody
Page 1 of 4
SGS Accutest Gulf Coast

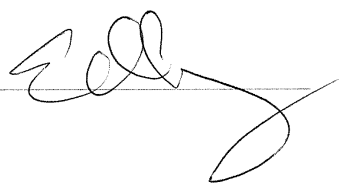
Cooler 1

Date / Time: 12/6/2016 2:29:55 PM  
CSR: rebecca1  
Job #: LA28191  
Client Project: H.C. Drew Manuel  
Deliverable: COMMB  
TAT: Due 12/13/2016

Sub Lab: Accutest Gulf Coast  
Address: 10165 Harwin Drive  
City: Houston  
State: TX Zip: 77036  
Contact: Sample Management  
Phone: (713) 692-9151

SGS Accutest Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
LA28191-1 ✓	110	CHL_OG1664_SCON_	3w 2_oL		12/2/2016	9:10:00 AM	
LA28191-2 ✓	100	CHL_OG1664_SCON_	3w 2_oL		12/2/2016	9:50:00 AM	
LA28191-3 ✓	105	CHL_OG1664_SCON_	3w 2_oL		12/2/2016	10:15:00 AM	

Comments:

Sample Management Receipt:  Date: 12-7-16/100

6.1  
6

# SGS Accutest Sample Receipt Summary

**Job Number:** LA28191      **Client:** SGS LA      **Project:** HC DREW MANUEL  
**Date / Time Received:** \_\_\_\_\_ **Delivery Method:** \_\_\_\_\_ **Airbill #s:** \_\_\_\_\_  
**No. Coolers:** 1      **Therm ID:** IR9;      **Temp Adjustment Factor:** 0;  
**Cooler Temps (Initial/Adjusted):** #1: (1.5/1.5);

**Cooler Security**      Y or N      Y or N  
 1. Custody Seals Present:        3. COC Present:    
 2. Custody Seals Intact:        4. Smpl Dates/Time OK

**Cooler Temperature**      Y or N  
 1. Temp criteria achieved:    
 2. Cooler temp verification: \_\_\_\_\_  
 3. Cooler media: \_\_\_\_\_ Ice (Bag)

**Quality Control Preservation**      Y or N      N/A      WTB      STB  
 1. Trip Blank present / cooler:            
 2. Trip Blank listed on COC:     
 3. Samples preserved properly:    
 4. VOCs headspace free:

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: \_\_\_\_\_ Intact

**Sample Integrity - Instructions**      Y or N      N/A  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests    
 3. Sufficient volume recvd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

6.1  
6

# Sample Receipt Log

**Job #:** LA28191

**Date / Time Received:** 12/7/2016 12:00:00 PM

**Initials:** EC

**Client:** SGS LA

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	LA28191-1	LCG	1	M2A	HCL	pH < 2	IR9	1.5	0	1.5
1	LA28191-1	1000ml	2	M1E	N/P	Note #2 - Preservative check not applicable.	IR9	1.5	0	1.5
1	LA28191-2	LCG	1	M2A	HCL	pH < 2	IR9	1.5	0	1.5
1	LA28191-2	1000ml	2	M1E	N/P	Note #2 - Preservative check not applicable.	IR9	1.5	0	1.5
1	LA28191-3	LCG	1	M2A	HCL	pH < 2	IR9	1.5	0	1.5
1	LA28191-3	1000ml	2	M1E	N/P	Note #2 - Preservative check not applicable.	IR9	1.5	0	1.5

6.1  
6

**LA28191: Chain of Custody**

**Page 4 of 4**

**General Chemistry**

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**QC Data Summaries**

(SGS Accutest Gulf Coast)

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28191  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP39707/GN78093	1.0	0.0	mg/l	1000	1000	100.0	93-104%
HEM Oil And Grease	GP39690/GN78068	2.0	0.0	mg/l	40	37.5	93.8	78-114%
Specific Conductivity	GN77991	1.0	<1.0	umhos/cm				

Associated Samples:

Batch GN77991: LA28191-1, LA28191-2, LA28191-3

Batch GP39690: LA28191-1, LA28191-2, LA28191-3

Batch GP39707: LA28191-1, LA28191-2, LA28191-3

(\*) Outside of QC limits

7.1  
7

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28191  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP39707/GN78093	LA28253-2	mg/l	145	145	0.0	0-10%
HEM Oil And Grease	GP39690/GN78068	TC95740-1	mg/l	0.0	0.0	0.0	0-20%
Specific Conductivity	GN77991	LA28163-33	umhos/cm	2810	2800	0.4	0-10%
pH	GN78074	LA28191-3	su	7.17	7.17(a)	0.0	0-10%

Associated Samples:

Batch GN77991: LA28191-1, LA28191-2, LA28191-3

Batch GN78074: LA28191-1, LA28191-2, LA28191-3

Batch GP39690: LA28191-1, LA28191-2, LA28191-3

Batch GP39707: LA28191-1, LA28191-2, LA28191-3

(\*) Outside of QC limits

(a) temp 22.3 c

7.2  
7

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: LA28191  
Account: ALLA - SGS Accutest Lafayette  
Project: ABELAE: H.C. Drew Manuel

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP39707/GN78093	LA28253-2	mg/l	145	50	195	100.0	89-106%
HEM Oil And Grease	GP39690/GN78068	TC95752-2	mg/l	0.0	40	37.9	94.8	78-114%

Associated Samples:

Batch GP39690: LA28191-1, LA28191-2, LA28191-3

Batch GP39707: LA28191-1, LA28191-2, LA28191-3

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits





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

February 28, 2018

Andre Aucoin  
Acadian Engineers  
P.O. Box 1126  
Eunice, LA 70535  
TEL: (337) 457-1492  
FAX

RE: Neumin Prod/ Drew Manual #1

Order No.: 18020660

Dear Andre Aucoin:

Element Materials Technology Lafayette received 20 sample(s) on 2/20/2018 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. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

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

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



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

## Case Narrative

WO#: 18020660  
Date: 2/28/2018

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**CLIENT:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

---

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

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

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



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:23:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-001 **Matrix:** SOIL  
**Client Sample ID** B29-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	14.8	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.33	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	5.09	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	0.11	0.05		% dry wt	1	2/26/2018 9:15:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.75	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.97	0.10			1	2/27/2018
Soluble Calcium	6.07	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.09	0.05		meq/L	1	2/27/2018
Soluble Sodium	12.1	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0941	0.0941		mg/Kg	1	2/22/2018 10:59:24 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.92	1.06		mg/Kg	1	2/23/2018 1:58:36 AM
Barium	272	0.531		mg/Kg	1	2/23/2018 1:58:36 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:23:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-001 **Matrix:** SOIL  
**Client Sample ID** B29-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	0.956	0.265		mg/Kg	1	2/23/2018 1:58:36 AM
Chromium	8.01	0.531		mg/Kg	1	2/23/2018 1:58:36 AM
Lead	6.59	0.531		mg/Kg	1	2/23/2018 1:58:36 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 1:58:36 AM
Silver	< 0.265	0.265		mg/Kg	1	2/23/2018 1:58:36 AM
Zinc	29.4	0.531		mg/Kg	1	2/23/2018 1:58:36 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	434	45.7		mg/Kg-dry	1	2/26/2018 8:10:16 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.0	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:28:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-002 **Matrix:** SOIL  
**Client Sample ID** B29-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	23.0	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.33	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.74	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/26/2018 9:15:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.03	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.57	0.10			1	2/27/2018
Soluble Calcium	9.93	0.02		meq/L	1	2/27/2018
Soluble Magnesium	4.45	0.05		meq/L	1	2/27/2018
Soluble Sodium	14.9	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.103	0.103		mg/Kg	1	2/22/2018 11:01:44 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.62	1.09		mg/Kg	1	2/23/2018 2:08:49 AM
Barium	42.1	0.544		mg/Kg	1	2/23/2018 2:08:49 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:28:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-002 **Matrix:** SOIL  
**Client Sample ID** B29-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.272	0.272		mg/Kg	1	2/23/2018 2:08:49 AM
Chromium	2.48	0.544		mg/Kg	1	2/23/2018 2:08:49 AM
Lead	4.58	0.544		mg/Kg	1	2/23/2018 2:08:49 AM
Selenium	< 2.18	2.18		mg/Kg	1	2/23/2018 2:08:49 AM
Silver	< 0.272	0.272		mg/Kg	1	2/23/2018 2:08:49 AM
Zinc	3.42	0.544		mg/Kg	1	2/23/2018 2:08:49 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	295	47.5		mg/Kg-dry	1	2/26/2018 8:18:34 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.4	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:38:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-003 **Matrix:** SOIL  
**Client Sample ID** B29-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	25.0	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.22	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.10	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/26/2018 9:15:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.28	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.66	0.10			1	2/27/2018
Soluble Calcium	3.43	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.80	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.31	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.104	0.104		mg/Kg	1	2/22/2018 11:04:05 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.68	1.11		mg/Kg	1	2/23/2018 2:12:13 AM
Barium	14.1	0.555		mg/Kg	1	2/23/2018 2:12:13 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:38:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-003 **Matrix:** SOIL  
**Client Sample ID** B29-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.278	0.278		mg/Kg	1	2/23/2018 2:12:13 AM
Chromium	5.17	0.555		mg/Kg	1	2/23/2018 2:12:13 AM
Lead	2.63	0.555		mg/Kg	1	2/23/2018 2:12:13 AM
Selenium	< 2.22	2.22		mg/Kg	1	2/23/2018 2:12:13 AM
Silver	< 0.278	0.278		mg/Kg	1	2/23/2018 2:12:13 AM
Zinc	11.1	0.555		mg/Kg	1	2/23/2018 2:12:13 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	130	47.4		mg/Kg-dry	1	2/26/2018 8:21:35 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.1	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:40:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-004 **Matrix:** SOIL  
**Client Sample ID** B29-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	15.1	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.44	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.66	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/26/2018 9:15:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.68	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.48	0.10			1	2/27/2018
Soluble Calcium	4.60	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.39	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.64	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0955	0.0955		mg/Kg	1	2/22/2018 11:11:26 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	7.78	1.09		mg/Kg	1	2/23/2018 2:47:25 AM
Barium	19.7	0.546		mg/Kg	1	2/23/2018 2:47:25 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:40:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-004 **Matrix:** SOIL  
**Client Sample ID** B29-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.273	0.273		mg/Kg	1	2/23/2018 2:47:25 AM
Chromium	5.88	0.546		mg/Kg	1	2/23/2018 2:47:25 AM
Lead	5.08	0.546		mg/Kg	1	2/23/2018 2:47:25 AM
Selenium	< 2.19	2.19		mg/Kg	1	2/23/2018 2:47:25 AM
Silver	< 0.273	0.273		mg/Kg	1	2/23/2018 2:47:25 AM
Zinc	18.5	0.546		mg/Kg	1	2/23/2018 2:47:25 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	61.8	46.5		mg/Kg-dry	1	2/26/2018 8:24:34 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	16.4	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:47:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-005 **Matrix:** SOIL  
**Client Sample ID** B29-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	19.9	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.08	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.26	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/26/2018 9:15:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.99	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.40	0.10			1	2/27/2018
Soluble Calcium	3.18	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.69	0.05		meq/L	1	2/27/2018
Soluble Sodium	3.75	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg	1	2/22/2018 11:13:46 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	13.6	1.08	*	mg/Kg	1	2/23/2018 2:53:30 AM
Barium	385	0.542		mg/Kg	1	2/23/2018 2:53:30 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:47:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-005 **Matrix:** SOIL  
**Client Sample ID** B29-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	0.661	0.271		mg/Kg	1	2/23/2018 2:53:30 AM
Chromium	9.12	0.542		mg/Kg	1	2/23/2018 2:53:30 AM
Lead	7.26	0.542		mg/Kg	1	2/23/2018 2:53:30 AM
Selenium	< 2.17	2.17		mg/Kg	1	2/23/2018 2:53:30 AM
Silver	< 0.271	0.271		mg/Kg	1	2/23/2018 2:53:30 AM
Zinc	45.8	0.542		mg/Kg	1	2/23/2018 2:53:30 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	181	48.2		mg/Kg-dry	1	2/26/2018 8:27:34 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	20.8	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:52:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-006 **Matrix:** SOIL  
**Client Sample ID** B29-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	21.9	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.02	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.00	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.69	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.59	0.10			1	2/27/2018
Soluble Calcium	3.08	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.82	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.06	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0937	0.0937		mg/Kg	1	2/22/2018 11:16:08 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.25	1.05		mg/Kg	1	2/23/2018 3:00:26 AM
Barium	22.2	0.523		mg/Kg	1	2/23/2018 3:00:26 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:52:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-006 **Matrix:** SOIL  
**Client Sample ID** B29-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.262	0.262		mg/Kg	1	2/23/2018 3:00:26 AM
Chromium	9.70	0.523		mg/Kg	1	2/23/2018 3:00:26 AM
Lead	5.47	0.523		mg/Kg	1	2/23/2018 3:00:26 AM
Selenium	< 2.09	2.09		mg/Kg	1	2/23/2018 3:00:26 AM
Silver	< 0.262	0.262		mg/Kg	1	2/23/2018 3:00:26 AM
Zinc	33.0	0.523		mg/Kg	1	2/23/2018 3:00:26 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	119	46.1		mg/Kg-dry	1	2/26/2018 8:38:47 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	20.3	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:53:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-007 **Matrix:** SOIL  
**Client Sample ID** B29-S7

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	5.99	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.30	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.86	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.10	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.61	0.10			1	2/27/2018
Soluble Calcium	8.73	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.40	0.05		meq/L	1	2/27/2018
Soluble Sodium	6.43	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0940	0.0940		mg/Kg	1	2/22/2018 11:18:28 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.40	1.09		mg/Kg	1	2/23/2018 3:06:37 AM
Barium	125	0.546		mg/Kg	1	2/23/2018 3:06:37 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 9:53:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-007 **Matrix:** SOIL  
**Client Sample ID** B29-S7

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.273	0.273		mg/Kg	1	2/23/2018 3:06:37 AM
Chromium	4.62	0.546		mg/Kg	1	2/23/2018 3:06:37 AM
Lead	3.40	0.546		mg/Kg	1	2/23/2018 3:06:37 AM
Selenium	< 2.18	2.18		mg/Kg	1	2/23/2018 3:06:37 AM
Silver	< 0.273	0.273		mg/Kg	1	2/23/2018 3:06:37 AM
Zinc	13.3	0.546		mg/Kg	1	2/23/2018 3:06:37 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	135	46.6		mg/Kg-dry	1	2/26/2018 8:41:48 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	19.1	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:05:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-008 **Matrix:** SOIL  
**Client Sample ID** B26-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	18.1	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.65	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.23	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.15	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.83	0.10			1	2/27/2018
Soluble Calcium	8.39	0.02		meq/L	1	2/27/2018
Soluble Magnesium	4.10	0.05		meq/L	1	2/27/2018
Soluble Sodium	12.1	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.100	0.100		mg/Kg	1	2/22/2018 11:20:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.56	1.07		mg/Kg	1	2/23/2018 3:21:48 AM
Barium	31.3	0.534		mg/Kg	1	2/23/2018 3:21:48 AM

**Qualifiers:**

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



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:05:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-008 **Matrix:** SOIL  
**Client Sample ID** B26-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.267	0.267		mg/Kg	1	2/23/2018 3:21:48 AM
Chromium	3.58	0.534		mg/Kg	1	2/23/2018 3:21:48 AM
Lead	6.24	0.534		mg/Kg	1	2/23/2018 3:21:48 AM
Selenium	< 2.14	2.14		mg/Kg	1	2/23/2018 3:21:48 AM
Silver	< 0.267	0.267		mg/Kg	1	2/23/2018 3:21:48 AM
Zinc	3.68	0.534		mg/Kg	1	2/23/2018 3:21:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	68.5	46.9		mg/Kg-dry	1	2/26/2018 8:44:48 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.6	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:11:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-009 **Matrix:** SOIL  
**Client Sample ID** B26-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	23.7	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.37	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.88	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	5.98	1.68	C	S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.84	0.10			1	2/27/2018
Soluble Calcium	3.29	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.89	0.05		meq/L	1	2/27/2018
Soluble Sodium	6.18	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0961	0.0961		mg/Kg	1	2/22/2018 11:23:08 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.62	1.06		mg/Kg	1	2/23/2018 3:27:49 AM
Barium	32.8	0.530		mg/Kg	1	2/23/2018 3:27:49 AM

**Qualifiers:**

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



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:11:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-009 **Matrix:** SOIL  
**Client Sample ID** B26-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.265	0.265		mg/Kg	1	2/23/2018 3:27:49 AM
Chromium	2.81	0.530		mg/Kg	1	2/23/2018 3:27:49 AM
Lead	5.64	0.530		mg/Kg	1	2/23/2018 3:27:49 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 3:27:49 AM
Silver	< 0.265	0.265		mg/Kg	1	2/23/2018 3:27:49 AM
Zinc	3.11	0.530		mg/Kg	1	2/23/2018 3:27:49 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	107	47.7		mg/Kg-dry	1	2/26/2018 8:47:24 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.3	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:16:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-010 **Matrix:** SOIL  
**Client Sample ID** B26-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	25.5	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.15	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.49	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.67	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.14	0.10			1	2/27/2018
Soluble Calcium	2.99	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.75	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.84	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.100	0.100		mg/Kg	1	2/22/2018 11:25:28 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.16	1.06		mg/Kg	1	2/23/2018 3:33:48 AM
Barium	13.7	0.529		mg/Kg	1	2/23/2018 3:33:48 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:16:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-010 **Matrix:** SOIL  
**Client Sample ID** B26-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.264	0.264		mg/Kg	1	2/23/2018 3:33:48 AM
Chromium	3.37	0.529		mg/Kg	1	2/23/2018 3:33:48 AM
Lead	4.33	0.529		mg/Kg	1	2/23/2018 3:33:48 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 3:33:48 AM
Silver	< 0.264	0.264		mg/Kg	1	2/23/2018 3:33:48 AM
Zinc	5.48	0.529		mg/Kg	1	2/23/2018 3:33:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	590	47.4		mg/Kg-dry	1	2/26/2018 8:50:08 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	17.5	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:22:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-011 **Matrix:** SOIL  
**Client Sample ID** B26-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	25.1	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.47	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.77	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.03	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.27	0.10			1	2/27/2018
Soluble Calcium	3.62	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.19	0.05		meq/L	1	2/27/2018
Soluble Sodium	5.58	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.108	0.108		mg/Kg	1	2/22/2018 11:27:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.27	1.06		mg/Kg	1	2/23/2018 3:39:48 AM
Barium	30.9	0.530		mg/Kg	1	2/23/2018 3:39:48 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:22:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-011 **Matrix:** SOIL  
**Client Sample ID** B26-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.265	0.265		mg/Kg	1	2/23/2018 3:39:48 AM
Chromium	5.76	0.530		mg/Kg	1	2/23/2018 3:39:48 AM
Lead	7.17	0.530		mg/Kg	1	2/23/2018 3:39:48 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 3:39:48 AM
Silver	< 0.265	0.265		mg/Kg	1	2/23/2018 3:39:48 AM
Zinc	10.8	0.530		mg/Kg	1	2/23/2018 3:39:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	200	49.3		mg/Kg-dry	1	2/26/2018 8:53:03 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	18.0	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:27:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-012 **Matrix:** SOIL  
**Client Sample ID** B26-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	13.4	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.68	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.35	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.34	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.63	0.10			1	2/27/2018
Soluble Calcium	7.98	0.02		meq/L	1	2/27/2018
Soluble Magnesium	4.79	0.05		meq/L	1	2/27/2018
Soluble Sodium	9.17	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.101	0.101		mg/Kg	1	2/22/2018 11:30:08 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.21	1.10		mg/Kg	1	2/23/2018 3:45:49 AM
Barium	32.6	0.548		mg/Kg	1	2/23/2018 3:45:49 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:27:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-012 **Matrix:** SOIL  
**Client Sample ID** B26-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>				<b>SW6010B</b>	<b>SW3050B</b>	Analyst: <b>STS</b>
Cadmium	< 0.274	0.274		mg/Kg	1	2/23/2018 3:45:49 AM
Chromium	5.25	0.548		mg/Kg	1	2/23/2018 3:45:49 AM
Lead	3.55	0.548		mg/Kg	1	2/23/2018 3:45:49 AM
Selenium	< 2.19	2.19		mg/Kg	1	2/23/2018 3:45:49 AM
Silver	< 0.274	0.274		mg/Kg	1	2/23/2018 3:45:49 AM
Zinc	12.1	0.548		mg/Kg	1	2/23/2018 3:45:49 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
True Total Barium	292	47.3		mg/Kg-dry	1	2/26/2018 8:56:02 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>MMT</b>
Percent Moisture	17.6	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:30:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-013 **Matrix:** SOIL  
**Client Sample ID** B26-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	21.3	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	4.19	0.10	*	mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.46	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.16	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.68	0.10			1	2/27/2018
Soluble Calcium	13.0	0.02		meq/L	1	2/27/2018
Soluble Magnesium	8.61	0.05		meq/L	1	2/27/2018
Soluble Sodium	12.1	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.182	0.0991		mg/Kg	1	2/22/2018 11:32:28 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.04	1.04		mg/Kg	1	2/23/2018 3:51:54 AM
Barium	21.1	0.519		mg/Kg	1	2/23/2018 3:51:54 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:30:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-013 **Matrix:** SOIL  
**Client Sample ID** B26-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.259	0.259		mg/Kg	1	2/23/2018 3:51:54 AM
Chromium	9.87	0.519		mg/Kg	1	2/23/2018 3:51:54 AM
Lead	8.31	0.519		mg/Kg	1	2/23/2018 3:51:54 AM
Selenium	< 2.08	2.08		mg/Kg	1	2/23/2018 3:51:54 AM
Silver	< 0.259	0.259		mg/Kg	1	2/23/2018 3:51:54 AM
Zinc	32.7	0.519		mg/Kg	1	2/23/2018 3:51:54 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	145	48.4		mg/Kg-dry	1	2/26/2018 8:59:01 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	20.1	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:41:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-014 **Matrix:** SOIL  
**Client Sample ID** B19-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	15.9	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	4.29	0.10	*	mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	26.6	0.10	*	%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.59	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	17.0	0.10	*		1	2/27/2018
Soluble Calcium	4.58	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.21	0.05		meq/L	1	2/27/2018
Soluble Sodium	31.3	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0962	0.0962		mg/Kg	1	2/22/2018 11:40:08 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.70	1.06		mg/Kg	1	2/23/2018 3:58:04 AM
Barium	18.6	0.531		mg/Kg	1	2/23/2018 3:58:04 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:41:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-014 **Matrix:** SOIL  
**Client Sample ID** B19-S1

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.266	0.266		mg/Kg	1	2/23/2018 3:58:04 AM
Chromium	3.23	0.531		mg/Kg	1	2/23/2018 3:58:04 AM
Lead	4.52	0.531		mg/Kg	1	2/23/2018 3:58:04 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 3:58:04 AM
Silver	< 0.266	0.266		mg/Kg	1	2/23/2018 3:58:04 AM
Zinc	3.37	0.531		mg/Kg	1	2/23/2018 3:58:04 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	130	46.7		mg/Kg-dry	1	2/26/2018 9:02:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	13.2	1.00		wt%	1	2/21/2018 12:25:00 PM

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:45:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-015 **Matrix:** SOIL  
**Client Sample ID** B19-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	17.6	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.38	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	26.6	0.10	*	%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.64	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	15.3	0.10	*		1	2/27/2018
Soluble Calcium	2.95	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.45	0.05		meq/L	1	2/27/2018
Soluble Sodium	22.7	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0983	0.0983		mg/Kg	1	2/22/2018 11:42:28 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.13	1.06		mg/Kg	1	2/23/2018 4:04:08 AM
Barium	24.1	0.531		mg/Kg	1	2/23/2018 4:04:08 AM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:45:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-015 **Matrix:** SOIL  
**Client Sample ID** B19-S2

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.265	0.265		mg/Kg	1	2/23/2018 4:04:08 AM
Chromium	3.24	0.531		mg/Kg	1	2/23/2018 4:04:08 AM
Lead	4.13	0.531		mg/Kg	1	2/23/2018 4:04:08 AM
Selenium	< 2.12	2.12		mg/Kg	1	2/23/2018 4:04:08 AM
Silver	< 0.265	0.265		mg/Kg	1	2/23/2018 4:04:08 AM
Zinc	3.28	0.531		mg/Kg	1	2/23/2018 4:04:08 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	154	47.7		mg/Kg-dry	1	2/26/2018 9:10:30 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	14.4	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:32:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-016 **Matrix:** SOIL  
**Client Sample ID** B19-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	23.0	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.83	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	16.4	0.10	*	%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.25	1.68		S.U.	1	2/27/2018 1:55:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	10.2	0.10			1	2/27/2018
Soluble Calcium	3.57	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.99	0.05		meq/L	1	2/27/2018
Soluble Sodium	17.0	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.104	0.0975		mg/Kg	1	2/22/2018 11:44:48 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.54	1.05		mg/Kg	1	2/23/2018 4:10:07 AM
Barium	48.2	0.527		mg/Kg	1	2/23/2018 4:10:07 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:32:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-016 **Matrix:** SOIL  
**Client Sample ID** B19-S3

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.263	0.263		mg/Kg	1	2/23/2018 4:10:07 AM
Chromium	5.64	0.527		mg/Kg	1	2/23/2018 4:10:07 AM
Lead	3.37	0.527		mg/Kg	1	2/23/2018 4:10:07 AM
Selenium	< 2.11	2.11		mg/Kg	1	2/23/2018 4:10:07 AM
Silver	< 0.263	0.263		mg/Kg	1	2/23/2018 4:10:07 AM
Zinc	12.9	0.527		mg/Kg	1	2/23/2018 4:10:07 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	384	48.2		mg/Kg-dry	1	2/26/2018 9:13:30 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	17.2	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:58:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-017 **Matrix:** SOIL  
**Client Sample ID** B19-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	19.5	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.73	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.7	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.09	1.68		S.U.	1	2/27/2018 2:15:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	11.5	0.10			1	2/27/2018
Soluble Calcium	4.50	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.60	0.05		meq/L	1	2/27/2018
Soluble Sodium	21.7	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0979	0.0979		mg/Kg	1	2/22/2018 11:47:30 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.74	1.08		mg/Kg	1	2/23/2018 4:16:12 AM
Barium	17.3	0.542		mg/Kg	1	2/23/2018 4:16:12 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	C	Value is below Minimum Compound Limit.
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 10:58:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-017 **Matrix:** SOIL  
**Client Sample ID** B19-S4

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.271	0.271		mg/Kg	1	2/23/2018 4:16:12 AM
Chromium	7.09	0.542		mg/Kg	1	2/23/2018 4:16:12 AM
Lead	4.37	0.542		mg/Kg	1	2/23/2018 4:16:12 AM
Selenium	< 2.17	2.17		mg/Kg	1	2/23/2018 4:16:12 AM
Silver	< 0.271	0.271		mg/Kg	1	2/23/2018 4:16:12 AM
Zinc	16.9	0.542		mg/Kg	1	2/23/2018 4:16:12 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	791	48.2		mg/Kg-dry	1	2/26/2018 9:16:14 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.3	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:03:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-018 **Matrix:** SOIL  
**Client Sample ID** B19-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	22.8	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.51	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	15.9	0.10	*	%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.94	1.68		S.U.	1	2/27/2018 2:15:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	11.6	0.10			1	2/27/2018
Soluble Calcium	4.50	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.53	0.05		meq/L	1	2/27/2018
Soluble Sodium	21.8	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.0988	0.0982		mg/Kg	1	2/22/2018 11:49:52 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.25	1.08		mg/Kg	1	2/23/2018 4:31:20 AM
Barium	18.6	0.539		mg/Kg	1	2/23/2018 4:31:20 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:03:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-018 **Matrix:** SOIL  
**Client Sample ID** B19-S5

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.270	0.270		mg/Kg	1	2/23/2018 4:31:20 AM
Chromium	8.14	0.539		mg/Kg	1	2/23/2018 4:31:20 AM
Lead	2.93	0.539		mg/Kg	1	2/23/2018 4:31:20 AM
Selenium	< 2.16	2.16		mg/Kg	1	2/23/2018 4:31:20 AM
Silver	< 0.270	0.270		mg/Kg	1	2/23/2018 4:31:20 AM
Zinc	16.0	0.539		mg/Kg	1	2/23/2018 4:31:20 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	179	48.3		mg/Kg-dry	1	2/26/2018 9:19:09 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	15.4	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:07:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-019 **Matrix:** SOIL  
**Client Sample ID** B19-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	13.4	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	5.76	0.10	*	mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	10.2	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	6.87	1.68		S.U.	1	2/27/2018 2:15:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	11.9	0.10			1	2/27/2018
Soluble Calcium	9.39	0.02		meq/L	1	2/27/2018
Soluble Magnesium	5.55	0.05		meq/L	1	2/27/2018
Soluble Sodium	32.5	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.712	0.0977		mg/Kg	1	2/22/2018 12:53:12 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.62	1.10		mg/Kg	1	2/23/2018 4:37:26 AM
Barium	12.2	0.549		mg/Kg	1	2/23/2018 4:37:26 AM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:07:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-019 **Matrix:** SOIL  
**Client Sample ID** B19-S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.274	0.274		mg/Kg	1	2/23/2018 4:37:26 AM
Chromium	5.26	0.549		mg/Kg	1	2/23/2018 4:37:26 AM
Lead	2.20	0.549		mg/Kg	1	2/23/2018 4:37:26 AM
Selenium	< 2.20	2.20		mg/Kg	1	2/23/2018 4:37:26 AM
Silver	< 0.274	0.274		mg/Kg	1	2/23/2018 4:37:26 AM
Zinc	12.7	0.549		mg/Kg	1	2/23/2018 4:37:26 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	118	48.2		mg/Kg-dry	1	2/26/2018 9:22:10 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	14.6	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:12:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-020 **Matrix:** SOIL  
**Client Sample ID** B19-S7

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	16.6	0.100		meq/100g	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.99	0.10		mmhos/cm	1	2/27/2018 1:05:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.5	0.10		%	1	2/28/2018 2:53:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>HEM, OIL &amp; GREASE</b>						
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	2/27/2018 8:00:00 AM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>PH MEASUREMENT</b>						
pH Measurement	7.06	1.68		S.U.	1	2/27/2018 2:15:00 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	10.8	0.10			1	2/27/2018
Soluble Calcium	5.93	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.37	0.05		meq/L	1	2/27/2018
Soluble Sodium	23.4	0.25		meq/L	1	2/27/2018
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.103	0.103		mg/Kg	1	2/22/2018 12:13:20 PM
<b>LA STATEWIDE ORDER 29-B TESTING</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	1.50	1.04		mg/Kg	1	2/23/2018 4:43:31 AM
Barium	126	0.521		mg/Kg	1	2/23/2018 4:43:31 AM

**Qualifiers:**

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H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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# Analytical Report

(consolidated)

WO#: **18020660**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/19/2018 11:12:00 AM  
**Project:** Neumin Prod/ Drew Manual #1  
**Lab ID:** 18020660-020 **Matrix:** SOIL  
**Client Sample ID** B19-S7

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA STATEWIDE ORDER 29-B TESTING METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Cadmium	< 0.261	0.261		mg/Kg	1	2/23/2018 4:43:31 AM
Chromium	3.53	0.521		mg/Kg	1	2/23/2018 4:43:31 AM
Lead	4.77	0.521		mg/Kg	1	2/23/2018 4:43:31 AM
Selenium	< 2.08	2.08		mg/Kg	1	2/23/2018 4:43:31 AM
Silver	< 0.261	0.261		mg/Kg	1	2/23/2018 4:43:31 AM
Zinc	4.51	0.521		mg/Kg	1	2/23/2018 4:43:31 AM
<b>LA STATEWIDE ORDER 29-B TESTING TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
True Total Barium	318	46.8		mg/Kg-dry	1	2/26/2018 9:25:10 PM
<b>LA STATEWIDE ORDER 29-B TESTING PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Percent Moisture	17.0	1.00		wt%	1	2/21/2018 12:25:00 PM

**Qualifiers:**

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ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25802

Sample ID: <b>MB-25802</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67754</b>						
Client ID: <b>PBS</b>	Batch ID: <b>25802</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>2/23/2018</b>	SeqNo: <b>1681115</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 1.00	1.00									
Barium	< 0.500	0.500									
Cadmium	< 0.250	0.250									
Chromium	< 0.500	0.500									
Lead	< 0.500	0.500									
Selenium	< 2.00	2.00									
Silver	< 0.250	0.250									
Zinc	< 0.500	0.500									

Sample ID: <b>LCS-25802</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67754</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25802</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>2/23/2018</b>	SeqNo: <b>1681116</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.0	1.00	25.00	0	100	80	120				
Barium	24.6	0.500	25.00	0	98.4	80	120				
Cadmium	24.4	0.250	25.00	0	97.5	80	120				
Chromium	24.4	0.500	25.00	0	97.8	80	120				
Lead	24.5	0.500	25.00	0	98.1	80	120				
Selenium	24.2	2.00	25.00	0	96.7	80	120				
Silver	4.92	0.250	5.000	0	98.5	80	120				
Zinc	24.6	0.500	25.00	0	98.6	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25802

Sample ID: <b>LCSD-25802</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67754</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25802</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>2/23/2018</b>	SeqNo: <b>1681117</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.1	1.00	25.00	0	100	80	120	25.00	0.359	20	
Barium	25.0	0.500	25.00	0	100	80	120	24.60	1.61	20	
Cadmium	24.9	0.250	25.00	0	99.5	80	120	24.38	1.99	20	
Chromium	24.9	0.500	25.00	0	99.7	80	120	24.44	1.94	20	
Lead	25.0	0.500	25.00	0	99.9	80	120	24.52	1.82	20	
Selenium	24.8	2.00	25.00	0	99.2	80	120	24.18	2.47	20	
Silver	5.00	0.250	5.000	0	100	80	120	4.925	1.61	20	
Zinc	25.1	0.500	25.00	0	100	80	120	24.65	1.65	20	

Sample ID: <b>18020660-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67754</b>						
Client ID: <b>B29-S1</b>	Batch ID: <b>25802</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>2/23/2018</b>	SeqNo: <b>1681119</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	28.6	1.09	27.21	1.917	97.9	75	125				
Barium	289	0.544	27.21	272.2	60.5	75	125				S
Cadmium	28.4	0.272	27.21	0.9557	101	75	125				
Chromium	36.6	0.544	27.21	8.012	105	75	125				
Lead	33.3	0.544	27.21	6.589	98.3	75	125				
Selenium	25.3	2.18	27.21	0.3929	91.7	75	125				
Silver	4.31	0.272	5.441	0	79.2	75	125				
Zinc	54.7	0.544	27.21	29.39	93.0	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25802

Sample ID: 18020660-001AMSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 2/21/2018	RunNo: 67754						
Client ID: B29-S1	Batch ID: 25802	TestNo: SW6010B	SW3050B	Analysis Date: 2/23/2018	SeqNo: 1681120						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	28.8	1.10	27.59	1.917	97.6	75	125	28.55	0.972	20	
Barium	292	0.552	27.59	272.2	71.7	75	125	288.7	1.15	20	S
Cadmium	28.5	0.276	27.59	0.9557	99.8	75	125	28.38	0.370	20	
Chromium	37.0	0.552	27.59	8.012	105	75	125	36.57	1.05	20	
Lead	33.4	0.552	27.59	6.589	97.0	75	125	33.32	0.110	20	
Selenium	24.9	2.21	27.59	0.3929	88.7	75	125	25.35	1.97	20	
Silver	4.36	0.276	5.518	0	79.1	75	125	4.310	1.27	20	
Zinc	55.2	0.552	27.59	29.39	93.7	75	125	54.68	0.993	20	

**NOTES:**

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25805

Sample ID: <b>MB-25805</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>PBS</b>	Batch ID: <b>25805</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680303</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.100 0.100

Sample ID: <b>LCS-25805</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25805</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680304</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.885 0.100 0.8330 0 106 80 120

Sample ID: <b>LCSD-25805</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25805</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680305</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.896 0.100 0.8330 0 108 80 120 0.8850 1.19 20

Sample ID: <b>18020624-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>25805</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680307</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.745 0.0965 0.8039 0.1031 79.9 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25805

Sample ID: 18020624-001AMSD	SampType: MSD	TestCode: HG_S_7471A	Units: mg/Kg	Prep Date: 2/21/2018	RunNo: 67724						
Client ID: ZZZZZZ	Batch ID: 25805	TestNo: SW7471A	SW7471A	Analysis Date: 2/22/2018	SeqNo: 1680308						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.767	0.0966	0.8043	0.1031	82.6	75	125	0.7452	2.93	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25806

Sample ID: <b>MB-25806</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>PBS</b>	Batch ID: <b>25806</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680332</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.100	0.100									

Sample ID: <b>LCS-25806</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25806</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680333</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.918	0.100	0.8330	0	110	80	120				

Sample ID: <b>LCSD-25806</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25806</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680334</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.919	0.100	0.8330	0	110	80	120	0.9182	0.0601	20	

Sample ID: <b>18020660-019AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>B19-S6</b>	Batch ID: <b>25806</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680355</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.962	0.0945	0.7873	0.8373	15.9	75	125				S

**NOTES:**  
 S - Spike recoveries were outside of QC limits in MS/MSD and PDS/PDSD, suggesting matrix effect. The method is in control as indicated by the Lab Control Sample(s).

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		





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

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25806

Sample ID: <b>18020660-019AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_7471A</b>	Units: <b>mg/Kg</b>	Prep Date: <b>2/21/2018</b>	RunNo: <b>67724</b>						
Client ID: <b>B19-S6</b>	Batch ID: <b>25806</b>	TestNo: <b>SW7471A</b>	<b>SW7471A</b>	Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680356</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.856	0.0961	0.8003	0.8373	2.30	75	125	1.124	27.1	20	RS

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25844

Sample ID: <b>MB-25844</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>2/26/2018</b>	RunNo: <b>67798</b>						
Client ID: <b>PBS</b>	Batch ID: <b>25844</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1682324</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50.0 50.0

Sample ID: <b>LCS-25844</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>2/26/2018</b>	RunNo: <b>67798</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25844</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1682325</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,240 50.0 5,000 0 105 75 125

Sample ID: <b>LCSD-25844</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>2/26/2018</b>	RunNo: <b>67798</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25844</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1682326</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,340 50.0 5,000 0 107 75 125 5,235 1.99 20

Sample ID: <b>18020660-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>2/26/2018</b>	RunNo: <b>67798</b>						
Client ID: <b>B29-S1</b>	Batch ID: <b>25844</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1682328</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,350 48.9 4,892 434.2 100 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25844

Sample ID: <b>18020660-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>2/26/2018</b>	RunNo: <b>67798</b>						
Client ID: <b>B29-S1</b>	Batch ID: <b>25844</b>	TestNo: <b>LDNR 29-B</b>	Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1682329</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	5,540	48.2	4,822	434.2	106	75	125	5,347	3.54	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: **18020660**  
**28-Feb-18**

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25868

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>2/27/2018</b>	RunNo: <b>67844</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>25868</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683769</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.55	0.10						2.59	1.43	20	
Soluble Calcium	3.03	0.02						3.08	1.77	20	
Soluble Magnesium	1.78	0.05						1.82	2.33	20	
Soluble Sodium	3.96	0.25						4.06	2.42	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

WO#: **18020660**  
**28-Feb-18**

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25884

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>dup</b>	TestCode: <b>ESP_S</b>	Units: <b>%</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67886</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>25884</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684674</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	2.27	0.10						2.00	12.8	20	

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | C Value is below Minimum Compound Limit.                                | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |



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

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** 25885

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>dup</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67885</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>25885</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684651</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	19.9	0.100						21.85	9.16	20	

Sample ID: <b>lcs-25885</b>	SampType: <b>lcs</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67885</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25885</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684666</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	21.8	0.100	25.00	0	87.3	76	124				

Sample ID: <b>lcsd-25885</b>	SampType: <b>lcsd</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67885</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25885</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684667</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	22.4	0.100	25.00	0	89.7	76	124	21.83	2.71	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

# QC SUMMARY REPORT

WO#: 18020660

28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67770

Sample ID: <b>MB-R67770</b>	SampType: <b>MBLK</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67770</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R67770</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1683176</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID: <b>LCS-R67770</b>	SampType: <b>LCS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67770</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R67770</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1683177</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.25 0.05 0.20 0 125 70 130

Sample ID: <b>LCSD-R67770</b>	SampType: <b>LCSD</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67770</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R67770</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1683178</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.25 0.05 0.20 0 123 70 130 0.25 1.61 40

Sample ID: <b>18020624-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67770</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67770</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1683179</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.28 0.05 0.25 0.04 96.0 70 130

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | C Value is below Minimum Compound Limit.                                | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |



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# QC SUMMARY REPORT

WO#: **18020660**  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67770

Sample ID: <b>18020624-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67770</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67770</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1683180</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	0.05	0.05						0.04	28.3	40	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- M Matrix Interference
- RL Reporting Limit
- U Analyte not detected
- C Value is below Minimum Compound Limit.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as specified at testcode
- H Holding times for preparation or analysis exceed
- R RPD outside accepted recovery limits
- SDL Sample detection limit





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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67771

Sample ID: <b>MB-R67771</b>	SampType: <b>MBLK</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67771</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R67771</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1684051</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID: <b>LCS-R67771</b>	SampType: <b>LCS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67771</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R67771</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1684052</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.24 0.05 0.20 0 122 70 130

Sample ID: <b>LCSD-R67771</b>	SampType: <b>LCSD</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67771</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R67771</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1684053</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.21 0.05 0.20 0 106 70 130 0.24 13.2 40

Sample ID: <b>18020660-006AMS</b>	SampType: <b>MS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67771</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>R67771</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1684054</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.29 0.05 0.25 0.04 98.5 70 130

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | C Value is below Minimum Compound Limit.                                | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |



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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67771

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>67771</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>R67771</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1684055</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	< 0.05	0.05						0	0	40	

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | C Value is below Minimum Compound Limit.                                | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |



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# QC SUMMARY REPORT

WO#: 18020660

28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67820

Sample ID: <b>MB-R67820</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67820</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R67820</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683129</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>LCS1-R67820</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67820</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67820</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683130</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.52 0.10 0.51 0 103 89.92 110.08

Sample ID: <b>LCS2-R67820</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67820</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67820</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683131</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 54.1 0.10 53.00 0 102 90 110

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67820</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>R67820</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683138</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 1.02 0.10 1.02 0.39 20

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
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RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: **18020660**  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID: R67824**

Sample ID: <b>LCS-R67824</b>	SampType: <b>LCS</b>	TestCode: <b>PH_S</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67824</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R67824</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683199</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH Measurement 7.01 1.68 7.00 0 100 97.14 102.86

Sample ID: <b>18020624-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PH_S</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67824</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67824</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683203</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH Measurement 6.72 1.68 6.80 1.18 20

- Qualifiers:**
- \* Value exceeds Maximum Contaminant Level.
  - M Matrix Interference
  - RL Reporting Limit
  - U Analyte not detected
  - C Value is below Minimum Compound Limit.
  - ND Not Detected at the Reporting Limit
  - S Spike Recovery outside accepted recovery limits
  - W Sample container temperature is out of limit as specified at testcode
  - H Holding times for preparation or analysis exceed
  - R RPD outside accepted recovery limits
  - SDL Sample detection limit



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# QC SUMMARY REPORT

WO#: 18020660  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67825

Sample ID: <b>LCS-R67825</b>	SampType: <b>LCS</b>	TestCode: <b>PH_S</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67825</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R67825</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683240</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH Measurement                      7.07                      1.68                      7.00                      0                      101                      97.14                      102.86

Sample ID: <b>18020713-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PH_S</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67825</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67825</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683262</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH Measurement                      8.01                      1.68                                                                                                                                                    8.03                      0.25                      20

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: **18020660**  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Neumin Prod/ Drew Manual #1

**BatchID:** R67830

Sample ID: <b>18020660-006ADUP</b>	SampType: <b>dup</b>	TestCode: <b>PMOIST</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>67830</b>						
Client ID: <b>B29-S6</b>	Batch ID: <b>R67830</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/21/2018</b>	SeqNo: <b>1683324</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	20.3	1.00						20.30	0.0665	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	C Value is below Minimum Compound Limit.	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	

Client Name: **ACADIAN\_ENGINEERS**

Work Order Number: **18020660**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>2/20/2018 12:19:00 PM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>2/20/2018 1:37:03 PM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Caitlin Duplantis</b>	<b>2/22/2018 11:52:25 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? Client

**Log In**

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

**Special Handling (if applicable)**

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

Person Notified:	<input type="text" value="Andre Aucoin"/>	Date:	<input type="text" value="2/20/2018"/>
By Whom:	<input type="text" value="Caitlin Duplantis"/>	Via:	<input type="checkbox"/> eMail <input checked="" type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Missing collection time for sample B29-S7."/>		
Client Instructions:	<input type="text" value="09:53 am"/>		

18. Additional remarks:  
Added collection dates/times to COC as per sample jar labels.

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			
2	2.9	Good	Not Present			



# Chain of Custody

Laboratory Number: 18020660

<b>Client Information:</b> Company Name: ACADIAN ENG Contact Name: Address: City, State Zip: Phone Number: 3374571492 Ext: Fax Number: E-mail Address:		<b>Billing Information:</b> PO BOX 1126 EUNICE, LA 70535 Ext:		PO Number: Quote Number: Required QC Level: Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Name/Number: NEUMIN PROD / DRW MANUAL #1 Sampler's Signature:  Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
---	--	---	--	--	--	--

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <input checked="" 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		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	
			Quantity	Type P=Plastic, G=Glass, V=Vial									
<b>Collection Information</b> Date: 2/19/18 Time: 0923 Grab / Composite: GRAB Matrix: Soil			1	G	-								
Sample ID/Description: B29-S1					-								
Sample ID/Description: B29-S2					-								
Sample ID/Description: B29-S3					-								
Sample ID/Description: B29-S4					-								
Sample ID/Description: B29-S5					-								
Sample ID/Description: B29-S6					-								
Sample ID/Description: B29-S7					-								

1	Relinquished by:	Date/Time: 2/20/18 2:18 P	Received by:	Date/Time: 2/20/18 1:18 P	Field Notes:
2					Received at lab on ice?
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4.7

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





element™

### Chain of Custody

Laboratory Number: 18020600

Page 2 of 3

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ACADIAN ENG	<b>Billing Information:</b> PO BOX 1124 EUNICE, LA 70535	PO Number:	Project Name/Number: NEUMIN PROP/ DREW MANUAL #1	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	Address:	Address:	Quote Number:	Sampler's Signature: Jaime Mistral	
	City, State Zip:	City, State Zip:	Required QC Level:	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	
	Phone Number: 3374571492 Ext:	Ext:	Bill Monthly:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Fax Number:				
	E-mail Address:				

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests										Comments			
			Quantity	Type P=Plastic, G=Glass, V=Vial															
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other																		
Collection Information			Date	Time	Grab / Composite	Matrix													
			2/19/18	1005	GRAB	Soil	1	G	-										FULL 29 b
				1011			1		-										" " "
				1016			1		-										" " "
				1022			1		-										" " "
				1027			1		-										" " "
				1030			1		-										" " "

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
	2/20/18 12:18		2/20/18 14:18	YHS 2/20/18
				Received at lab on ice?
				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.9

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.



element™

# Chain of Custody

Laboratory Number: 18020660

Company Name:  
 Contact Name:  
 Address:  
 City, State Zip:  
 Phone Number:  
 Fax Number:  
 E-mail Address:

**Client Information:**  
 ACADIAN ENG  
**Billing Information:**  
 PO BOX 1126  
 EUNICE, LA  
 70535  
 Phone: 3374571492  
 Ext:  
 E-mail: andre@acadianengineers.com

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

Project Name/Number:  
~~ENE~~ Neumia Prod/  
 H.C. DEEW manual #1  
 Sampler's Signature:  
 Jaime Mistot  
 Shipping Method:  
 UPS / FedEx / NOW  
 DHL / Element / Hand / Mail

Page 3 of 3  
**Matrix Code**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge SOL = Solid  
 O = Oil SO = Soil  
 F = Food SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <b>RUSH</b> <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		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			
			Quantity	Type P=Plastic, G=Glass, V=Vial											
Collection Information		Sample ID/Description		Date	Time	Grab / Composite	Matrix								
		B19-S1	2-19-18	1041	GRAB	Soil	1	G	-	FULL 29b					
		B19-S2		1045			1	G	-	" " "					
		B19-S3		1032			1	G	-	" " "					
		BK-S4		1058			1	G	-	" " "					
		B19-S5		1103			1	G	-	" " "					
		B19-S6		1107			1	G	-	" " "					
		B19-S7		1112			1	G	-	" " "					
			4/5	2/20/18			1	G	-						

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		2/20/18 2:18 P		2/20/18 1:45 P	2/20/18
2					Received at lab on ice?
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 3.4

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



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

February 28, 2018

Andre Aucoin  
Acadian Engineers  
P.O. Box 1126  
Eunice, LA 70535  
TEL: (337) 457-1492  
FAX

RE: Project 1636/Neumin Project

Order No.: 18020437

Dear Andre Aucoin:

Element Materials Technology Lafayette received 17 sample(s) on 2/14/2018 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. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

A handwritten signature in blue ink that reads "Cristina Thibeaux".

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



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

## Case Narrative

WO#: 18020437  
Date: 2/28/2018

---

**CLIENT:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

---

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).

Please review the Sample Log-in Check List regarding the discrepancies between the chain of custody and the samples received and the documentation of client resolution.



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 11:45:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-001 **Matrix:** SOIL  
**Client Sample ID** B16 S6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Cation Exchange Capacity	18.3	0.100		meq/100g	1	2/28/2018 2:16:00 PM	
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>		Analyst: <b>MRM</b>
Electrical Conductivity	5.63	0.10	*	mmhos/cm	1	2/22/2018 1:40:00 PM	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
Exchangeable Sodium %	15.1	0.10	*	%	1	2/28/2018 2:16:00 PM	
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>STS</b>
Sodium Adsorption Ratio	13.3	0.10	*		1	2/27/2018	
Soluble Calcium	8.40	0.02		meq/L	1	2/27/2018	
Soluble Magnesium	4.92	0.05		meq/L	1	2/27/2018	
Soluble Sodium	34.3	0.25		meq/L	1	2/27/2018	

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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

# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 11:17:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-002 **Matrix:** SOIL  
**Client Sample ID** B17 S6

Analyses	Result	PQL	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	22.0	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	4.39	0.10	*	mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	3.59	0.10		%	1	2/28/2018 2:16:00 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	5.60	0.10			1	2/27/2018
Soluble Calcium	11.1	0.02		meq/L	1	2/27/2018
Soluble Magnesium	7.41	0.05		meq/L	1	2/27/2018
Soluble Sodium	17.1	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 10:50:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-003 **Matrix:** SOIL  
**Client Sample ID** B18 S5

Analyses	Result	PQL	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	12.2	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	2.56	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	3.84	0.10		%	1	2/28/2018 2:16:00 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	4.83	0.10			1	2/27/2018
Soluble Calcium	6.25	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.77	0.05		meq/L	1	2/27/2018
Soluble Sodium	10.8	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 12:07:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-005 **Matrix:** SOIL  
**Client Sample ID** B20-S6

Analyses	Result	PQL	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	20.0	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	2.41	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	4.60	0.10		%	1	2/28/2018 2:16:00 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	6.24	0.10			1	2/27/2018
Soluble Calcium	4.59	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.90	0.05		meq/L	1	2/27/2018
Soluble Sodium	12.1	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	





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

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 12:48:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-006 **Matrix:** SOIL  
**Client Sample ID** B21-S6

Analyses	Result	PQL	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	17.8	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	1.50	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	3.09	0.10		%	1	2/28/2018 2:16:00 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	4.04	0.10			1	2/27/2018
Soluble Calcium	3.29	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.09	0.05		meq/L	1	2/27/2018
Soluble Sodium	6.62	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 10:13:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-007 **Matrix:** SOIL  
**Client Sample ID** B22-S5

Analyses	Result	PQL	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	10.0	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	4.45	0.10	*	mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	2.88	0.10		%	1	2/28/2018 2:16:00 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	6.11	0.10			1	2/27/2018
Soluble Calcium	11.8	0.02		meq/L	1	2/27/2018
Soluble Magnesium	7.35	0.05		meq/L	1	2/27/2018
Soluble Sodium	18.9	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 9:35:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-008 **Matrix:** SOIL  
**Client Sample ID** B-23-S1

Analyses	Result	PQL	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	18.0	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	2.45	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	1.87	0.10		%	1	2/28/2018 2:16:00 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	4.31	0.10			1	2/27/2018
Soluble Calcium	8.23	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.93	0.05		meq/L	1	2/27/2018
Soluble Sodium	10.6	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/8/2018 12:35:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-009 **Matrix:** SOIL  
**Client Sample ID** B24-S6

Analyses	Result	PQL	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	20.7	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	3.59	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	3.87	0.10		%	1	2/28/2018 2:16:00 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	5.67	0.10			1	2/27/2018
Soluble Calcium	7.87	0.02		meq/L	1	2/27/2018
Soluble Magnesium	5.56	0.05		meq/L	1	2/27/2018
Soluble Sodium	14.7	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 9:18:00 AM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-010 **Matrix:** SOIL  
**Client Sample ID** B25-S5

Analyses	Result	PQL	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	16.5	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	1.84	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	2.12	0.10		%	1	2/28/2018 2:16:00 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	3.71	0.10			1	2/27/2018
Soluble Calcium	4.74	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.08	0.05		meq/L	1	2/27/2018
Soluble Sodium	7.33	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/8/2018 1:30:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-012 **Matrix:** SOIL  
**Client Sample ID** B27-S1

Analyses	Result	PQL	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	16.2	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	3.61	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	5.07	0.10		%	1	2/28/2018 2:16:00 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	11.2	0.10			1	2/27/2018
Soluble Calcium	8.22	0.02		meq/L	1	2/27/2018
Soluble Magnesium	3.17	0.05		meq/L	1	2/27/2018
Soluble Sodium	26.7	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/8/2018 3:00:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-013 **Matrix:** SOIL  
**Client Sample ID** B28-S6

Analyses	Result	PQL	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	17.7	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	1.41	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	1.28	0.10		%	1	2/28/2018 2:16:00 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	3.05	0.10			1	2/27/2018
Soluble Calcium	4.85	0.02		meq/L	1	2/27/2018
Soluble Magnesium	2.26	0.05		meq/L	1	2/27/2018
Soluble Sodium	5.76	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 4:55:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-015 **Matrix:** SOIL  
**Client Sample ID** B30-S6

Analyses	Result	PQL	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	16.7	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	0.82	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	1.54	0.10		%	1	2/28/2018 2:16:00 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	3.56	0.10			1	2/27/2018
Soluble Calcium	2.49	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.38	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.95	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 4:13:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-016 **Matrix:** SOIL  
**Client Sample ID** B31-S2

Analyses	Result	PQL	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	19.6	0.100		meq/100g	1	2/28/2018 2:16:00 PM
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
Electrical Conductivity	0.76	0.10		mmhos/cm	1	2/22/2018 1:40:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	0.97	0.10		%	1	2/28/2018 2:16:00 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	3.11	0.10			1	2/27/2018
Soluble Calcium	3.12	0.02		meq/L	1	2/27/2018
Soluble Magnesium	1.46	0.05		meq/L	1	2/27/2018
Soluble Sodium	4.71	0.25		meq/L	1	2/27/2018

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
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# Analytical Report

(consolidated)

WO#: **18020437**

Date Reported **2/28/2018**

**CLIENT:** Acadian Engineers **Collection Date:** 2/9/2018 4:30:00 PM  
**Project:** Project 1636/Neumin Project  
**Lab ID:** 18020437-017 **Matrix:** AQUEOUS  
**Client Sample ID** TW-6

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>LA 29B PIT WATER TESTING INORGANIC ANIONS IN WATER BY IC</b>				<b>E 300.0</b>		Analyst: <b>SGP</b>
Chloride	144	5.00		mg/L	20	2/16/2018 3:02:50 PM
<b>LA 29B PIT WATER TESTING METALS IN WATER BY ICP; TOTAL</b>				<b>E200.7</b>		Analyst: <b>STS</b>
Chromium	< 0.010	0.010		mg/L	1	2/15/2018 6:36:49 PM
Zinc	0.023	0.010		mg/L	1	2/15/2018 6:36:49 PM
<b>LA 29B PIT WATER TESTING CHEMICAL OXYGEN DEMAND</b>				<b>HACH 8000</b>		Analyst: <b>SGP</b>
Chemical Oxygen Demand	18.0	15.0		mg/L	1	2/16/2018 8:34:00 AM
<b>LA 29B PIT WATER TESTING OIL &amp; GREASE, TOTAL</b>				<b>E1664A</b>		Analyst: <b>BXL</b>
Oil & Grease, Total	< 4.1	4.1		mg/L	1	2/26/2018 9:52:00 AM
<b>LA 29B PIT WATER TESTING PH</b>				<b>SM4500H-B</b>		Analyst: <b>DXH</b>
pH	6.69	1.68	H	S.U.	1	2/15/2018 10:00:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	894	20.0		mg/L	1	2/16/2018 7:46:00 AM
<b>LA 29B PIT WATER TESTING TOTAL SUSPENDED SOLIDS</b>				<b>SM2540D</b>		Analyst: <b>GMS</b>
Suspended Solids (Residue, Non-Filterable)	508	20.8		mg/L	4.17	2/14/2018 3:05:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** 25740

Sample ID: <b>MB-25740</b>	SampType: <b>MBLK</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>PBW</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676291</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	< 0.010	0.010									
Zinc	< 0.010	0.010									

Sample ID: <b>LCS-25740</b>	SampType: <b>LCS</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676292</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.461	0.010	0.500	0	92.3	85	115				
Zinc	0.464	0.010	0.500	0	92.8	85	115				

Sample ID: <b>LCSD-25740</b>	SampType: <b>LCSD</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676293</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.465	0.010	0.500	0	93.0	85	115	0.461	0.820	20	
Zinc	0.468	0.010	0.500	0	93.5	85	115	0.464	0.751	20	

Sample ID: <b>18020437-017AMS</b>	SampType: <b>MS</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>TW-6</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676297</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.511	0.010	0.500	0.007	101	70	130				
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** 25740

Sample ID: <b>18020437-017AMS</b>	SampType: <b>MS</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>TW-6</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676297</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.523	0.010	0.500	0.023	99.9	70	130				

Sample ID: <b>18020437-017AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>200.7</b>	Units: <b>mg/L</b>	Prep Date: <b>2/15/2018</b>	RunNo: <b>67539</b>						
Client ID: <b>TW-6</b>	Batch ID: <b>25740</b>	TestNo: <b>E200.7</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1676298</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.508	0.010	0.500	0.007	100	70	130	0.511	0.608	20	
Zinc	0.520	0.010	0.500	0.023	99.3	70	130	0.523	0.518	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** 25867

Sample ID: <b>18020437-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>2/27/2018</b>	RunNo: <b>67844</b>						
Client ID: <b>B16 S6</b>	Batch ID: <b>25867</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683745</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	13.4	0.10						13.29	0.94	20	*
Soluble Calcium	8.65	0.02						8.40	2.99	20	
Soluble Magnesium	5.03	0.05						4.92	2.32	20	
Soluble Sodium	35.1	0.25						34.28	2.31	20	

Sample ID: <b>18020624-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>2/27/2018</b>	RunNo: <b>67844</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>25867</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/27/2018</b>	SeqNo: <b>1683761</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.10	0.10						2.10	0.36	20	
Soluble Calcium	0.96	0.02						0.97	0.78	20	
Soluble Magnesium	0.54	0.05						0.54	0.44	20	
Soluble Sodium	1.82	0.25						1.83	0.53	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** 25882

Sample ID: <b>18020437-001ADUP</b>	SampType: <b>dup</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>2/27/2018</b>	RunNo: <b>67880</b>						
Client ID: <b>B16 S6</b>	Batch ID: <b>25882</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684530</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	14.9	0.10						15.06	1.30	20	

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank                       | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |



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

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** 25883

Sample ID: <b>18020437-001ADUP</b>	SampType: <b>dup</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67879</b>						
Client ID: <b>B16 S6</b>	Batch ID: <b>25883</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684510</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	18.4	0.100						18.32	0.332	20	

Sample ID: <b>lcs-25883</b>	SampType: <b>lcs</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67879</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>25883</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684527</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	22.7	0.100	25.00	0	90.7	76	124				

Sample ID: <b>lcsd-25883</b>	SampType: <b>lcsd</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>2/27/2018</b>	RunNo: <b>67879</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>25883</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>2/28/2018</b>	SeqNo: <b>1684528</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	22.8	0.100	25.00	0	91.1	76	124	22.67	0.459	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67482

Sample ID: <b>MB-R67482</b>	SampType: <b>MBLK</b>	TestCode: <b>TSS_2540D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67482</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R67482</b>	TestNo: <b>SM2540D</b>		Analysis Date: <b>2/14/2018</b>	SeqNo: <b>1675529</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filterable)

< 5.0      5.0

Sample ID: <b>LCS-R67482</b>	SampType: <b>LCS</b>	TestCode: <b>TSS_2540D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67482</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R67482</b>	TestNo: <b>SM2540D</b>		Analysis Date: <b>2/14/2018</b>	SeqNo: <b>1675530</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filterable)

201      5.0      200.0      0      100      85      115

Sample ID: <b>LCSD-R67482</b>	SampType: <b>LCSD</b>	TestCode: <b>TSS_2540D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67482</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R67482</b>	TestNo: <b>SM2540D</b>		Analysis Date: <b>2/14/2018</b>	SeqNo: <b>1675531</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filterable)

200      5.0      200.0      0      99.9      85      115      200.6      0.4      10

Sample ID: <b>18020278-001BDUP</b>	SampType: <b>DUP</b>	TestCode: <b>TSS_2540D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67482</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67482</b>	TestNo: <b>SM2540D</b>		Analysis Date: <b>2/14/2018</b>	SeqNo: <b>1675533</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filterable)

3,000      2,500                                    3,000      0      10      H

**Qualifiers:**

- |  |   |  |
|--|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank                       | H Holding times for preparation or analysis exceed |
| M Matrix Interference                      | ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits             |
| RL Reporting Limit                         | S Spike Recovery outside accepted recovery limits                       | SDL Sample detection limit                         |
| U Analyte not detected                     | W Sample container temperature is out of limit as specified at testcode |  |





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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67482

Sample ID: 18020278-001BDUP	SampType: DUP	TestCode: TSS_2540D	Units: mg/L	Prep Date:	RunNo: 67482						
Client ID: ZZZZZZ	Batch ID: R67482	TestNo: SM2540D		Analysis Date: 2/14/2018	SeqNo: 1675533						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 18020350-001BDUP	SampType: DUP	TestCode: TSS_2540D	Units: mg/L	Prep Date:	RunNo: 67482						
Client ID: ZZZZZZ	Batch ID: R67482	TestNo: SM2540D		Analysis Date: 2/14/2018	SeqNo: 1675536						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filterable)	30,500	2,500						30,300	0.7	10	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67516

Sample ID: <b>18020426-001FDUP</b>	SampType: <b>DUP</b>	TestCode: <b>PH_4500H-B</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67516</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67516</b>	TestNo: <b>SM4500H-B</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1675553</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH	8.20	1.68						8.18	0.24	20	H
----	------	------	--	--	--	--	--	------	------	----	---

Sample ID: <b>LCS-R67516</b>	SampType: <b>LCS</b>	TestCode: <b>PH_4500H-B</b>	Units: <b>S.U.</b>	Prep Date:	RunNo: <b>67516</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R67516</b>	TestNo: <b>SM4500H-B</b>		Analysis Date: <b>2/15/2018</b>	SeqNo: <b>1675557</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

pH	7.00	1.68	7.00	0	100	97	103				
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67543

Sample ID: <b>MB-R67543</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67543</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R67543</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677961</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: <b>LCS-R67543</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67543</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R67543</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677962</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 999 20.0 1,000 0 99.9 85 115

Sample ID: <b>LCSD-R67543</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67543</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R67543</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677963</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 997 20.0 1,000 0 99.7 85 115 999.0 0.200 10

Sample ID: <b>18020278-001BDUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67543</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67543</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677965</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 45,600 2,000 45,000 1.32 10 H

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67543

Sample ID: 18020278-001BDUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 67543						
Client ID: ZZZZZZ	Batch ID: R67543	TestNo: SM2540C		Analysis Date: 2/16/2018	SeqNo: 1677965						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 18020415-001CDUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 67543						
Client ID: ZZZZZZ	Batch ID: R67543	TestNo: SM2540C		Analysis Date: 2/16/2018	SeqNo: 1677969						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	905	100						900.0	0.554	10	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67547

Sample ID: <b>MB-R67547</b>	SampType: <b>MBLK</b>	TestCode: <b>COD</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67547</b>
Client ID: <b>PBW</b>	Batch ID: <b>R67547</b>	TestNo: <b>HACH 8000</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1676484</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chemical Oxygen Demand

< 15.0 15.0

Sample ID: <b>LCS1-R67547</b>	SampType: <b>LCS1</b>	TestCode: <b>COD</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67547</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67547</b>	TestNo: <b>HACH 8000</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1676485</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chemical Oxygen Demand

91.0 15.0 100.0 0 91.0 90 110

Sample ID: <b>LCSD1-R67547</b>	SampType: <b>LCSD1</b>	TestCode: <b>COD</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67547</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67547</b>	TestNo: <b>HACH 8000</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1676486</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chemical Oxygen Demand

91.0 15.0 100.0 0 91.0 90 110 91.00 0 20

Sample ID: <b>18020265-001CMS1</b>	SampType: <b>MS1</b>	TestCode: <b>COD</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67547</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67547</b>	TestNo: <b>HACH 8000</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1676506</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chemical Oxygen Demand

118 15.0 100.0 19.00 99.0 80 120

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- M Matrix Interference
- RL Reporting Limit
- U Analyte not detected
- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as specified at testcode
- H Holding times for preparation or analysis exceed
- R RPD outside accepted recovery limits
- SDL Sample detection limit



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

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67547

Sample ID: 18020265-001CMSD	SampType: MSD1	TestCode: COD	Units: mg/L	Prep Date:	RunNo: 67547						
Client ID: ZZZZZZ	Batch ID: R67547	TestNo: HACH 8000		Analysis Date: 2/16/2018	SeqNo: 1676507						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	117	15.0	100.0	19.00	98.0	80	120	118.0	0.851	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67572

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>300.0</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67572</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R67572</b>	TestNo: <b>E 300.0</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677528</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride < 0.250 0.250

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>300.0</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67572</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R67572</b>	TestNo: <b>E 300.0</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677529</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.4 0.250 10.00 0 104 90 110

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>300.0</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67572</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R67572</b>	TestNo: <b>E 300.0</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677530</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.3 0.250 10.00 0 103 90 110 10.44 0.951 15

Sample ID: <b>18020497-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>300.0</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67572</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R67572</b>	TestNo: <b>E 300.0</b>		Analysis Date: <b>2/16/2018</b>	SeqNo: <b>1677536</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 153 2.50 50.00 112.0 81.0 80 120

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 2417 W. Pinhook Road  
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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67572

Sample ID: 18020497-001AMSD	SampType: MSD	TestCode: 300.0	Units: mg/L	Prep Date:	RunNo: 67572						
Client ID: ZZZZZZ	Batch ID: R67572	TestNo: E 300.0		Analysis Date: 2/16/2018	SeqNo: 1677537						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	154	2.50	50.00	112.0	83.7	80	120	152.5	0.868	15	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- M Matrix Interference
- RL Reporting Limit
- U Analyte not detected
- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as specified at testcode
- H Holding times for preparation or analysis exceed
- R RPD outside accepted recovery limits
- SDL Sample detection limit





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# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67725

Sample ID: <b>MB-R67725</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67725</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R67725</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680357</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>LCS1-R67725</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67725</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67725</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680358</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.47 0.10 0.51 0 93.1 89.92 110.08

Sample ID: <b>LCS2-R67725</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67725</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67725</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680359</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 48.6 0.10 53.00 0 91.7 90 110

Sample ID: <b>18020437-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>67725</b>						
Client ID: <b>B16 S6</b>	Batch ID: <b>R67725</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>2/22/2018</b>	SeqNo: <b>1680361</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 5.79 0.10 5.63 2.80 20 \*

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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

# QC SUMMARY REPORT

WO#: 18020437  
 28-Feb-18

**Client:** Acadian Engineers  
**Project:** Project 1636/Neumin Project

**BatchID:** R67780

Sample ID: <b>MB-R67780</b>	SampType: <b>MBLK</b>	TestCode: <b>OIL_GR</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67780</b>
Client ID: <b>PBW</b>	Batch ID: <b>R67780</b>	TestNo: <b>E1664A</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1681917</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Oil & Grease, Total

< 4.0 4.0

Sample ID: <b>LCS-R67780</b>	SampType: <b>LCS</b>	TestCode: <b>OIL_GR</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67780</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R67780</b>	TestNo: <b>E1664A</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1681918</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Oil & Grease, Total

32.7 4.0 40.0 0 81.8 78 114

Sample ID: <b>18020767-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>OIL_GR</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>67780</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R67780</b>	TestNo: <b>E1664A</b>		Analysis Date: <b>2/26/2018</b>	SeqNo: <b>1681919</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Oil & Grease, Total

39.1 4.6 46.0 0 85.0 78 114

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- M Matrix Interference
- RL Reporting Limit
- U Analyte not detected
- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as specified at testcode
- H Holding times for preparation or analysis exceed
- R RPD outside accepted recovery limits
- SDL Sample detection limit

Client Name: **ACADIAN\_ENGINEERS**

Work Order Number: **18020437**

RcptNo: **1**

Logged by:	<b>Danielle Hollier</b>	<b>2/14/2018 10:50:00 AM</b>	<i>Danielle Hollier</i>
Completed By:	<b>Danielle Hollier</b>	<b>2/14/2018 1:56:44 PM</b>	<i>Danielle Hollier</i>
Reviewed By:	<b>Caitlin Duplantis</b>	<b>2/16/2018 2:47:51 PM</b>	<i>Caitlin Duplantis</i>

### Chain of Custody

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

### Log In

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

### Special Handling (if applicable)

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

Person Notified:	<input type="text" value="Andre Aucoin"/>	Date:	<input type="text" value="2/14/2018"/>
By Whom:	<input type="text" value="Caitlin Duplantis"/>	Via:	<input type="checkbox"/> eMail <input checked="" type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Samples not received for all borings requesting full 29b."/>		
Client Instructions:	<input type="text" value="We will resample. Cancel the Full 29b's received so they will all be from the same borings."/>		

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

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			



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### Chain of Custody

Laboratory Number: **15020437**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ACADIAN ENG ANDRE AUCCIN PO BOX 1126 FORT WAYNE, IN 47334	<b>Billing Information:</b>	PO Number:	Project Name/Number: Neumin Prod/ Drew Manufact#1	Page of <b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	Address: FORT WAYNE, IN 47334	Quote Number:	Required QC Level	Sampler's Signature: 	
	Phone Number: 3374571492 Ext:	Ext:	Bill Monthly <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	
	Fax Number: 1493	Ext:	Bill Monthly <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	
	E-mail Address: andre@acadianeng.com	Ext:	Bill Monthly <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests		Comments
					Quantity	Matrix	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: 2-9-18 Time: 11:45 Grab / Composite: G Matrix: Soil	Quantity: 1 Type: G P=Plastic, V=Vial 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>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	29b SALTS	29b SALTS	} Not received
Date: 2-9-18 Time: 11:17 Grab / Composite: G Matrix: Soil	Quantity: 1 Type: G	29b SALTS	29b SALTS				
Date: 2-9-18 Time: 10:50 Grab / Composite: G Matrix: Soil	Quantity: 1 Type: G	29b SALTS	FULL 29b				
Date: 2-9-18 Time: 12:51 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				
Date: 2-9-18 Time: 12:56 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				
Date: 2-9-18 Time: 12:58 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				
Date: 2-9-18 Time: 1:04 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				
Date: 2-9-18 Time: 1:06 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				
Date: 2-9-18 Time: 1:13 Grab / Composite: G Matrix: Soil	FULL 29b	FULL 29b	FULL 29b				

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
	2-14-18 10:50		2-14-18 1050	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4.1°C

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

- 9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109
- 629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731
- 328 Ley Road, Suite 100 Fort Wayne, IN 46825 USA P 260-471-7000 F 260-471-7777
- 909 Executive Dr Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569
- 3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699
- 2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



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Chain of Custody

Laboratory Number: 18020437

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ACADIAN ENG ANDRE Aucoin PO Box 1126 Eunice, LA 70535	<b>Billing Information:</b>	PO Number:	Project Name/Number: Newfwd Prod / Draw number #1	Page of
	Quote Number:	Required QC Level	Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	Sampler's Signature 	<b>Matrix Code</b> 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
	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail				

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests				Comments		
			Quantity	Type								
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other			<input type="checkbox"/> Plastic, G=Glass, V=Vial <input type="checkbox"/> 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>							
Sample ID/Description	Date	Time	Grab / Composite	Matrix	Quantity	Type						
* B19-S7	2-9-18	1:13 <sup>P</sup>	G	Soil	1	G					Full Z9b	
B20-S6	2-9-18	12:07	G	Soil							Z9b SALTS	
B21-S6	2-9-18	12:46	G	Soil							Z9b SALTS	
B22-S5	2-9-18	10:13 <sup>A</sup>	G	Soil							Z9b SALTS	
B23-S1	2-9-18	9:25 <sup>A</sup>	G	Soil							Z9b SALTS	
B24-S6	2-8-18	12:35 <sup>P</sup>	G	Soil							Z9b SALTS	
B25-S5	2-9-18	9:10 <sup>A</sup>	G	Soil							Z9b SALTS	
B26-S1	2-8-18	2:05 <sup>P</sup>	G	Soil							Full Z9b	- } not received
B26-S2	2-8-18	2:10 <sup>P</sup>	G	Soil							Full Z9b	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		2-14-18 10:50 <sup>A</sup>		2-14-18 10:50	
2					Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4.12
3					

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

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---	--	--	--	---	---



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### Chain of Custody

Laboratory Number: **18020437**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> ACADIAN ENG ANDRE' ANCO? N PO BOX 1126 FORT WAYNE, IN 47033	<b>Billing Information:</b>	PO Number:	Project Name/Number: New Mt Prop / Draw Material #1	Page of
	Quote Number:	Required QC Level	Sampler's Signature: <i>Jaime Probst</i>	<b>Matrix Code</b> 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	
	Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail			

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests						Comments	
			Quantity	Type P=Plastic, G=Glass, V=Vial									
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <b>RUSH</b> <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other				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>								
Sample ID/Description	Date	Time	Grab / Composite	Matrix									
B26-S3	2-8-18	2:15P	G	Soil							Full 29b		} not received
B26-S4	2-8-18	2:10	G	Soil							Full 29b		
B26-S5	2-8-18	2:25P	G	Soil	OH 2-14-18						Full 29b		
B26-S6	2-8-18	2:30P	G	Soil	1	G					Full 29b		
B27-S1	2-8-18	1:30P	G	Soil	1	1					29b SALTS		
B28-S6	2-8-18	3:00P	G	Soil	1	1					29b SALTS		
B29-S1	2-8-18	3:40P	G	Soil							Full 29b		} not received
B29-S2	2-8-18	3:45P	G	Soil							Full 29b		
B29-S3	2-8-18	3:50P	G	Soil							Full 29b		

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	2-14-18 10:50A	<i>[Signature]</i>	2-14-18 1050	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4.1°
2					
3					

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

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



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Chain of Custody

Laboratory Number:

18020437

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	Client Information:	Billing Information:	PO Number:	Project Name/Number: <i>Newman Prop Draw Manual #</i>	Page of
			Quote Number:	Sampler's Signature: <i>James M. [Signature]</i>	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
			Required QC Level		
			Bill Monthly		
			<input type="checkbox"/> Yes		
			<input type="checkbox"/> No		

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <u>RUSH</u> <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	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		
					Quantity	Type P=Plastic, G=Glass, V=Vial							
Sample ID/Description	Date	Time	Grab / Composite	Matrix									
B29-S4	2-8-18	3:55 <sup>P</sup>	G	Soil								} not received	
B29-S5	2-8-18	3:55 <sup>P</sup>	G	Soil									
B29-S6	2-8-18	3:58 <sup>P</sup>	G	Soil									
* B29-S7	2-8-18	4:00 <sup>P</sup>	G	Soil	1	G							
B30-S6	2-9-18	4:55 <sup>P</sup>	G	Soil	1								
B31-SZ	2-9-18	4:13 <sup>P</sup>	G	Soil	1								
TW#6	2-9-18	4:30 <sup>P</sup>		Water									

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	2-14-18 10:50 <sup>A</sup>	<i>[Signature]</i>	2-14-18 10:50	
2					Received at lab on ice? <i>OH</i>
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <i>4.1°C</i>

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

- 9301 Innovation Drive, Suite 115  
 Daleville, IN  
 47334-0569 USA  
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 F 765-378-4109
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 Columbus, IN  
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 P 812-375-0531  
 F 812-375-0731
- 328 Ley Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777
- 909 Executive Dr  
 Warsaw, IN  
 46580-2368 USA  
 P 574-267-3305  
 F 574-269-6569
- 3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628-9780 USA  
 P 574-277-0707  
 F 574-273-5699
- 2417 W. Pinhook Rd  
 Lafayette, LA  
 70508-3344 USA  
 P 337-235-0483  
 F 337-233-6540



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

June 17, 2016

Andre Aucoin  
Acadian Engineers  
P.O. Box 1126  
Eunice, LA 70535  
TEL: (337) 457-1492  
FAX:

RE: H.C Drew 16-36

Order No.: 16060400

Dear Andre Aucoin:

Element Materials Technology Lafayette received 2 sample(s) on 6/9/2016 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. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

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

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

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

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





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

## Case Narrative

WO#: 16060400  
Date: 6/17/2016

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**CLIENT:** Acadian Engineers  
**Project:** H.C Drew 16-36

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

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

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



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

# Analytical Report

(consolidated)

WO#: **16060400**

Date Reported: **6/17/2016**

**CLIENT:** Acadian Engineers  
**Project:** H.C Drew 16-36  
**Lab ID:** 16060400-001  
**Client Sample ID** TW-1

**Collection Date:** 6/7/2016 1:30:00 PM

**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>SPECIFIC CONDUCTANCE AT 25°C</b>				<b>E120.1</b>		Analyst: <b>MRM</b>
Specific Conductance	2,720	10.0		µmhos/cm	1	6/10/2016 2:52:00 PM
<b>SODIUM ADSORPTION RATIO</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
Sodium Adsorption Ratio	5.35	0.100		meq	1	6/15/2016 6:46:22 PM
Soluble Calcium	11.7	1.00		meq	1	6/15/2016 6:46:22 PM
Soluble Magnesium	3.94	1.00		meq	1	6/15/2016 6:46:22 PM
Soluble Sodium	14.9	1.00		meq	1	6/15/2016 6:46:22 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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

# Analytical Report

(consolidated)

WO#: **16060400**

Date Reported: **6/17/2016**

**CLIENT:** Acadian Engineers  
**Project:** H.C Drew 16-36  
**Lab ID:** 16060400-002  
**Client Sample ID** TW-2

**Collection Date:** 6/7/2016 5:00:00 PM

**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>SPECIFIC CONDUCTANCE AT 25°C</b>				<b>E120.1</b>		Analyst: <b>MRM</b>
Specific Conductance	2,950	10.0		µmhos/cm	1	6/10/2016 2:52:00 PM
<b>SODIUM ADSORPTION RATIO</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.32	0.100		meq	1	6/15/2016 6:46:22 PM
Soluble Calcium	15.1	1.00		meq	1	6/15/2016 6:46:22 PM
Soluble Magnesium	8.77	1.00		meq	1	6/15/2016 6:46:22 PM
Soluble Sodium	11.5	1.00		meq	1	6/15/2016 6:46:22 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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

# QC SUMMARY REPORT

WO#: 16060400  
 17-Jun-16

**Client:** Acadian Engineers  
**Project:** H.C Drew 16-36

**BatchID:** R53393

Sample ID: <b>MB-R53393</b>	SampType: <b>MBLK</b>	TestCode: <b>COND</b>	Units: <b>µmhos/cm</b>	Prep Date:	RunNo: <b>53393</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R53393</b>	TestNo: <b>E120.1</b>		Analysis Date: <b>6/10/2016</b>	SeqNo: <b>1303829</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Specific Conductance < 10.0 10.0

Sample ID: <b>R53393LCS1</b>	SampType: <b>LCS1</b>	TestCode: <b>COND</b>	Units: <b>µmhos/cm</b>	Prep Date:	RunNo: <b>53393</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R53393</b>	TestNo: <b>E120.1</b>		Analysis Date: <b>6/10/2016</b>	SeqNo: <b>1303830</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Specific Conductance 383 10.0 357.0 0 107 89.9 110.08

Sample ID: <b>R53393LCS2</b>	SampType: <b>LCS2</b>	TestCode: <b>COND</b>	Units: <b>µmhos/cm</b>	Prep Date:	RunNo: <b>53393</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R53393</b>	TestNo: <b>E120.1</b>		Analysis Date: <b>6/10/2016</b>	SeqNo: <b>1303831</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Specific Conductance 54,400 10.0 53,000 0 103 90 110

Sample ID: <b>16060381-001BDUP</b>	SampType: <b>DUP</b>	TestCode: <b>COND</b>	Units: <b>µmhos/cm</b>	Prep Date:	RunNo: <b>53393</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R53393</b>	TestNo: <b>E120.1</b>		Analysis Date: <b>6/10/2016</b>	SeqNo: <b>1303833</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Specific Conductance 884 10.0 883.0 0.113 20

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit U Analyte not detected W Sample container temperature is out of limit as sq



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# QC SUMMARY REPORT

WO#: **16060400**  
**17-Jun-16**

**Client:** Acadian Engineers  
**Project:** H.C Drew 16-36

**BatchID: R53511**

Sample ID: <b>16060400-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_W</b>	Units: <b>meq</b>	Prep Date:	RunNo: <b>53511</b>						
Client ID: <b>TW-1</b>	Batch ID: <b>R53511</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/15/2016</b>	SeqNo: <b>1307038</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	5.62	0.100						5.345	5.09	20	
Soluble Calcium	12.9	1.00						11.67	9.96	20	
Soluble Magnesium	4.35	1.00						3.935	10.0	20	
Soluble Sodium	16.5	1.00						14.93	10.1	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit U Analyte not detected W Sample container temperature is out of limit as s



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# Sample Log-In Check List

Client Name: **ACADIAN\_ENGINEERS** Work Order Number: **16060400** RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>6/9/2016 1:15:00 PM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>6/9/2016 2:22:43 PM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Kelli Foreman</b>	<b>6/15/2016 5:54:55 PM</b>	<i>Kelli Foreman</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   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

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

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

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			



# Chain of Custody

Laboratory Number: 1060400

**Client Information:**  
 Acadion Engineers  
 Andre Ancoin  
 1601 Amazon St.  
 Eunice, La 70535  
 Phone Number: 337-457-1492  
 Fax Number: 337-457-1493  
 E-mail Address: Andre@AcadionEngineers.com

**Billing Information:**  
 Same

**PO Number:**  
 HC-Drew 16-36

**Quote Number:**  
 James McKrist III

**Required QC Level:**  
 Bill Monthly  Yes  No

**Shipping Method:**  
 UPS / FedEx / NOW  
 DHL  Element / Hand / Mail

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

Sample ID/Description	Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests	Comments
TW1	<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> MPOES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: 6-7-16 Time: 1:30pm Matrix: Grab GW	Type: Plastic Quantity: 1	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>	Conductance SAR	
TW2			Date: 6-7-16 Time: 5:00pm Matrix: Grab GW	Type: Plastic Quantity: 1			

Relinquished by	Date/Time	Received by	Date/Time
<i>L. Boone</i>	6/9/16 1105	<i>James McKrist III</i>	6/9/16 1315
<i>James McKrist III</i>	6/9/16 1315	<i>James McKrist III</i>	6/9/16 1315

Field Notes:

Received at lab on ice?  Yes  No Temp: 41

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.

681 Innovation Drive, Suite 115  
 Delmarville, IN  
 47334-0569 USA  
 P 785-375-4103  
 F 785-375-4109

629 Washington St, Suite 300  
 Columbus, IN  
 47201-6331 USA  
 P 812-375-6531  
 F 812-375-6731

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

909 Executive Dr  
 Warsaw, IN  
 46580-2368 USA  
 P 574-367-3309  
 F 574-369-6969

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46626-0780 USA  
 P 574-277-0707  
 F 574-273-5999

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508-3344 USA  
 P 337-235-0483  
 F 337-233-8540



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)

October 02, 2018

Drew Cagnolatti  
Southland Environmental  
510 Clarence St  
Lake Charles, LA 70601  
TEL: (337) 436-3248  
FAX: (337) 436-3641

RE: HC Drew/11397

Order No.: 18090987

Dear Drew Cagnolatti:

Element Materials Technology Lafayette received 6 sample(s) on 9/27/2018 for the analyses presented in the following report.

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

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

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

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

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

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

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





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

## Case Narrative

WO#: 18090987  
Date: 10/2/2018

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**CLIENT:** Southland Environmental  
**Project:** HC Drew/11397

---

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#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/24/2018 1:45:00 PM

**Project:** HC Drew/11397

**Lab ID:** 18090987-001

**Matrix:** GROUNDWATER

**Client Sample ID** SE-SB 01 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**INORGANIC ANIONS IN WATER BY IC**

**SW9056A**

Analyst: **SGP**

Chloride	118	5.00		mg/L	20	9/28/2018 4:33:22 PM
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<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/24/2018 2:40:00 PM

**Project:** HC Drew/11397

**Lab ID:** 18090987-002

**Matrix:** GROUNDWATER

**Client Sample ID** SE-SB 02 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**INORGANIC ANIONS IN WATER BY IC**

**SW9056A**

Analyst: **SGP**

Chloride	155	5.00		mg/L	20	9/28/2018 4:47:06 PM
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<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/24/2018 3:50:00 PM

**Project:** HC Drew/11397

**Lab ID:** 18090987-003

**Matrix:** GROUNDWATER

**Client Sample ID** SE-SB 03 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**INORGANIC ANIONS IN WATER BY IC**

**SW9056A**

Analyst: **SGP**

Chloride	283	12.5		mg/L	50	9/28/2018 5:00:51 PM
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<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 9:35:00 AM  
**Project:** HC Drew/11397  
**Lab ID:** 18090987-004 **Matrix:** GROUNDWATER  
**Client Sample ID** SE-SB 04 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>INORGANIC ANIONS IN WATER BY IC</b>				<b>SW9056A</b>	Analyst: <b>SGP</b>	
Chloride	367	12.5		mg/L	50	9/28/2018 5:14:34 PM

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



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# Analytical Report

(consolidated)

WO#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:45:00 AM  
**Project:** HC Drew/11397  
**Lab ID:** 18090987-005 **Matrix:** GROUNDWATER  
**Client Sample ID** SE-SB 05 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>INORGANIC ANIONS IN WATER BY IC</b>				<b>SW9056A</b>	Analyst: <b>SGP</b>	
Chloride	1,330	25.0		mg/L	100	9/28/2018 5:28:18 PM

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



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# Analytical Report

(consolidated)

WO#: **18090987**

Date Reported: **10/2/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:00:00 PM  
**Project:** HC Drew/11397  
**Lab ID:** 18090987-006 **Matrix:** GROUNDWATER  
**Client Sample ID** SE-SB 06 (GW)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>INORGANIC ANIONS IN WATER BY IC</b>				<b>SW9056A</b>	Analyst: <b>SGP</b>	
Chloride	141	5.00		mg/L	20	9/28/2018 6:09:30 PM

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



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# QC SUMMARY REPORT

WO#: **18090987**  
**02-Oct-18**

**Client:** Southland Environmental  
**Project:** HC Drew/11397

**BatchID:** R73091

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>73091</b>
Client ID: <b>PBW</b>	Batch ID: <b>R73091</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/28/2018</b>	SeqNo: <b>1829391</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride < 0.250 0.250

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>73091</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R73091</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/28/2018</b>	SeqNo: <b>1829392</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 10.2 0.250 10.00 0 102 80 120

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>73091</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>R73091</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/28/2018</b>	SeqNo: <b>1829393</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 10.6 0.250 10.00 0 106 80 120 10.24 3.69 15

Sample ID: <b>18090987-005AMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>73091</b>
Client ID: <b>SE-SB 05 (GW)</b>	Batch ID: <b>R73091</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/28/2018</b>	SeqNo: <b>1829399</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 1,780 25.0 500.0 1,331 90.3 80 120

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





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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: **18090987**  
**02-Oct-18**

**Client:** Southland Environmental  
**Project:** HC Drew/11397

**BatchID:** R73091

Sample ID: <b>18090987-005AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>73091</b>						
Client ID: <b>SE-SB 05 (GW)</b>	Batch ID: <b>R73091</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>9/28/2018</b>	SeqNo: <b>1829400</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,790	25.0	500.0	1,331	91.2	80	120	1,782	0.247	15	

**Qualifiers:**

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



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

## Sample Log-In Check List

Client Name: **ARABIE\_ENV**

Work Order Number: **18090987**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>9/27/2018 12:16:00 PM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>9/27/2018 2:11:17 PM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Kelli Foreman</b>	<b>10/2/2018 5:51:31 AM</b>	<i>Kelli Foreman</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   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

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

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

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Not Present			



element™

### Chain of Custody

Laboratory Number: 18090987

Company Name: <u>SOUTHMAN'S EST. CO.</u>	Billing Information: <u>SAME</u>	PO Number:	Project Name/Number: <u>HC Drew / 11397</u>	Page / of / <u>1</u>
Contact Name: <u>C. Cary</u>		Quote Number:	Sampler's Signature:	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
Address: <u>510 CLARENCE ST.</u>		Required QC Level:	Shipping Method: <u>UPS / FedEx / NOW</u>	
City, State Zip: <u>LAKE CHARLES, LA 70601</u>		Bill Monthly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DHL <input type="checkbox"/> Element <input checked="" type="checkbox"/> Hand / Mail	
Phone Number: <u>337-436-3244</u> Ext:				

Which Regulations Apply:	Turn Time	Collection Information	Container		Pres.	Requested Tests				Comments
			Quantity	Type		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>				
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State <u>29B</u> <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date / Time / Matrix <u>9/24/18 1345 62AB GW</u> <u>9/24/18 1440 62AB GW</u> <u>9/24/18 1550 62AB GW</u> <u>9/25/18 0735 62AB GW</u> <u>9/25/18 1045 62AB GW</u> <u>9/25/18 1200 62AB GW</u>								

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		<u>9/27/18 1010</u>	<u>John Hebert</u>	<u>9/27/18 1010</u>	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>2.1gH</u>
2					
3	<u>John Hebert</u>	<u>9/27/18 1216</u>	<u>D Woodruff</u>	<u>9/27/18 1216</u>	

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

- 9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109
- 629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731
- 328 Ley Road, Suite 100 Fort Wayne, IN 46825 USA P 260-471-7000 F 260-471-7777
- 909 Executive Dr Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569
- 3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699
- 2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



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

October 08, 2018

Jared King  
Southland Environmental  
510 Clarence St  
Lake Charles, LA 70601  
TEL: (337) 436-3248  
FAX (337) 436-3641

RE: HC Drew #11397

Order No.: 18090988

Dear Jared King:

Element Materials Technology Lafayette received 26 sample(s) on 9/27/2018 for the analyses presented in the following report.

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

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

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

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

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

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



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

WO#: 18090988  
Date: 10/8/2018

---

**CLIENT:** Southland Environmental  
**Project:** HC Drew #11397

---

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

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/24/2018 11:50:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-001 **Matrix:** SOIL  
**Client Sample ID** SE-SB01 (10-11)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.27	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.74	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.34	0.10			1	10/5/2018
Soluble Calcium	0.70	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.41	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.00	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/24/2018 12:45:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-002 **Matrix:** SOIL  
**Client Sample ID** SE-SB02 (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.22	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.78	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.82	0.10			1	10/5/2018
Soluble Calcium	0.45	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.23	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.05	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/24/2018 1:40:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-003 **Matrix:** SOIL  
**Client Sample ID** SE-SB03 (6-7)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.50	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.06	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.45	0.10			1	10/5/2018
Soluble Calcium	1.12	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.66	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.31	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		





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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/24/2018 2:30:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-004 **Matrix:** SOIL  
**Client Sample ID** SE-SB04 (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.60	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.08	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.93	0.10			1	10/5/2018
Soluble Calcium	1.65	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.00	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.23	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/24/2018 3:05:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-005 **Matrix:** SOIL  
**Client Sample ID** SE-SB05 (7-9)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.92	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.00	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.03	0.10			1	10/5/2018
Soluble Calcium	3.14	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.51	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.09	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 8:55:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-006 **Matrix:** SOIL  
**Client Sample ID** SE-SB06 (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.32	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.87	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.14	0.10			1	10/5/2018
Soluble Calcium	0.70	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.39	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.58	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:00:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-007 **Matrix:** SOIL  
**Client Sample ID** SE-SB07 (1-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.24	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.83	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.81	0.10			1	10/5/2018
Soluble Calcium	4.35	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.98	0.05		meq/L	1	10/5/2018
Soluble Sodium	5.01	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:10:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-008 **Matrix:** SOIL  
**Client Sample ID** SE-SB07 (5-7)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.45	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.49	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.76	0.10			1	10/5/2018
Soluble Calcium	1.25	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.71	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.74	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:15:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-009 **Matrix:** SOIL  
**Client Sample ID** SE-SB07 (8-10)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.37	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.66	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.77	0.10			1	10/5/2018
Soluble Calcium	0.90	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.53	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.49	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:20:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-010 **Matrix:** SOIL  
**Client Sample ID** SE SB07 (13-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.86	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.79	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.06	0.10			1	10/5/2018
Soluble Calcium	2.63	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.66	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.02	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:25:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-011 **Matrix:** SOIL  
**Client Sample ID** SE SB07 (17-19)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.86	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.96	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.12	0.10			1	10/5/2018
Soluble Calcium	2.05	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.47	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.14	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		





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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:45:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-012 **Matrix:** SOIL  
**Client Sample ID** SE SB08 (1-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.74	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.70	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.66	0.10			1	10/5/2018
Soluble Calcium	5.71	0.02		meq/L	1	10/5/2018
Soluble Magnesium	3.10	0.05		meq/L	1	10/5/2018
Soluble Sodium	5.59	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 10:55:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-013 **Matrix:** SOIL  
**Client Sample ID** SE SB08 (5-7)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.39	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.84	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.12	0.10			1	10/5/2018
Soluble Calcium	0.87	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.49	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.75	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 11:00:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-014 **Matrix:** SOIL  
**Client Sample ID** SE SB08 (8-10)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.55	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.75	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.78	0.10			1	10/5/2018
Soluble Calcium	1.54	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.88	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.96	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 11:10:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-015 **Matrix:** SOIL  
**Client Sample ID** SE SB08 (13-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.65	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.87	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.04	0.10			1	10/5/2018
Soluble Calcium	2.02	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.25	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.61	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 2417 W. Pinhook Road  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 11:20:00 AM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-016 **Matrix:** SOIL  
**Client Sample ID** SE SB08 (17-19)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.72	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.22	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.94	0.10			1	10/5/2018
Soluble Calcium	1.68	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.19	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.53	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:15:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-017 **Matrix:** SOIL  
**Client Sample ID** SE SB09 (4-5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.87	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.13	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.92	0.10			1	10/5/2018
Soluble Calcium	2.82	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.12	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.10	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:25:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-018 **Matrix:** SOIL  
**Client Sample ID** SE SB09 (5-7)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.48	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.66	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.27	0.10			1	10/5/2018
Soluble Calcium	0.84	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.48	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.66	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:30:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-019 **Matrix:** SOIL  
**Client Sample ID** SE SB09 (7-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.55	0.10		mmhos/cm	1	10/3/2018 3:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.11	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.34	0.10			1	10/5/2018
Soluble Calcium	1.00	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.57	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.96	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		





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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:35:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-020 **Matrix:** SOIL  
**Client Sample ID** SE SB09 (13-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.82	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.23	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.31	0.10			1	10/5/2018
Soluble Calcium	2.48	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.59	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.29	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 12:45:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-021 **Matrix:** SOIL  
**Client Sample ID** SE SB09 (17-19)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.65	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MMT</b>
Exchangeable Sodium %	2.88	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.76	0.10			1	10/5/2018
Soluble Calcium	1.45	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.04	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.09	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 1:10:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-022 **Matrix:** SOIL  
**Client Sample ID** SE SB10 (1-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.65	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.19	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.28	0.10			1	10/5/2018
Soluble Calcium	2.58	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.47	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.82	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 1:20:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-023 **Matrix:** SOIL  
**Client Sample ID** SE SB10 (5-7)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.46	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.83	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.22	0.10			1	10/5/2018
Soluble Calcium	1.00	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.71	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.06	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 1:25:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-024 **Matrix:** SOIL  
**Client Sample ID** SE SB10 (7-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.84	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.92	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.24	0.10			1	10/5/2018
Soluble Calcium	2.11	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.45	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.99	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 1:35:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-025 **Matrix:** SOIL  
**Client Sample ID** SE SB10 (13-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.01	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.57	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.18	0.10			1	10/5/2018
Soluble Calcium	6.75	0.02		meq/L	1	10/5/2018
Soluble Magnesium	4.83	0.05		meq/L	1	10/5/2018
Soluble Sodium	5.25	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **18090988**

Date Reported **10/8/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/25/2018 1:45:00 PM  
**Project:** HC Drew #11397  
**Lab ID:** 18090988-026 **Matrix:** SOIL  
**Client Sample ID** SE SB10 (17-19)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.84	0.10		mmhos/cm	1	10/3/2018 3:55:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MMT</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.29	0.10		%	1	10/3/2018 1:45:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.04	0.10			1	10/5/2018
Soluble Calcium	1.93	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.43	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.94	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** 27966

Sample ID: 18090988-001ADUP	SampType: dup	TestCode: ESP_S	Units: %	Prep Date: 10/2/2018	RunNo: 73166						
Client ID: SE-SB01 (10-11)	Batch ID: 27966	TestNo: LDNR 29-B	LDNR 29-B	Analysis Date: 10/3/2018	SeqNo: 1832033						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	1.48	0.10						1.74	15.9	20	

**Qualifiers:**

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





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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** 27968

Sample ID: 18090988-020ADUP	SampType: dup	TestCode: ESP_S	Units: %	Prep Date: 10/2/2018	RunNo: 73166						
Client ID: SE SB09 (13-15)	Batch ID: 27968	TestNo: LDNR 29-B	LDNR 29-B	Analysis Date: 10/3/2018	SeqNo: 1832053						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	2.16	0.10						2.23	2.96	20	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** 27980

Sample ID: 18090988-001ADUP	SampType: DUP	TestCode: SAR_S	Units:	Prep Date: 10/5/2018	RunNo: 73209						
Client ID: SE-SB01 (10-11)	Batch ID: 27980	TestNo: LDNR 29-B	LDNR 29-B	Analysis Date: 10/5/2018	SeqNo: 1831987						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	1.35	0.10						1.34	0.88	20	
Soluble Calcium	0.68	0.02						0.70	4.19	20	
Soluble Magnesium	0.40	0.05						0.41	4.00	20	
Soluble Sodium	0.99	0.25						1.00	1.18	20	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** 27981

Sample ID: 18090988-020ADUP	SampType: DUP	TestCode: SAR_S	Units:	Prep Date: 10/5/2018	RunNo: 73209						
Client ID: SE SB09 (13-15)	Batch ID: 27981	TestNo: LDNR 29-B	LDNR 29-B	Analysis Date: 10/5/2018	SeqNo: 1832007						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.26	0.10						2.31	2.04	20	
Soluble Calcium	2.45	0.02						2.48	0.93	20	
Soluble Magnesium	1.57	0.05						1.59	1.04	20	
Soluble Sodium	3.21	0.25						3.29	2.53	20	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** R73161

Sample ID: <b>MB-R73161</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73161</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R73161</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830892</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	< 0.10	0.10									
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Sample ID: <b>LCS1-R73161</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73161</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73161</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830893</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	107	90	110				
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Sample ID: <b>LCS2-R73161</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73161</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73161</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830894</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	52.8	0.10	53.00	0	99.6	90	110				
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Sample ID: <b>18090988-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73161</b>						
Client ID: <b>SE-SB01 (10-11)</b>	Batch ID: <b>R73161</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830896</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	0.24	0.10						0.27	14.1	20	
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**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: 18090988  
 08-Oct-18

**Client:** Southland Environmental  
**Project:** HC Drew #11397

**BatchID:** R73162

Sample ID: <b>MB-R73162</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73162</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R73162</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830936</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>LCS1-R73162</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73162</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73162</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830937</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 0 107 90 110

Sample ID: <b>LCS2-R73162</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73162</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73162</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830938</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 52.5 0.10 53.00 0 99.1 90 110

Sample ID: <b>18090988-020ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73162</b>						
Client ID: <b>SE SB09 (13-15)</b>	Batch ID: <b>R73162</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/3/2018</b>	SeqNo: <b>1830940</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.89 0.10 0.82 8.05 20

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



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## Sample Log-In Check List

Client Name: **ARABIE\_ENV** Work Order Number: **18090988** RcptNo: **1**

Logged by:	<b>Savanah Vila</b>	<b>9/27/2018 12:16:00 PM</b>	
Completed By:	<b>Savanah Vila</b>	<b>9/27/2018 3:09:24 PM</b>	
Reviewed By:	<b>Caitlin Duplantis</b>	<b>10/2/2018 2:54:59 PM</b>	

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

### Special Handling (if applicable)

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

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

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

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Not Present			



# Chain of Custody

Laboratory Number: **18090988**

<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page <b>1</b> of <b>3</b>
Company Name: <b>Southland Env.</b>		"Stamb"			<b>HC DREW</b>	<b>Matrix Code</b> 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
Contact Name: <b>J. King</b>				Quote Number:	<b>#11397</b>	
Address: <b>510 Clarence St.</b>				Required QC Level:	<i>[Signature]</i>	
City, State Zip: <b>Lake Charles, LA 70601</b>				Bill Monthly	Shipping Method:	
Phone Number: <b>(337) 436-2248</b> Ext:		Ext:		<input checked="" type="checkbox"/> Yes	<b>UPS / FedEx / NOW</b>	
Fax Number:				<input type="checkbox"/> No	<b>DHL / <u>Element</u> / Hand / Mail</b>	
E-mail Address:						

Which Regulations Apply:	Turn Time	Collection Information		Matrix	Quantity	Container	Pres.	Requested Tests				Comments		
								FC	SAR	ESP	Chlorides			
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State <b>29-B</b> <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <b>RUSH</b> <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date	Time	Grab / Composite		Type P=Plastic, G=Glass, V=Vial	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>							
<b>Sample ID/Description</b>														
SE-SB01 (10-11)				9/24/18	11:50	G	SO	1	G	NONE	X	X	X	
SE-SB02 (6-8)					12:45						X	X	X	
SE-SB03 (6-7)					13:40						X	X	X	
SE-SB04 (6-8)					14:30						X	X	X	
SE-SB05 (7-9)					15:05						X	X	X	
SE-SB06 (6-8)				9/25/18	8:58						X	X	X	
SE-SB07 (1-3)					10:00						X	X	X	
SE-SB07 (5-7)					10:10						X	X	X	
SE-SB07 (8-10)					10:15						X	X	X	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	9/27/18 10:10	John Hebert	9/27/18 10:10	
2					Received at lab on ice?
3	John Hebert	9/27/18 12:16	<i>[Signature]</i>	9/27/18 12:16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <b>2.1 gH</b>

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

- 9301 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109
- 629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731
- 328 Ley Road, Suite 100 Fort Wayne, IN 46825 USA P 260-471-7000 F 260-471-7777
- 909 Executive Dr Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569
- 3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699
- 2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



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### Chain of Custody

Laboratory Number: 18090988

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> Southland Env. J. King 810 Clarence St. Lake Charles, LA 70601 (337) 434-3248	<b>Billing Information:</b> "Same"	PO Number: Quote Number: Required QC Level: Bill Monthly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Project Name/Number: HC DREW #1357 Sampler's Signature: <i>[Signature]</i> Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	Page 2 of 3 <b>Matrix Code</b> 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
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Which Regulations Apply:	Turn Time	Collection Information	Matrix	Container		Pres.	Requested Tests			Comments
				Quantity	Type		EG	SAR	ESP	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State 24B <input type="checkbox"/> Other	<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.) Date: 9/25/18 Time: 10:20 Grab / Composite: G			G	NOVE	X	X	X	
SE SB07 (13-15)		9/25/18 10:20 G	SD	1	G	NOVE	X	X	X	
" (17-19)		10:25					X	X	X	
SE-SB08 (1-3)		10:45					X	X	X	
" (5-7)		10:55					X	X	X	
" (8-10)		11:00					X	X	X	
" (13-15)		11:10					X	X	X	
" (17-19)		11:20					X	X	X	
SE-SB09 (4-5)		12:15					X	X	X	
" (5-7)		12:25					X	X	X	

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>[Signature]</i>	9/27/18 1010	John Hebert	9/27/18 1010	Received at lab on ice?
John Hebert	9/27/18 1216	<i>[Signature]</i>	9-27/18 1216	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.1 gH

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

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

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

328 Ley Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580-2368 USA  
 P 574-267-3305  
 F 574-269-6569

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

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





# Chain of Custody

Laboratory Number: **18090988**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> Southland Env. J. King 510 Clarence St Coke County, LA 70601 (337) 436-3243	<b>Billing Information:</b> "State"	PO Number:	Project Name/Number: HC DREW # 11347	Page <b>3</b> of <b>3</b> <b>Matrix Code</b>
			Quote Number:	Sampler's Signature <i>[Signature]</i>	DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge OL = Oil F = Food NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
			Required QC Level:		SOL = Solid SO = Soil SW = Swab
			Bill Monthly: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	

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"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State 29-B <input type="checkbox"/> Other	Turn Time <input checked="" type="checkbox"/> Standard <input checked="" 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 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			
					EU	SM	ESA				
Sample ID/Description	Collection Information		Type P=Plastic, G=Glass, V=Vial	Matrix							
	Date	Time			Grab / Composite						
SE-SP309 (7-2)	9/25/18	12:30	G	SO	1	G	None	X	X	X	
" (13-15)		12:15						X	X	X	
" (12-19)		12:45						X	X	X	
SE-SP10 (1-7)		13:10						X	X	X	
" (5-7)		13:20						X	X	X	
" (7-8)		13:25						X	X	X	
" (13-15)		13:35						X	X	X	
" (17-19)		13:45						X	X	X	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	9/27/18 1010	John Hebert	9/27/18 1010	
2					Received at lab on ice?
3	John Hebert	9/27/18 1216	<i>[Signature]</i>	9/27/18 1216	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.10tt

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

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- 629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731
- 328 Ley Road, Suite 100 Fort Wayne, IN 46825 USA P 260-471-7000 F 260-471-7777
- 909 Executive Dr Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569
- 3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699
- 2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



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

October 17, 2018

Jared King  
Southland Environmental  
510 Clarence St  
Lake Charles, LA 70601  
TEL: (337) 436-3248  
FAX:

RE: Drew Estates #11397

Order No.: 18100018

Dear Jared King:

Element Materials Technology Lafayette received 59 sample(s) on 10/1/2018 for the analyses presented in the following report.

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

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

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

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

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

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

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



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

## Case Narrative

WO#: 18100018  
Date: 10/17/2018

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**CLIENT:** Southland Environmental  
**Project:** Drew Estates #11397

---

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

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

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



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

# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:05:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-001 **Matrix:** SOIL  
**Client Sample ID** SE-SB11 (3-5')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.39	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.73	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.42	0.10			1	10/5/2018
Soluble Calcium	4.52	0.02		meq/L	1	10/5/2018
Soluble Magnesium	2.64	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.57	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:10:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-002 **Matrix:** SOIL  
**Client Sample ID** SE-SB11 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.02	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.57	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.07	0.10			1	10/5/2018
Soluble Calcium	2.98	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.93	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.25	0.25		meq/L	1	10/5/2018

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



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

# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:12:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-003 **Matrix:** SOIL  
**Client Sample ID** SE-SB11 (7-8')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.39	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.80	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.48	0.10			1	10/5/2018
Soluble Calcium	4.08	0.02		meq/L	1	10/5/2018
Soluble Magnesium	2.73	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.58	0.25		meq/L	1	10/5/2018

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



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

# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:15:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-004 **Matrix:** SOIL  
**Client Sample ID** SE-SB11 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.23	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.05	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.61	0.10			1	10/5/2018
Soluble Calcium	3.52	0.02		meq/L	1	10/5/2018
Soluble Magnesium	2.45	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.52	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:20:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-005 **Matrix:** SOIL  
**Client Sample ID** SE-SB11 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.88	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.02	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.37	0.10			1	10/5/2018
Soluble Calcium	1.98	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.37	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.36	0.25		meq/L	1	10/5/2018

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:35:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-006 **Matrix:** SOIL  
**Client Sample ID** SE-SB12 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.08	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.56	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.27	0.10			1	10/5/2018
Soluble Calcium	3.06	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.68	0.05		meq/L	1	10/5/2018
Soluble Sodium	5.03	0.25		meq/L	1	10/5/2018

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



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

# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:40:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-007 **Matrix:** SOIL  
**Client Sample ID** SE-SB12 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.57	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.23	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.54	0.10			1	10/5/2018
Soluble Calcium	1.37	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.86	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.68	0.25		meq/L	1	10/5/2018

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



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

# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:45:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-008 **Matrix:** SOIL  
**Client Sample ID** SE-SB12 (7-8')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.59	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.84	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.48	0.10			1	10/5/2018
Soluble Calcium	1.45	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.92	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.70	0.25		meq/L	1	10/5/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:48:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-009 **Matrix:** SOIL  
**Client Sample ID** SE-SB12 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.54	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.17	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.39	0.10			1	10/5/2018
Soluble Calcium	1.32	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.88	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.51	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 9:50:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-010 **Matrix:** SOIL  
**Client Sample ID** SE-SB12 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.74	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.83	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.95	0.10			1	10/5/2018
Soluble Calcium	1.82	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.31	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.69	0.25		meq/L	1	10/5/2018

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



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# Analytical Report

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WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 10:05:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-011 **Matrix:** SOIL  
**Client Sample ID** SE-SB13 (2-4')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.85	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	15.0	0.10	*	%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	12.2	0.10	*		1	10/5/2018
Soluble Calcium	1.47	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.73	0.05		meq/L	1	10/5/2018
Soluble Sodium	12.8	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

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WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 10:10:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-012 **Matrix:** SOIL  
**Client Sample ID** SE-SB13 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.44	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	12.9	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	10.1	0.10			1	10/5/2018
Soluble Calcium	5.24	0.02		meq/L	1	10/5/2018
Soluble Magnesium	3.06	0.05		meq/L	1	10/5/2018
Soluble Sodium	20.6	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

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WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 10:15:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-013 **Matrix:** SOIL  
**Client Sample ID** SE-SB13 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	5.96	0.10	*	mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.94	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	12.5	0.10	*		1	10/5/2018
Soluble Calcium	9.69	0.02		meq/L	1	10/5/2018
Soluble Magnesium	5.57	0.05		meq/L	1	10/5/2018
Soluble Sodium	34.5	0.25		meq/L	1	10/5/2018

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





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

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WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 10:25:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-014 **Matrix:** SOIL  
**Client Sample ID** SE-SB13 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	4.92	0.10	*	mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.49	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.77	0.10			1	10/5/2018
Soluble Calcium	12.9	0.02		meq/L	1	10/5/2018
Soluble Magnesium	8.96	0.05		meq/L	1	10/5/2018
Soluble Sodium	19.1	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 10:30:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-015 **Matrix:** SOIL  
**Client Sample ID** SE-SB13 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.10	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	4.06	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.88	0.10			1	10/5/2018
Soluble Calcium	2.79	0.02		meq/L	1	10/5/2018
Soluble Magnesium	2.06	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.48	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:15:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-016 **Matrix:** SOIL  
**Client Sample ID** SE-SB14 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.47	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.14	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.12	0.10			1	10/5/2018
Soluble Calcium	1.11	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.62	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.97	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:20:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-017 **Matrix:** SOIL  
**Client Sample ID** SE-SB14 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.45	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.61	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.79	0.10			1	10/5/2018
Soluble Calcium	1.18	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.75	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.76	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:25:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-018 **Matrix:** SOIL  
**Client Sample ID** SE-SB14 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.37	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.40	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	1.82	0.10			1	10/5/2018
Soluble Calcium	0.95	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.61	0.05		meq/L	1	10/5/2018
Soluble Sodium	1.61	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:30:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-019 **Matrix:** SOIL  
**Client Sample ID** SE-SB14 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.87	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.18	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.37	0.10			1	10/5/2018
Soluble Calcium	13.4	0.02		meq/L	1	10/5/2018
Soluble Magnesium	9.58	0.05		meq/L	1	10/5/2018
Soluble Sodium	11.4	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:35:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-020 **Matrix:** SOIL  
**Client Sample ID** SE-SB14 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.77	0.10		mmhos/cm	1	10/4/2018 3:25:00 PM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.25	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.72	0.10			1	10/5/2018
Soluble Calcium	2.04	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.49	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.62	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:40:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-021 **Matrix:** SOIL  
**Client Sample ID** SE-SB15 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.75	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.72	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.36	0.10			1	10/5/2018
Soluble Calcium	2.10	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.31	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.08	0.25		meq/L	1	10/5/2018

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





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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:45:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-022 **Matrix:** SOIL  
**Client Sample ID** SE-SB15 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.51	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.92	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.61	0.10			1	10/5/2018
Soluble Calcium	1.11	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.70	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.49	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:50:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-023 **Matrix:** SOIL  
**Client Sample ID** SE-SB15 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.55	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.73	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.12	0.10			1	10/5/2018
Soluble Calcium	1.39	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.90	0.05		meq/L	1	10/5/2018
Soluble Sodium	2.27	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 11:55:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-024 **Matrix:** SOIL  
**Client Sample ID** SE-SB15 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.99	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.94	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.53	0.10			1	10/5/2018
Soluble Calcium	2.58	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.82	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.75	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 12:00:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-025 **Matrix:** SOIL  
**Client Sample ID** SE-SB15 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.89	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.30	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.71	0.10			1	10/5/2018
Soluble Calcium	2.41	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.72	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.90	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 12:45:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-026 **Matrix:** SOIL  
**Client Sample ID** SE-SB16 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.93	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.05	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.44	0.10			1	10/5/2018
Soluble Calcium	3.04	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.75	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.77	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 12:50:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-027 **Matrix:** SOIL  
**Client Sample ID** SE-SB16 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.84	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.71	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.37	0.10			1	10/5/2018
Soluble Calcium	2.18	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.43	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.18	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 12:55:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-028 **Matrix:** SOIL  
**Client Sample ID** SE-SB16 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.39	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.43	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.18	0.10			1	10/5/2018
Soluble Calcium	3.49	0.02		meq/L	1	10/5/2018
Soluble Magnesium	2.31	0.05		meq/L	1	10/5/2018
Soluble Sodium	5.42	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:00:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-029

**Matrix:** SOIL

**Client Sample ID** SE-SB16 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	2.20	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.26	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	3.10	0.10			1	10/5/2018
Soluble Calcium	6.87	0.02		meq/L	1	10/5/2018
Soluble Magnesium	4.70	0.05		meq/L	1	10/5/2018
Soluble Sodium	7.45	0.25		meq/L	1	10/5/2018

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





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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:05:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-030

**Matrix:** SOIL

**Client Sample ID** SE-SB16 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.92	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.31	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.83	0.10			1	10/5/2018
Soluble Calcium	2.37	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.75	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.07	0.25		meq/L	1	10/5/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:15:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-031

**Matrix:** SOIL

**Client Sample ID** SE-SB17 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.66	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.51	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	3.06	0.10			1	10/5/2018
Soluble Calcium	1.42	0.02		meq/L	1	10/5/2018
Soluble Magnesium	0.95	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.33	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:20:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-032

**Matrix:** SOIL

**Client Sample ID** SE-SB17 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.74	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.33	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.68	0.10			1	10/5/2018
Soluble Calcium	1.74	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.17	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.24	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:25:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-033

**Matrix:** SOIL

**Client Sample ID** SE-SB17 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.01	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.12	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.86	0.10			1	10/5/2018
Soluble Calcium	10.1	0.02		meq/L	1	10/5/2018
Soluble Magnesium	7.13	0.05		meq/L	1	10/5/2018
Soluble Sodium	8.40	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:30:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-034

**Matrix:** SOIL

**Client Sample ID** SE-SB17 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.76	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	4.40	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.76	0.10			1	10/5/2018
Soluble Calcium	1.75	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.36	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.44	0.25		meq/L	1	10/5/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:35:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-035

**Matrix:** SOIL

**Client Sample ID** SE-SB18 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.94	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.77	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.01	0.10			1	10/5/2018
Soluble Calcium	5.48	0.02		meq/L	1	10/5/2018
Soluble Magnesium	3.17	0.05		meq/L	1	10/5/2018
Soluble Sodium	8.35	0.25		meq/L	1	10/5/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:40:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-036

**Matrix:** SOIL

**Client Sample ID** SE-SB18 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.93	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.27	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.81	0.10			1	10/5/2018
Soluble Calcium	2.23	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.45	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.81	0.25		meq/L	1	10/5/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 1:45:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-037 **Matrix:** SOIL  
**Client Sample ID** SE-SB18 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.19	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.17	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.93	0.10			1	10/5/2018
Soluble Calcium	2.96	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.94	0.05		meq/L	1	10/5/2018
Soluble Sodium	4.59	0.25		meq/L	1	10/5/2018

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





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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:50:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-038

**Matrix:** SOIL

**Client Sample ID** SE-SB18 (15-17')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.62	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.14	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.02	0.10			1	10/5/2018
Soluble Calcium	4.49	0.02		meq/L	1	10/5/2018
Soluble Magnesium	3.57	0.05		meq/L	1	10/5/2018
Soluble Sodium	6.07	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 1:55:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-039

**Matrix:** SOIL

**Client Sample ID** SE-SB18 (18-20')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.83	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.99	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.97	0.10			1	10/5/2018
Soluble Calcium	1.88	0.02		meq/L	1	10/5/2018
Soluble Magnesium	1.42	0.05		meq/L	1	10/5/2018
Soluble Sodium	3.81	0.25		meq/L	1	10/5/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/27/2018 2:50:00 PM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-040 **Matrix:** SOIL  
**Client Sample ID** SE-SB19 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.81	0.10		mmhos/cm	1	10/5/2018 10:59:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.40	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.35	0.10			1	10/5/2018
Soluble Calcium	13.4	0.02		meq/L	1	10/5/2018
Soluble Magnesium	7.51	0.05		meq/L	1	10/5/2018
Soluble Sodium	10.8	0.25		meq/L	1	10/5/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 2:55:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-041

**Matrix:** SOIL

**Client Sample ID** SE-SB19 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.92	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	3.02	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	4.99	0.10			1	10/11/2018
Soluble Calcium	3.50	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.30	0.05		meq/L	1	10/11/2018
Soluble Sodium	8.50	0.25		meq/L	1	10/11/2018

**Qualifiers:**

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 3:00:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-042

**Matrix:** SOIL

**Client Sample ID** SE-SB19 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	2.22	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	4.92	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	6.04	0.10			1	10/11/2018
Soluble Calcium	3.47	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.25	0.05		meq/L	1	10/11/2018
Soluble Sodium	10.2	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 3:05:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-043

**Matrix:** SOIL

**Client Sample ID** SE-SB19 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	8.34	0.10	*	mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	7.26	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	10.6	0.10			1	10/11/2018
Soluble Calcium	16.5	0.02		meq/L	1	10/11/2018
Soluble Magnesium	12.0	0.05		meq/L	1	10/11/2018
Soluble Sodium	40.2	0.25		meq/L	1	10/11/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental

**Collection Date:** 9/27/2018 4:10:00 PM

**Project:** Drew Estates #11397

**Lab ID:** 18100018-044

**Matrix:** SOIL

**Client Sample ID** SE-SB19 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	7.25	0.10	*	mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	3.85	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	7.89	0.10			1	10/11/2018
Soluble Calcium	18.7	0.02		meq/L	1	10/11/2018
Soluble Magnesium	14.5	0.05		meq/L	1	10/11/2018
Soluble Sodium	32.1	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:05:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-045 **Matrix:** SOIL  
**Client Sample ID** SE-SB20 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.99	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.36	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.00	0.10			1	10/11/2018
Soluble Calcium	2.72	0.02		meq/L	1	10/11/2018
Soluble Magnesium	1.59	0.05		meq/L	1	10/11/2018
Soluble Sodium	4.40	0.25		meq/L	1	10/11/2018

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





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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:10:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-046 **Matrix:** SOIL  
**Client Sample ID** SE-SB20 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.54	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.30	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.39	0.10			1	10/11/2018
Soluble Calcium	1.13	0.02		meq/L	1	10/11/2018
Soluble Magnesium	0.68	0.05		meq/L	1	10/11/2018
Soluble Sodium	2.28	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:15:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-047 **Matrix:** SOIL  
**Client Sample ID** SE-SB20 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.41	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.65	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.11	0.10			1	10/11/2018
Soluble Calcium	0.91	0.02		meq/L	1	10/11/2018
Soluble Magnesium	0.56	0.05		meq/L	1	10/11/2018
Soluble Sodium	1.81	0.25		meq/L	1	10/11/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:20:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-048 **Matrix:** SOIL  
**Client Sample ID** SE-SB20 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.51	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.64	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.64	0.10			1	10/11/2018
Soluble Calcium	3.56	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.58	0.05		meq/L	1	10/11/2018
Soluble Sodium	8.13	0.25		meq/L	1	10/11/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:25:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-049 **Matrix:** SOIL  
**Client Sample ID** SE-SB20 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.95	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.31	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.03	0.10			1	10/11/2018
Soluble Calcium	2.11	0.02		meq/L	1	10/11/2018
Soluble Magnesium	1.62	0.05		meq/L	1	10/11/2018
Soluble Sodium	4.14	0.25		meq/L	1	10/11/2018

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



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 TEL: (337) 235-0483 FAX: (337) 233-6540  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:45:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-050 **Matrix:** SOIL  
**Client Sample ID** SE-SB21 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	2.33	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.21	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	5.29	0.10			1	10/11/2018
Soluble Calcium	6.01	0.02		meq/L	1	10/11/2018
Soluble Magnesium	3.46	0.05		meq/L	1	10/11/2018
Soluble Sodium	11.5	0.25		meq/L	1	10/11/2018

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



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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:50:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-051 **Matrix:** SOIL  
**Client Sample ID** SE-SB21 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.20	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.39	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.15	0.10			1	10/11/2018
Soluble Calcium	3.26	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.03	0.05		meq/L	1	10/11/2018
Soluble Sodium	6.75	0.25		meq/L	1	10/11/2018

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



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 2417 W. Pinhook Road  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 8:55:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-052 **Matrix:** SOIL  
**Client Sample ID** SE-SB21 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.36	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.60	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.25	0.10			1	10/11/2018
Soluble Calcium	3.85	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.43	0.05		meq/L	1	10/11/2018
Soluble Sodium	5.77	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:00:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-053 **Matrix:** SOIL  
**Client Sample ID** SE-SB21 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.23	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.17	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.21	0.10			1	10/11/2018
Soluble Calcium	3.26	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.25	0.05		meq/L	1	10/11/2018
Soluble Sodium	5.33	0.25		meq/L	1	10/11/2018

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





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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:05:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-054 **Matrix:** SOIL  
**Client Sample ID** SE-SB21 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.78	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.35	0.10		%	1	10/11/2018 10:30:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.63	0.10			1	10/11/2018
Soluble Calcium	1.76	0.02		meq/L	1	10/11/2018
Soluble Magnesium	1.27	0.05		meq/L	1	10/11/2018
Soluble Sodium	3.24	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:20:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-055 **Matrix:** SOIL  
**Client Sample ID** SE-SB22 (1-3')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.55	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	3.40	0.10		%	1	10/11/2018 10:30:00 AM
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: <b>BXL</b>
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	10/2/2018 8:20:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	4.25	0.10			1	10/11/2018
Soluble Calcium	0.67	0.02		meq/L	1	10/11/2018
Soluble Magnesium	0.38	0.05		meq/L	1	10/11/2018
Soluble Sodium	3.08	0.25		meq/L	1	10/11/2018

**Qualifiers:**

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:25:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-056 **Matrix:** SOIL  
**Client Sample ID** SE-SB22 (5-7')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.64	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	3.34	0.10		%	1	10/11/2018 10:30:00 AM
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: <b>BXL</b>
HEM, Oil & Grease	0.11	0.05		% dry wt	1	10/2/2018 8:20:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.22	0.10			1	10/11/2018
Soluble Calcium	1.04	0.02		meq/L	1	10/11/2018
Soluble Magnesium	0.68	0.05		meq/L	1	10/11/2018
Soluble Sodium	2.99	0.25		meq/L	1	10/11/2018

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:30:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-057 **Matrix:** SOIL  
**Client Sample ID** SE-SB22 (7-9')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.60	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.66	0.10		%	1	10/11/2018 10:30:00 AM
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: <b>BXL</b>
HEM, Oil & Grease	0.07	0.05		% dry wt	1	10/2/2018 8:20:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.59	0.10			1	10/11/2018
Soluble Calcium	1.16	0.02		meq/L	1	10/11/2018
Soluble Magnesium	0.77	0.05		meq/L	1	10/11/2018
Soluble Sodium	2.54	0.25		meq/L	1	10/11/2018

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



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

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:35:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-058 **Matrix:** SOIL  
**Client Sample ID** SE-SB22 (13-15')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	1.49	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.72	0.10		%	1	10/11/2018 10:30:00 AM
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: <b>BXL</b>
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	10/2/2018 8:20:00 AM
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.65	0.10			1	10/11/2018
Soluble Calcium	3.92	0.02		meq/L	1	10/11/2018
Soluble Magnesium	2.91	0.05		meq/L	1	10/11/2018
Soluble Sodium	6.74	0.25		meq/L	1	10/11/2018

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



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **18100018**

Date Reported: **10/17/2018**

**CLIENT:** Southland Environmental **Collection Date:** 9/28/2018 9:40:00 AM  
**Project:** Drew Estates #11397  
**Lab ID:** 18100018-059 **Matrix:** SOIL  
**Client Sample ID** SE-SB22 (17-19')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR)</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BXL</b>
Electrical Conductivity	0.76	0.10		mmhos/cm	1	10/9/2018 11:43:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	1.06	0.10		%	1	10/11/2018 10:30:00 AM
<b>HEM, OIL &amp; GREASE</b>						
<b>HEM, OIL &amp; GREASE</b>					<b>SW9071B</b>	Analyst: <b>BXL</b>
HEM, Oil & Grease	< 0.05	0.05		% dry wt	1	10/2/2018 8:20:00 AM
<b>29B SALTS (EC, ESP, SAR)</b>						
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	7.68	0.10			1	10/11/2018
Soluble Calcium	1.93	0.02		meq/L	1	10/11/2018
Soluble Magnesium	1.73	0.05		meq/L	1	10/11/2018
Soluble Sodium	10.4	0.25		meq/L	1	10/11/2018

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** 27982

Sample ID: <b>18100018-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>10/5/2018</b>	RunNo: <b>73209</b>						
Client ID: <b>SE-SB11 (3-5')</b>	Batch ID: <b>27982</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1832110</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.44	0.10						2.42	1.15	20	
Soluble Calcium	4.61	0.02						4.52	2.11	20	
Soluble Magnesium	2.72	0.05						2.64	2.92	20	
Soluble Sodium	4.68	0.25						4.57	2.35	20	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** 27990

Sample ID: <b>18100018-021ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>10/5/2018</b>	RunNo: <b>73209</b>						
Client ID: <b>SE-SB15 (1-3')</b>	Batch ID: <b>27990</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1832321</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.40	0.10						2.36	1.59	20	
Soluble Calcium	2.12	0.02						2.10	0.69	20	
Soluble Magnesium	1.32	0.05						1.31	0.75	20	
Soluble Sodium	3.15	0.25						3.08	1.94	20	

**Qualifiers:**

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





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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** 28011

Sample ID: <b>18100018-043ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>10/10/2018</b>	RunNo: <b>73323</b>						
Client ID: <b>SE-SB19 (13-15')</b>	Batch ID: <b>28011</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/11/2018</b>	SeqNo: <b>1834845</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	10.6	0.10						10.63	0.59	20	
Soluble Calcium	16.4	0.02						16.53	0.85	20	
Soluble Magnesium	11.9	0.05						12.04	1.03	20	
Soluble Sodium	39.7	0.25						40.16	1.06	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID: 28018**

Sample ID: <b>18100018-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>10/11/2018</b>	RunNo: <b>73313</b>						
Client ID: <b>SE-SB11 (3-5')</b>	Batch ID: <b>28018</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/11/2018</b>	SeqNo: <b>1834610</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	1.86	0.10						1.73	7.16	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** 28020

Sample ID: <b>18100018-021ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>10/11/2018</b>	RunNo: <b>73313</b>						
Client ID: <b>SE-SB15 (1-3')</b>	Batch ID: <b>28020</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/11/2018</b>	SeqNo: <b>1834631</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	1.83	0.10						1.72	6.61	20	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** 28022

Sample ID: <b>18100018-043ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>10/11/2018</b>	RunNo: <b>73313</b>						
Client ID: <b>SE-SB19 (13-15')</b>	Batch ID: <b>28022</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>10/11/2018</b>	SeqNo: <b>1836171</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	8.00	0.10						7.26	9.62	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sj



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 TEL: (337) 235-0483 FAX: (337) 233-6546  
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# QC SUMMARY REPORT

WO#: 18100018  
 17-Oct-18

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** R73050

Sample ID: <b>MB-R73050</b>	SampType: <b>MBLK</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>73050</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R73050</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>10/2/2018</b>	SeqNo: <b>1830848</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

< 0.05 0.05

Sample ID: <b>LCS-R73050</b>	SampType: <b>LCS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>73050</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R73050</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>10/2/2018</b>	SeqNo: <b>1830849</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.23 0.05 0.20 0 117 70 130

Sample ID: <b>LCSD-R73050</b>	SampType: <b>LCSD</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>73050</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R73050</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>10/2/2018</b>	SeqNo: <b>1830850</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

0.21 0.05 0.20 0 104 70 130 0.23 11.3 40

Sample ID: <b>18090926-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>73050</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73050</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>10/2/2018</b>	SeqNo: <b>1830851</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

HEM, Oil & Grease

2.78 0.05 0.26 2.27 191 70 130 S

**NOTES:**

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected	W Sample container temperature is out of limit as sj



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: **18100018**  
**17-Oct-18**

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID: R73050**

Sample ID: <b>18090926-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>HEM_S</b>	Units: <b>% dry wt</b>	Prep Date:	RunNo: <b>73050</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73050</b>	TestNo: <b>SW9071B</b>		Analysis Date: <b>10/2/2018</b>	SeqNo: <b>1830852</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease	2.36	0.05						2.27	3.52	40	

**Qualifiers:**

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



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# QC SUMMARY REPORT

WO#: **18100018**  
 17-Oct-18

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** R73185

Sample ID: <b>MB-R73185</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73185</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R73185</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/4/2018</b>	SeqNo: <b>1831425</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>LCS1-R73185</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73185</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73185</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/4/2018</b>	SeqNo: <b>1831426</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 90 110

Sample ID: <b>LCS2-R73185</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73185</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73185</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/4/2018</b>	SeqNo: <b>1831427</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 53.0 0.10 53.00 0 100 90 110

Sample ID: <b>18100018-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73185</b>						
Client ID: <b>SE-SB11 (3-5')</b>	Batch ID: <b>R73185</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/4/2018</b>	SeqNo: <b>1831429</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 1.47 0.10 1.39 5.58 20

**Qualifiers:**

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



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: **18100018**  
 17-Oct-18

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** R73205

Sample ID: <b>MB-R73205</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73205</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R73205</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1831928</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>LCS1-R73205</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73205</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73205</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1831929</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 90 110

Sample ID: <b>LCS2-R73205</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73205</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73205</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1831930</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 54.0 0.10 53.00 0 102 90 110

Sample ID: <b>18100018-021ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73205</b>						
Client ID: <b>SE-SB15 (1-3')</b>	Batch ID: <b>R73205</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/5/2018</b>	SeqNo: <b>1831932</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.81 0.10 0.75 7.60 20

**Qualifiers:**

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





Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: **18100018**  
 17-Oct-18

**Client:** Southland Environmental  
**Project:** Drew Estates #11397

**BatchID:** R73263

Sample ID: <b>MB-R73263</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73263</b>
Client ID: <b>PBS</b>	Batch ID: <b>R73263</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/9/2018</b>	SeqNo: <b>1833384</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Electrical Conductivity	< 0.10	0.10									
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Sample ID: <b>LCS1-R73263</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73263</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73263</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/9/2018</b>	SeqNo: <b>1833385</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Electrical Conductivity	0.48	0.10	0.47	0	102	90	110				
-------------------------	------	------	------	---	-----	----	-----	--	--	--	--

Sample ID: <b>LCS2-R73263</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73263</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R73263</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/9/2018</b>	SeqNo: <b>1833386</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Electrical Conductivity	54.1	0.10	53.00	0	102	90	110				
-------------------------	------	------	-------	---	-----	----	-----	--	--	--	--

Sample ID: <b>18100018-043ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>73263</b>
Client ID: <b>SE-SB19 (13-15')</b>	Batch ID: <b>R73263</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>10/9/2018</b>	SeqNo: <b>1833390</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Electrical Conductivity	7.97	0.10					8.34	4.54	20	*	
-------------------------	------	------	--	--	--	--	------	------	----	---	--

**Qualifiers:**

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



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

## Sample Log-In Check List

Client Name: **ARABIE\_ENV** Work Order Number: **18100018** RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>10/1/2018 1:00:00 PM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>10/1/2018 2:17:38 PM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Caitlin Duplantis</b>	<b>10/2/2018 4:57:17 PM</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   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

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

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

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

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good	Not Present			



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# Chain of Custody

Laboratory Number: 18100018

Company Name:  
Contact Name:  
Address:  
City, State Zip:  
Phone Number:  
Fax Number:  
E-mail Address:

**Client Information:**  
 SOUTHMAN'S ENV.  
 J. KENIG  
 570 CLARENCE ST.  
 LAKE CHARLES, LA 70601  
 337-436-3248  
 Ext: \_\_\_\_\_

**Billing Information:**  
 SAME  
 Ext: \_\_\_\_\_

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

Project Name/Number:  
 HCDREW / 11397  
 Sampler's Signature:  
 Shipping Method:  
 UPS / FedEx / NOW  
 DHL / Element / Hand / Mail

Page 1 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

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests						Comments	
					Quantity	Type	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>	FC	SAR	ESP		
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State <u>258</u> <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: _____ Time: _____ Grab / Composite: _____ Matrix: _____	P=Plastic, G=Glass, V=Vial	<input type="checkbox"/> 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>								
SE-SB11 (3-5)	9-27-18	9:05	G	SO	1	G	NONE	x	x	x		
" (5-7)	"	9:10	"	"	1	"	"	x	x	x		
" (7-8)	"	9:12	"	"	1	"	"	x	x	x		
" (13-15)	"	9:15	"	"	1	"	"	x	x	x		
" (12-15)	"	9:20	"	"	1	"	"	x	x	x		
SE-SB12 (1-3)	"	9:35	"	"	1	"	"	x	x	x		
" (5-7)	"	9:40	"	"	1	"	"	x	x	x		
" (7-8)	"	9:45	"	"	1	"	"	x	x	x		
" (13-15)	"	9:48	"	"	1	"	"	x	x	x		

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	10-1-18 10:45	<i>[Signature]</i>	10-1-18 10:45A	
2	<i>[Signature]</i>	10-1-18 1:30	<i>[Signature]</i>	10-1-18 1:30	Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp: _____
3					

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



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# Chain of Custody

Laboratory Number: 18100019

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> SouthWinds Env. J. King 510 CLARENCE ST. MAKE CHARLES, IA 70601 337-434-3248	<b>Billing Information:</b> SAME	PO Number: Quote Number: Required QC Level: Bill Monthly:	Project Name/Number: H.C. DREW / 11397 Sampler's Signature:  Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	Page 2 of 7 <b>Matrix Code</b> 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
	<input type="checkbox"/> Yes <input type="checkbox"/> No				

Which Regulations Apply:	Turn-Time	Collection Information	Container	Pres.	Requested Tests			Comments					
					Quantity	Type	Matrix						
<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 298 <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard 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.)	<input type="checkbox"/> P=Plastic, G=Glass, V=Vial	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>	EC	SAR	ESP						
Sample ID/Description	Date	Time	Grab / Composite	Matrix	Quantity	Type	Matrix	EC	SAR	ESP			
SE-SB12 (17-19)	9-27-18	9:50	G	SO	1	G	NONE	X	X	X			
SE-SB13 (2-4)		10:05			1			X	X	X			
" (5-7)		10:10			1			X	X	X			
" (7-9)		10:15			1			X	X	X			
" (13-15)		10:25			1			X	X	X			
" (17-19)		10:30			1			X	X	X			
SE-SB14 (1-3)		11:15			1			X	X	X			
" (5-7)		11:20			1			X	X	X			
" (7-9)		11:25			1			X	X	X			

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		10-1-18 10:45	Karen A. Fruchel	10-1-18 10:45A	Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:
2	Karen A. Fruchel	10-1-18 1300	Phibodeaux	10-1-18 1300	
3					

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



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# Chain of Custody

Laboratory Number: 18100018

Company Name: **SOUTHWARD ENV.**  
 Contact Name: **J. KING**  
 Address: **570 CLARENCE ST.**  
 City, State Zip: **LAKE CHARLES, LA 70601**  
 Phone Number: **337-436-3248** Ext:  
 Fax Number:  
 E-mail Address:

**Client Information:**  
**Billing Information:** *SAME*

PO Number:  
 Project Name/Number: **HC DREW**  
 Quote Number: **11397**  
 Sampler's Signature: *[Signature]*  
 Required QC Level:  
 Bill Monthly:  Yes  No  
 Shipping Method: **UPS / FedEx / NOW**  
**DHL Element / Hand / Mail**

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

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests			Comments
					Quantity	Type	Matrix	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State <b>298</b> <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <b>RUSH</b> <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: 9-27-18 Time: 11:30 Grab / Composite: G Matrix: SO	Quantity: 1 Type: G Pres.: None	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>	<input checked="" type="checkbox"/> EUC <input checked="" type="checkbox"/> SAP <input checked="" type="checkbox"/> ESP			

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>[Signature]</i>	10-1-18 10:45	Karen G. Spink	10-1-18 10:45A	Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:
Karen G. Spink	10-1-18 1300	[Signature]	10-1-18 1300	

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



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Chain of Custody

Laboratory Number: 18100019

Company Name: Southland Env.
Contact Name: J. King
Address: 576 Clarence St.
City, State Zip: Lake Charles, LA 70601
Phone Number: 337-484-3248
Fax Number:
E-mail Address:

Client Information:
Billing Information: SAME

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

Project Name/Number: HC DREW / 11397
Sampler's Signature: [Signature]
Shipping Method: UPS / FedEx / NOW, DHL / Element / Hand / Mail

Page 4 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

Table with columns: Which Regulations Apply, Turn Time, Container, Pres., Requested Tests, Comments. Includes sample data for SE-SB16 and SE-SB17.

Table with columns: Relinquished by, Date/Time, Received by, Date/Time, Field Notes. Includes hand-drawn signatures and dates.

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# Chain of Custody

Laboratory Number: 18100013

Page 5 of 7

<b>Client Information:</b> Company Name: <u>Southland Env</u> Contact Name: <u>J. King</u> Address: <u>510 Clarence Street</u> City, State Zip: <u>Lake Charles, LA 70001</u> Phone Number: <u>(337) 436-3248</u> Ext: _____ Fax Number: _____ E-mail Address: _____	<b>Billing Information:</b> <u>"Same"</u>	PO Number:	Project Name/Number: <u>H.C. Draw</u>	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
		Quote Number: <u>#11397</u>	Sampler's Signature <i>[Signature]</i>	
		Required QC Level	Shipping Method: <u>UPS / FedEx / NOW</u> <u>DHL / Element / Hand / Mail</u>	
		Bill Monthly <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <u>29-B</u> <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turn Time <input checked="" type="checkbox"/> Standard <u>RUSH</u> <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		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		
			Quantity	Type P=Plastic, G=Glass, V=Vial		EC	SAR	ESP			
<b>Collection Information</b> Date    Time    Grab / Composite    Matrix											
SE-SB18 (7-9)	9-27-18	13:45	G	SO	1	G	None	X	X	X	
" (15-17)		13:50						X	X	X	
" (18-20)		13:55						X	X	X	
SE-SB19 (1-3)		14:50						X	X	X	
" (5-7)		14:55						X	X	X	
" (7-9)		15:00						X	X	X	
" (13-15)		15:05						X	X	X	
" (17-19)	9-27-18	16:10						X	X	X	
SE-SB20 (1-3)	9-28-18	8:05						X	X	X	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	10-1-18 10:45	<i>[Signature]</i>	10-1-18 1045A	Received at lab on ice? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:
2	<i>[Signature]</i>	10-1-18 1300	<i>[Signature]</i>	10-1-18 1300	
3					

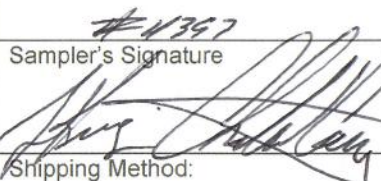
All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.



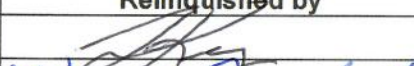
element™

# Chain of Custody

Laboratory Number: 18100018

<b>Client Information:</b> Company Name: <i>Southland Env.</i> Contact Name: <i>J. King</i> Address: <i>510 Clarence St.</i> City, State Zip: <i>Lake Charles, LA 70601</i> Phone Number: <i>(337) 436-3248</i> Ext: Fax Number: E-mail Address:	<b>Billing Information:</b> <i>"Standard"</i>		PO Number:	Project Name/Number: <i>H.C. Drew</i>	Page <i>6</i> of <i>7</i>
			Quote Number:	Sampler's Signature: 	<b>Matrix Code</b> 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
			Required QC Level:	Shipping Method: UPS / FedEx / NOW DHL / <u>Element</u> / Hand / Mail	
			Bill Monthly <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests						Comments				
			Quantity	Type P=Plastic, G=Glass, V=Vial		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>	EC	SMA	ESP							
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State <i>29B</i> <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <b>RUSH</b> <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other															
Collection Information			Date	Time	Grab / Composite	Matrix	Quantity	Type	Pres.	EC	SMA	ESP				
Sample ID/Description																
<i>SE-SB20 (5-7)</i>	<i>9/20/18</i>	<i>8:10</i>	<i>C</i>	<i>SO</i>	<i>1</i>	<i>G</i>	<i>None</i>	<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (7-9)</i>		<i>8:15</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (13-15)</i>		<i>8:20</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (17-19)</i>		<i>8:25</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>SE-SB21 (1-3)</i>		<i>8:45</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (5-7)</i>		<i>8:50</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (7-9)</i>		<i>8:55</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (13-15)</i>		<i>9:00</i>						<i>X</i>	<i>X</i>	<i>X</i>						
<i>" (17-19)</i>	<i>✓</i>	<i>9:05</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>X</i>	<i>X</i>	<i>X</i>						

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		<i>10-1-18 10:45</i>	<i>Karen J. Smith</i>	<i>10-1-18 10:45A</i>	
2	<i>Karen J. Smith</i>	<i>10-1-18 1300</i>	<i>Chloe Camp</i>	<i>10-1-18 1300</i>	Received at lab on ice?
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

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# Chain of Custody

Laboratory Number: **18100018**

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

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> Southland Env. J. King 510 Clarence St. Lake Charles, LA 70601 (787) 430-3248	<b>Billing Information:</b> "SAND" Ext:	PO Number: Quote Number: Required QC Level: Bill Monthly <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Project Name/Number:</b> H.C. Drew # 11397 Sampler's Signature:  Shipping Method: UPS / FedEx / NOW DHL / Element / Hand / Mail	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge O = Oil F = Food NG = Natural Gas PW = Produced Water CF = Completion Fluid SOL = Solid SO = Soil SW = Swab
---	---	---	--	---	---

Which Regulations Apply:	Turn Time	Collection Information	Matrix	Container		Pres.	Requested Tests				Comments
				Quantity	Type		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>	EL	SMA	ESP	
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input checked="" type="checkbox"/> State 24-b <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date: 9/28/17 Time: 9:20 Grab / Composite: G Matrix: SO		1	G	None	X	X	X	X	
		Date: 9/25 Time: 9:25 Grab / Composite: I Matrix: I		1	I	I	X	X	X	X	
		Date: 9:30 Time: 9:30 Grab / Composite: I Matrix: I		1	I	I	X	X	X	X	
		Date: 9:35 Time: 9:35 Grab / Composite: I Matrix: I		1	I	I	X	X	X	X	
		Date: 9:40 Time: 9:40 Grab / Composite: I Matrix: I		1	I	I	X	X	X	X	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		10-1-18 10:45	Karen A Touchette	10-1-18 10:45A	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 5:27
2	Karen A Touchette	10-1-18 1300	Shirley Deane	10-1-18 1300	
3					

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

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

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

328 Ley Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580-2368 USA  
 P 574-267-3305  
 F 574-269-6569

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

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



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

September 27, 2021

Duane Piranio  
Southland Environmental  
510 Clarence St  
Lake Charles, LA 70601  
TEL: (337) 436-3248  
FAX (337) 436-3641

RE: Drew Estates '15' 11397

Order No.: 21090354

Dear Duane Piranio:

Element Materials Technology Lafayette received 20 sample(s) on 9/13/2021 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

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

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

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

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

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

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



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

## Case Narrative

WO#: 21090354  
Date: 9/27/2021

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**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397

---

10/1/2021: This report is being re-issued and replaces the original report in its entirety. As requested, lab ID: 21090354-003 client sample ID was corrected to SS2 (2-3). (rev01c)

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

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

Exception: TPH-DO – SW846 Method 8015B, Prep batch 40947

The TPH-D/O analysis showed two distinct contaminant peaks in all of the client’s aqueous samples and the associated QC (Method Blank and LCS/LCSD). The contaminant peaks eluted in the diesel range contributing to TPH-D concentration above the reporting limit as indicated in the Method Blank analysis result. An internal investigation traced the source of the contaminants back to the sample containers. Following client notification and consultation of the issue, the laboratory proceeded with excluding the contaminant peaks from the area sum of the TPH-DRO chromatogram to avoid high bias of results. This approach was consistently applied to all of the client samples and QC. The chromatograms for the samples and QC are included in the report. The contaminant peaks are labeled as “cont peak 1” and “cont peak 2” in the chromatograms.

Please review the Sample Log-in Check List regarding the discrepancies between the chain of custody and the samples received and the documentation of resolution.

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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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **21090354**

Date Reported: **9/27/2021**

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-001  
**Client Sample ID** SS2 (0-1)

**Collection Date:** 9/8/2021 9:40:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.37	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.99	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.88	0.10			1	9/21/2021
Soluble Calcium	4.65	0.02		meq/L	1	9/21/2021
Soluble Magnesium	2.07	0.05		meq/L	1	9/21/2021
Soluble Sodium	5.28	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-002  
**Client Sample ID** SS2 (1-2)

**Collection Date:** 9/8/2021 9:42:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.81	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.71	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.07	0.10			1	9/21/2021
Soluble Calcium	2.44	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.18	0.05		meq/L	1	9/21/2021
Soluble Sodium	2.79	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 9:44:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-003 **Matrix:** SOIL  
**Client Sample ID** SS2 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.40	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.47	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	1.49	0.10			1	9/21/2021
Soluble Calcium	1.02	0.02		meq/L	1	9/21/2021
Soluble Magnesium	0.62	0.05		meq/L	1	9/21/2021
Soluble Sodium	1.35	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 11:40:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-004 **Matrix:** SOIL  
**Client Sample ID** B-7R (12.5-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	3.99	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.60	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.50	0.10			1	9/21/2021
Soluble Calcium	13.4	0.02		meq/L	1	9/21/2021
Soluble Magnesium	9.89	0.05		meq/L	1	9/21/2021
Soluble Sodium	8.54	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 11:55:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-005 **Matrix:** SOIL  
**Client Sample ID** B-7R (18-20)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.05	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	3.53	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.23	0.10			1	9/21/2021
Soluble Calcium	2.46	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.92	0.05		meq/L	1	9/21/2021
Soluble Sodium	4.78	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode





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

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 2:45:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-006 **Matrix:** SOIL  
**Client Sample ID** SE-SB19R (13-15)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	4.73	0.10	*	mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	8.18	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	6.59	0.10			1	9/21/2021
Soluble Calcium	9.49	0.02		meq/L	1	9/21/2021
Soluble Magnesium	6.53	0.05		meq/L	1	9/21/2021
Soluble Sodium	18.7	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 3:00:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-007 **Matrix:** SOIL  
**Client Sample ID** SE-SB19R (22-24)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.28	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	5.15	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	3.84	0.10			1	9/21/2021
Soluble Calcium	2.72	0.02		meq/L	1	9/21/2021
Soluble Magnesium	2.24	0.05		meq/L	1	9/21/2021
Soluble Sodium	6.05	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/8/2021 4:45:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-008 **Matrix:** SOIL  
**Client Sample ID** B-12R (0-2.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	2.16	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.63	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.65	0.10			1	9/21/2021
Soluble Calcium	7.64	0.02		meq/L	1	9/21/2021
Soluble Magnesium	3.59	0.05		meq/L	1	9/21/2021
Soluble Sodium	6.29	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental

**Collection Date:** 9/8/2021 4:52:00 PM

**Project:** Drew Estates '15' 11397

**Lab ID:** 21090354-009

**Matrix:** SOIL

**Client Sample ID** B-12R (4-6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.37	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.29	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.21	0.10			1	9/21/2021
Soluble Calcium	4.86	0.02		meq/L	1	9/21/2021
Soluble Magnesium	2.50	0.05		meq/L	1	9/21/2021
Soluble Sodium	4.24	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 12:45:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-010 **Matrix:** SOIL  
**Client Sample ID** SE-SB09R (4-6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN SOIL BY SW8015</b>					<b>SW8015B</b>	<b>SW3550C</b> Analyst: DF
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	337	20.0		mg/Kg	2	9/15/2021 11:30:00 AM
TPH (Oil Range)	343	40.0		mg/Kg	2	9/15/2021 11:30:00 AM
Surr: 4-Terphenyl-d14	79.2	33 - 152		%Rec	2	9/15/2021 11:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 12:47:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-011 **Matrix:** SOIL  
**Client Sample ID** SE-SB09R (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN SOIL BY SW8015</b>					<b>SW8015B</b>	<b>SW3550C</b> Analyst: DF
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	659	50.0		mg/Kg	5	9/15/2021 11:44:00 AM
TPH (Oil Range)	579	100		mg/Kg	5	9/15/2021 11:44:00 AM
Surr: 4-Terphenyl-d14	84.7	33 - 152		%Rec	5	9/15/2021 11:44:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 12:50:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-012 **Matrix:** SOIL  
**Client Sample ID** SE-SB09R (8-10)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN SOIL BY SW8015</b>					<b>SW8015B</b>	<b>SW3550C</b>
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						Analyst: DF
TPH (Diesel Range)	< 10.0	10.0		mg/Kg	1	9/15/2021 11:16:00 AM
TPH (Oil Range)	< 20.0	20.0		mg/Kg	1	9/15/2021 11:16:00 AM
Surr: 4-Terphenyl-d14	83.0	33 - 152		%Rec	1	9/15/2021 11:16:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-013  
**Client Sample ID** SS-1 (0-1)

**Collection Date:** 9/9/2021 1:30:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.88	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	3.21	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	5.69	0.10			1	9/21/2021
Soluble Calcium	4.32	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.40	0.05		meq/L	1	9/21/2021
Soluble Sodium	9.63	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode





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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-014  
**Client Sample ID** SS-1 (1-2)

**Collection Date:** 9/9/2021 1:32:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.51	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	3.91	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	4.54	0.10			1	9/21/2021
Soluble Calcium	3.82	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.37	0.05		meq/L	1	9/21/2021
Soluble Sodium	7.31	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 1:35:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-015 **Matrix:** SOIL  
**Client Sample ID** SS-1 (2-3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.07	0.10		mmhos/cm	1	9/21/2021 12:45:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.99	0.10		%	1	9/21/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.66	0.10			1	9/21/2021
Soluble Calcium	3.19	0.02		meq/L	1	9/21/2021
Soluble Magnesium	1.20	0.05		meq/L	1	9/21/2021
Soluble Sodium	3.94	0.25		meq/L	1	9/21/2021

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21090354**

Date Reported: **9/27/2021**

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 3:25:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-016 **Matrix:** SOIL  
**Client Sample ID** B-29R (10-12.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN SOIL OR SLUDGE BY ICP** **SW6010B** **SW3050B** Analyst: **STS**

Arsenic	8.55	1.02		mg/Kg	1	9/22/2021 7:11:46 PM
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<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/10/2021 9:30:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-017 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134	N	mg/L	1	9/15/2021 6:30:00 AM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	9/17/2021 6:18:00 PM
Surr: 4-Terphenyl-d14	108	51.4 - 146		%Rec	1	9/17/2021 6:18:00 PM
<b>NOTES:</b>						
N: See case narrative for an explanation of results						
<b>BTEX IN WATER BY SW8021B</b>					<b>SW8021B</b>	Analyst: <b>DF</b>
Benzene	< 0.00500	0.00500		mg/L	1	9/15/2021 2:36:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	9/15/2021 2:36:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	9/15/2021 2:36:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	9/15/2021 2:36:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	9/15/2021 2:36:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	9/15/2021 2:36:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	92.2	70 - 130		%Rec	1	9/15/2021 2:36:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200		mg/L	1	9/23/2021 7:02:22 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	91.9	5.00		mg/L	20	9/15/2021 10:51:57 AM
Sulfate	269	5.00		mg/L	20	9/15/2021 10:51:57 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
Arsenic	< 0.0100	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Barium	0.0140	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Cadmium	< 0.00500	0.00500		mg/L	1	9/16/2021 5:44:02 PM
Chromium	< 0.0100	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Iron	0.139	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Lead	< 0.0100	0.0100		mg/L	1	9/16/2021 5:44:02 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	RL Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U	Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: **21090354**

Date Reported: **9/27/2021**

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-017  
**Client Sample ID** MW-02

**Collection Date:** 9/10/2021 9:30:00 AM

**Matrix:** GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>				<b>SW6010B</b>		Analyst: <b>STS</b>
Manganese	0.0721	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Sodium	109	10.0		mg/L	1	9/16/2021 5:44:02 PM
Strontium	0.561	0.0100		mg/L	1	9/16/2021 5:44:02 PM
Zinc	< 0.0100	0.0100		mg/L	1	9/16/2021 5:44:02 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>		Analyst: <b>MAB</b>
Alkalinity, Bicarbonate (As CaCO3)	205	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Total (As CaCO3)	205	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	771	20.0		mg/L	1	9/15/2021 7:21:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/10/2021 10:05:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-018 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134	N	mg/L	1	9/15/2021 7:00:00 AM
TPH (Oil Range)	< 0.124	0.124		mg/L	1	9/17/2021 6:50:00 PM
Surr: 4-Terphenyl-d14	78.1	51.4 - 146		%Rec	1	9/17/2021 6:50:00 PM
<b>NOTES:</b>						
N: See case narrative for an explanation of results						
<b>BTEX IN WATER BY SW8021B</b>					<b>SW8021B</b>	Analyst: <b>DF</b>
Benzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:03:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:03:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:03:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:03:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:03:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	9/15/2021 3:03:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	87.6	70 - 130		%Rec	1	9/15/2021 3:03:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200		mg/L	1	9/23/2021 7:04:41 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	111	5.00		mg/L	20	9/15/2021 11:05:33 AM
Sulfate	177	5.00		mg/L	20	9/15/2021 11:05:33 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
Arsenic	< 0.0100	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Barium	0.0497	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Cadmium	< 0.00500	0.00500		mg/L	1	9/16/2021 5:50:57 PM
Chromium	< 0.0100	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Iron	0.0730	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Lead	< 0.0100	0.0100		mg/L	1	9/16/2021 5:50:57 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	RL Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U	Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/10/2021 10:05:00 AM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-018 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>				<b>SW6010B</b>		Analyst: <b>STS</b>
Manganese	0.286	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Sodium	88.2	10.0		mg/L	1	9/16/2021 5:50:57 PM
Strontium	0.448	0.0100		mg/L	1	9/16/2021 5:50:57 PM
Zinc	< 0.0100	0.0100		mg/L	1	9/16/2021 5:50:57 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>		Analyst: <b>MAB</b>
Alkalinity, Bicarbonate (As CaCO3)	87.5	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Total (As CaCO3)	87.5	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	566	20.0		mg/L	1	9/15/2021 7:21:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-019  
**Client Sample ID** MW-04

**Collection Date:** 9/9/2021 2:45:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.388	0.134	N	mg/L	1	9/15/2021 7:30:00 AM
TPH (Oil Range)	0.179	0.123		mg/L	1	9/17/2021 7:22:00 PM
Surr: 4-Terphenyl-d14	80.3	51.4 - 146		%Rec	1	9/17/2021 7:22:00 PM
<b>NOTES:</b>						
N: See case narrative for an explanation of results						
<b>BTEX IN WATER BY SW8021B</b>					<b>SW8021B</b>	Analyst: <b>DF</b>
Benzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:30:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:30:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:30:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:30:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:30:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	9/15/2021 3:30:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	89.0	70 - 130		%Rec	1	9/15/2021 3:30:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>BBX</b>
Mercury	< 0.000200	0.000200		mg/L	1	9/23/2021 7:06:58 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	243	12.5		mg/L	50	9/15/2021 11:19:21 AM
Sulfate	106	12.5		mg/L	50	9/15/2021 11:19:21 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
Arsenic	< 0.0100	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Barium	0.117	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Cadmium	< 0.00500	0.00500		mg/L	1	9/16/2021 5:53:16 PM
Chromium	< 0.0100	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Iron	0.628	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Lead	< 0.0100	0.0100		mg/L	1	9/16/2021 5:53:16 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode





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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 2:45:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-019 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>				<b>SW6010B</b>		Analyst: <b>STS</b>
Manganese	5.56	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Sodium	205	10.0		mg/L	1	9/16/2021 5:53:16 PM
Strontium	0.594	0.0100		mg/L	1	9/16/2021 5:53:16 PM
Zinc	< 0.0100	0.0100		mg/L	1	9/16/2021 5:53:16 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>		Analyst: <b>MAB</b>
Alkalinity, Bicarbonate (As CaCO3)	288	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Total (As CaCO3)	288	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	905	100		mg/L	5	9/15/2021 7:21:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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

# Analytical Report

(consolidated)

WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 4:00:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-020 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.137	0.136	N	mg/L	1	9/15/2021 7:59:00 AM
TPH (Oil Range)	< 0.126	0.126		mg/L	1	9/17/2021 7:55:00 PM
Surr: 4-Terphenyl-d14	113	51.4 - 146		%Rec	1	9/17/2021 7:55:00 PM
<b>NOTES:</b>						
N: See case narrative for an explanation of results						
<b>BTEX IN WATER BY SW8021B</b>					<b>SW8021B</b>	Analyst: <b>DF</b>
Benzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:58:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:58:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:58:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	9/15/2021 3:58:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	9/15/2021 3:58:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	9/15/2021 3:58:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	88.8	70 - 130		%Rec	1	9/15/2021 3:58:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
Mercury	< 0.000200	0.000200		mg/L	1	9/23/2021 7:09:14 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	42.4	2.50		mg/L	10	9/15/2021 12:00:44 PM
Sulfate	68.0	2.50		mg/L	10	9/15/2021 12:00:44 PM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
Arsenic	< 0.0100	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Barium	0.178	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Cadmium	< 0.00500	0.00500		mg/L	1	9/16/2021 5:55:34 PM
Chromium	0.0249	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Iron	11.5	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Lead	< 0.0100	0.0100		mg/L	1	9/16/2021 5:55:34 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	RL Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U	Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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 Lafayette, LA 70508-3344  
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# Analytical Report

(consolidated)

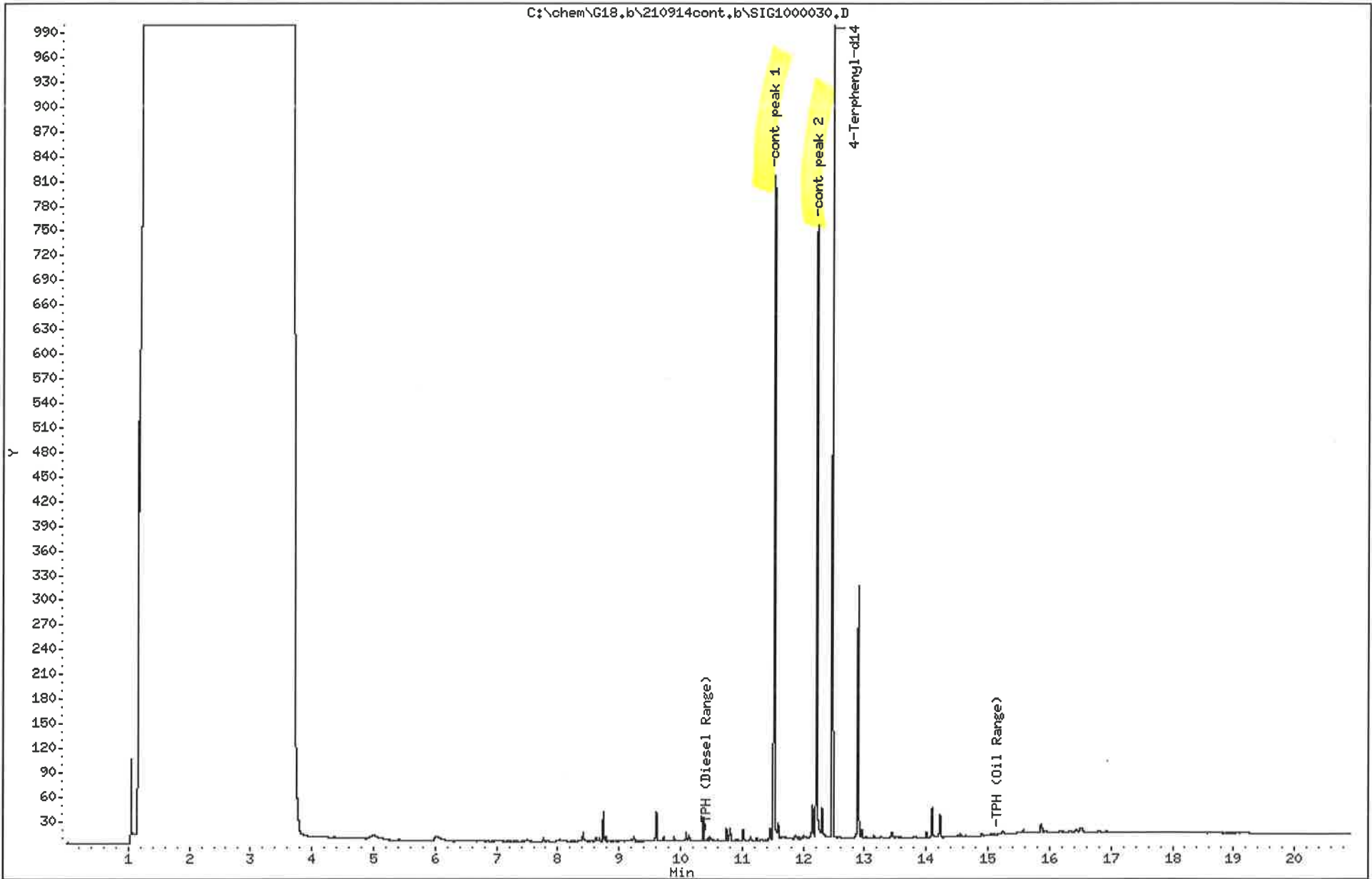
WO#: 21090354

Date Reported: 9/27/2021

**CLIENT:** Southland Environmental **Collection Date:** 9/9/2021 4:00:00 PM  
**Project:** Drew Estates '15' 11397  
**Lab ID:** 21090354-020 **Matrix:** GROUNDWATER  
**Client Sample ID** MW-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>				<b>SW6010B</b>		Analyst: <b>STS</b>
Manganese	0.762	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Sodium	50.2	10.0		mg/L	1	9/16/2021 5:55:34 PM
Strontium	0.329	0.0100		mg/L	1	9/16/2021 5:55:34 PM
Zinc	0.0239	0.0100		mg/L	1	9/16/2021 5:55:34 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>		Analyst: <b>MAB</b>
Alkalinity, Bicarbonate (As CaCO3)	170	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
Alkalinity, Total (As CaCO3)	170	10.0		mgCaCO3/L	1	9/21/2021 12:34:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	369	20.0		mg/L	1	9/15/2021 7:21:00 AM

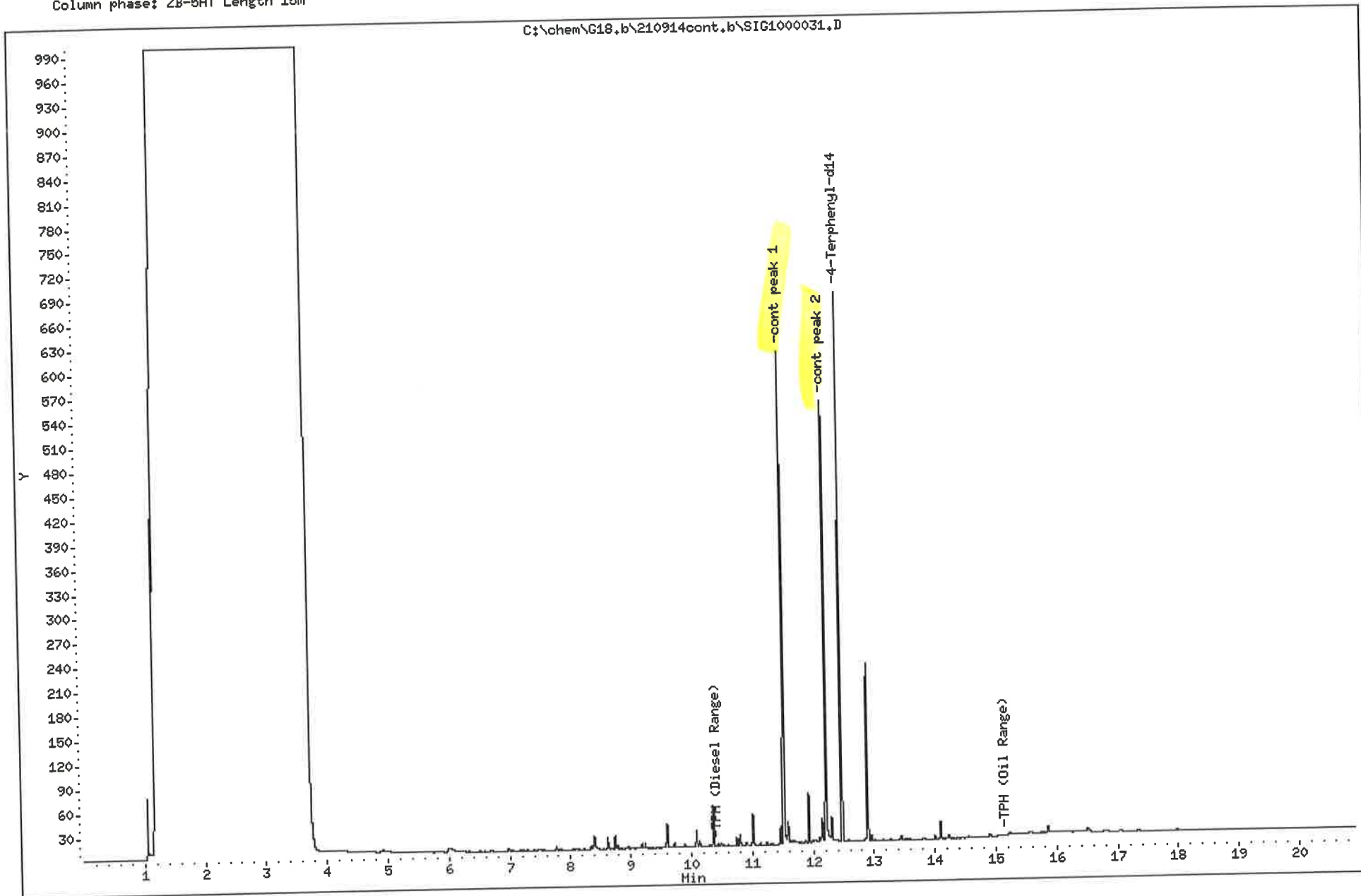
<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



Data File: C:\chem\G18.b\210914cont.b\SIG1000031.D  
Date : 15-SEP-2021 07:00  
Client ID: MW-01  
Sample Info: 21090354-018D  
Purge Volume: 35.0  
Column phase: ZB-5HT Length 15m

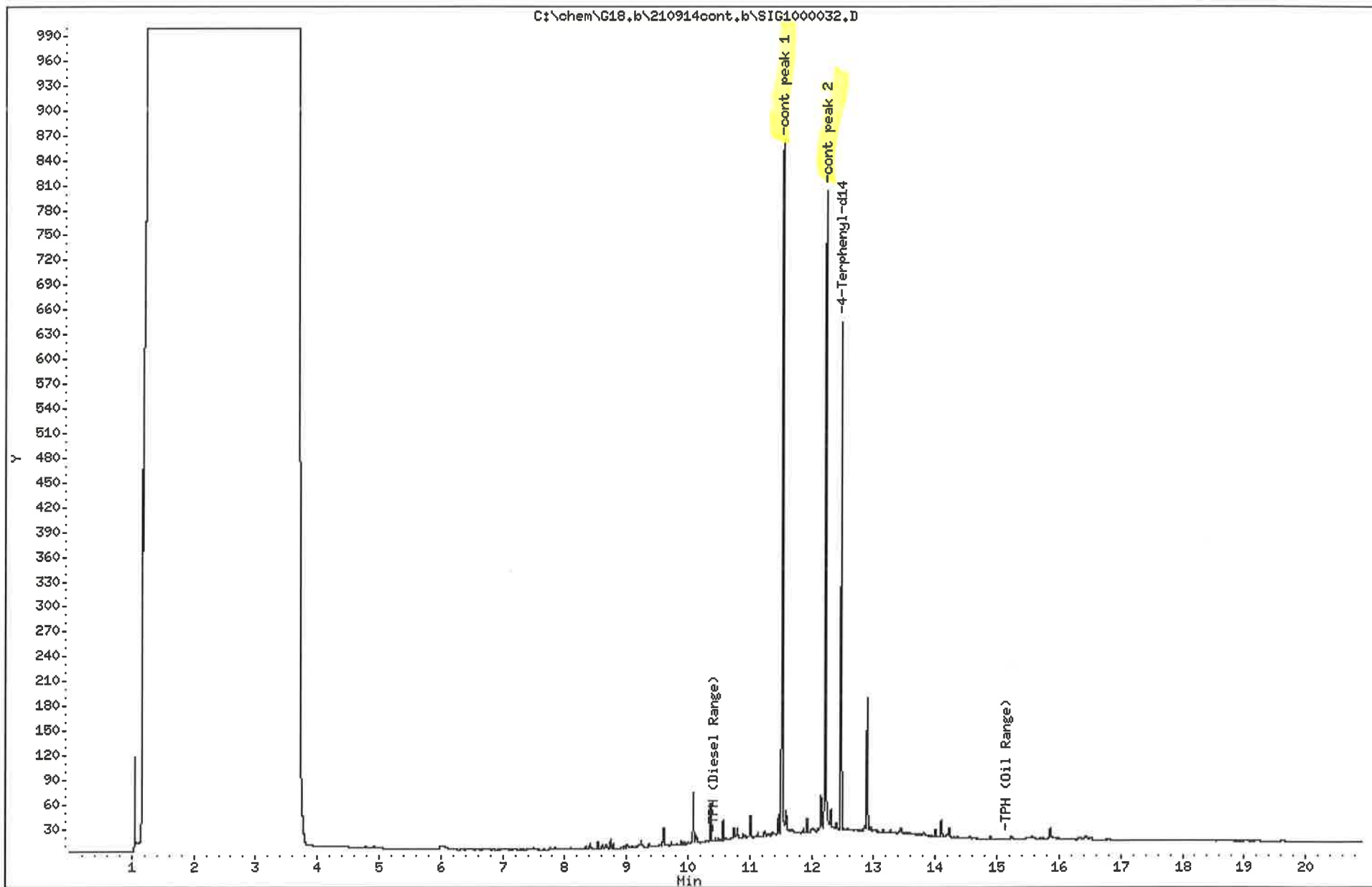
Instrument: G18.i  
Operator: CRM  
Column diameter: 0.25

C:\chem\G18.b\210914cont.b\SIG1000031.D



Data File: C:\chem\G18,b\210914cont,b\SIG1000032.D  
Date : 15-SEP-2021 07:30  
Client ID: MW-04  
Sample Info: 21090354-019D  
Purge Volume: 35.0  
Column phase: ZB-5HT Length 15m

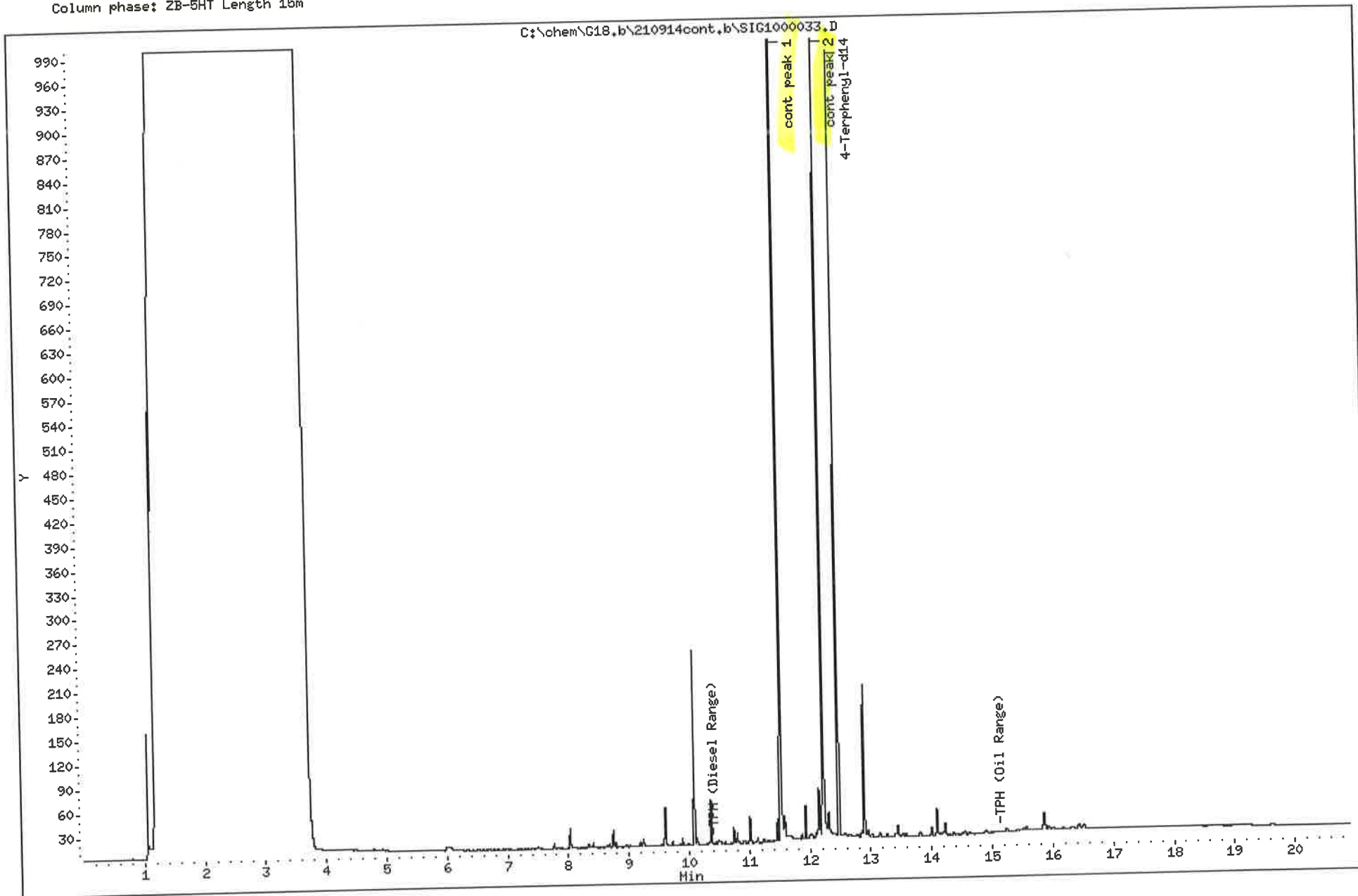
Instrument: G18,i  
Operator: CRH  
Column diameter: 0,25

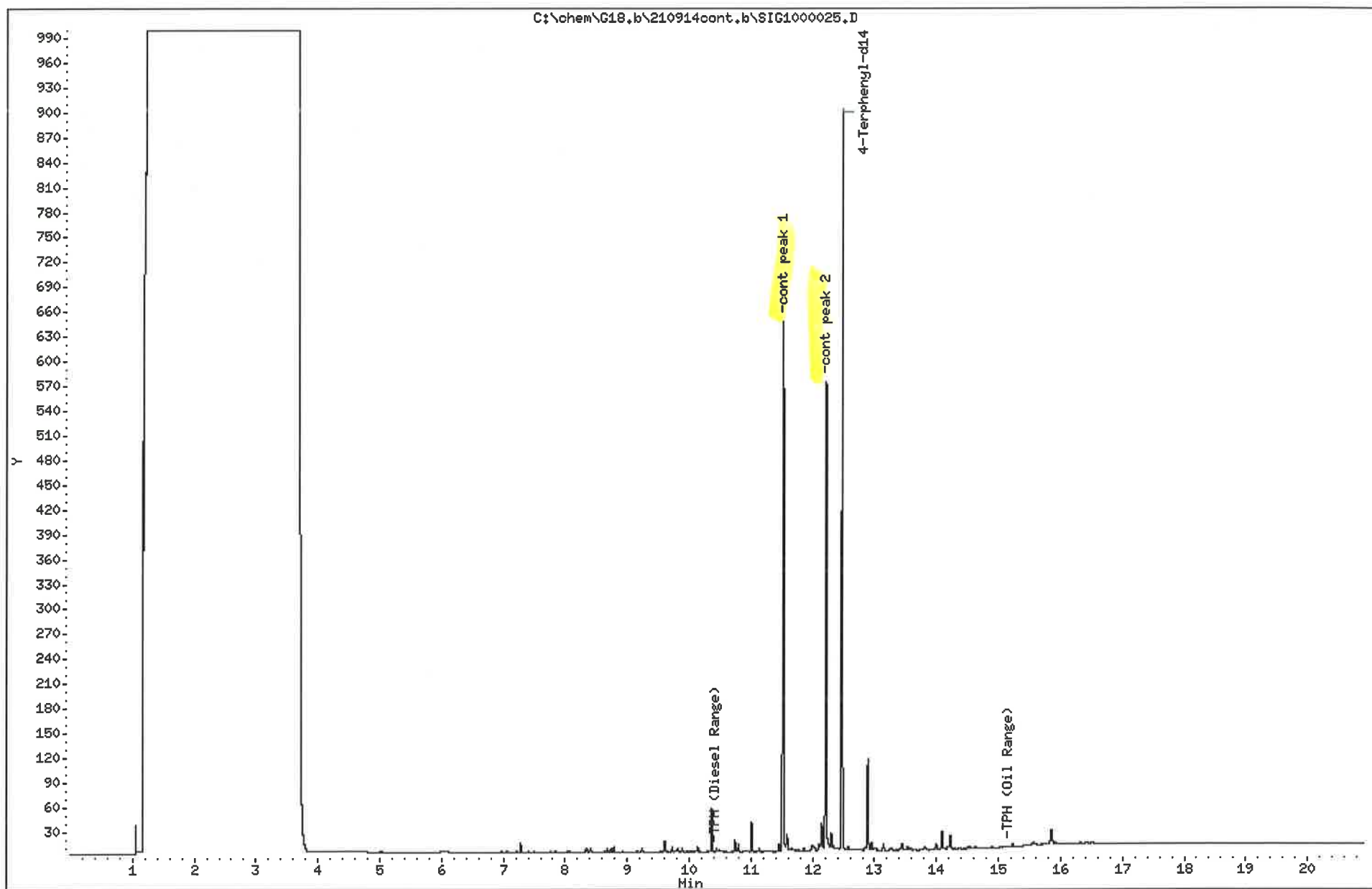


Data File: C:\chem\G18,b\210914cont,b\SIG1000033.D  
Date : 15-SEP-2021 07:59  
Client ID: MW-03  
Sample Info: 21090354-020D  
Purge Volume: 35.0  
Column phase: ZB-5HT Length 15m

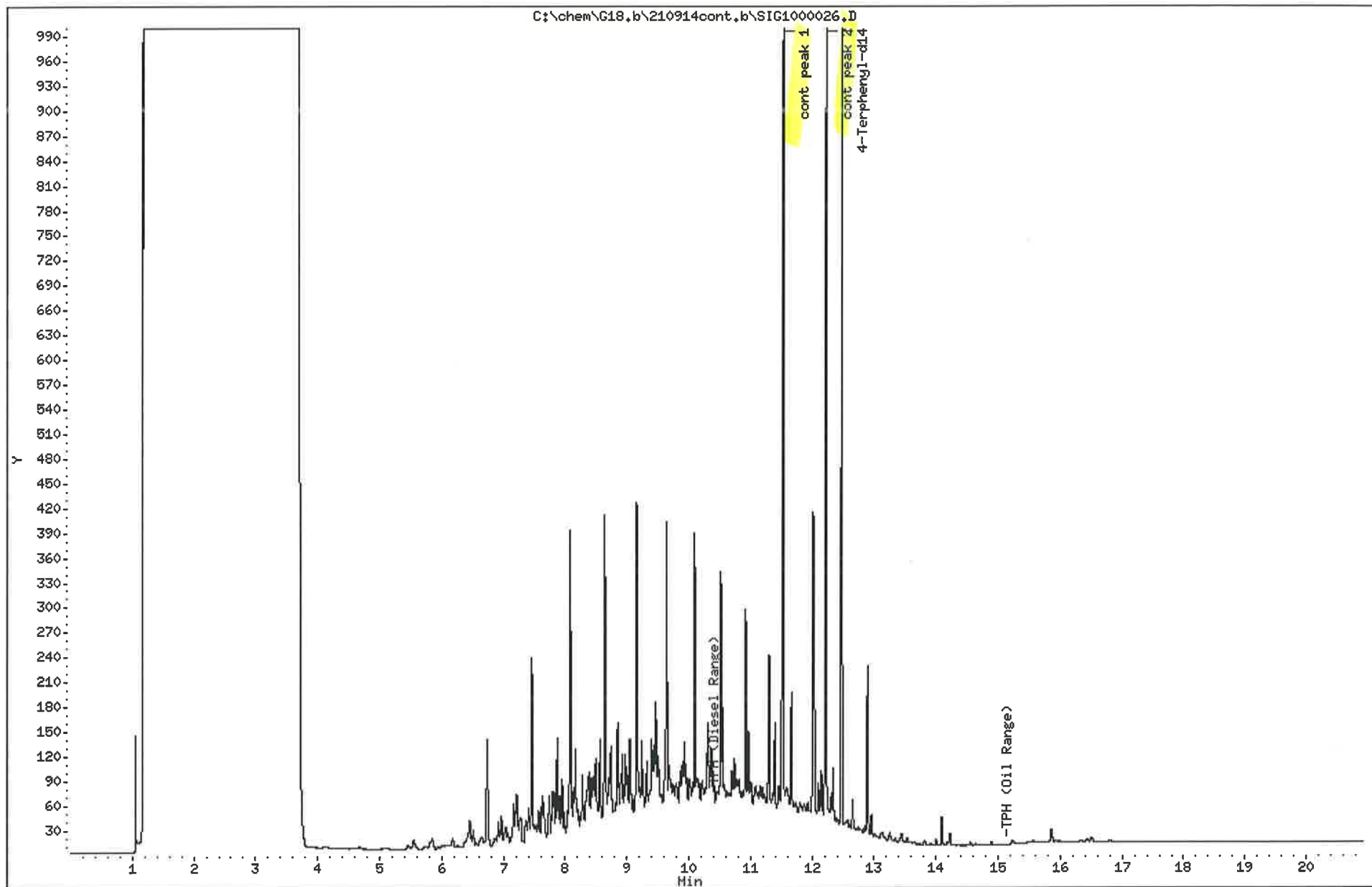
Instrument: G18.i  
Operator: CRM  
Column diameter: 0.25

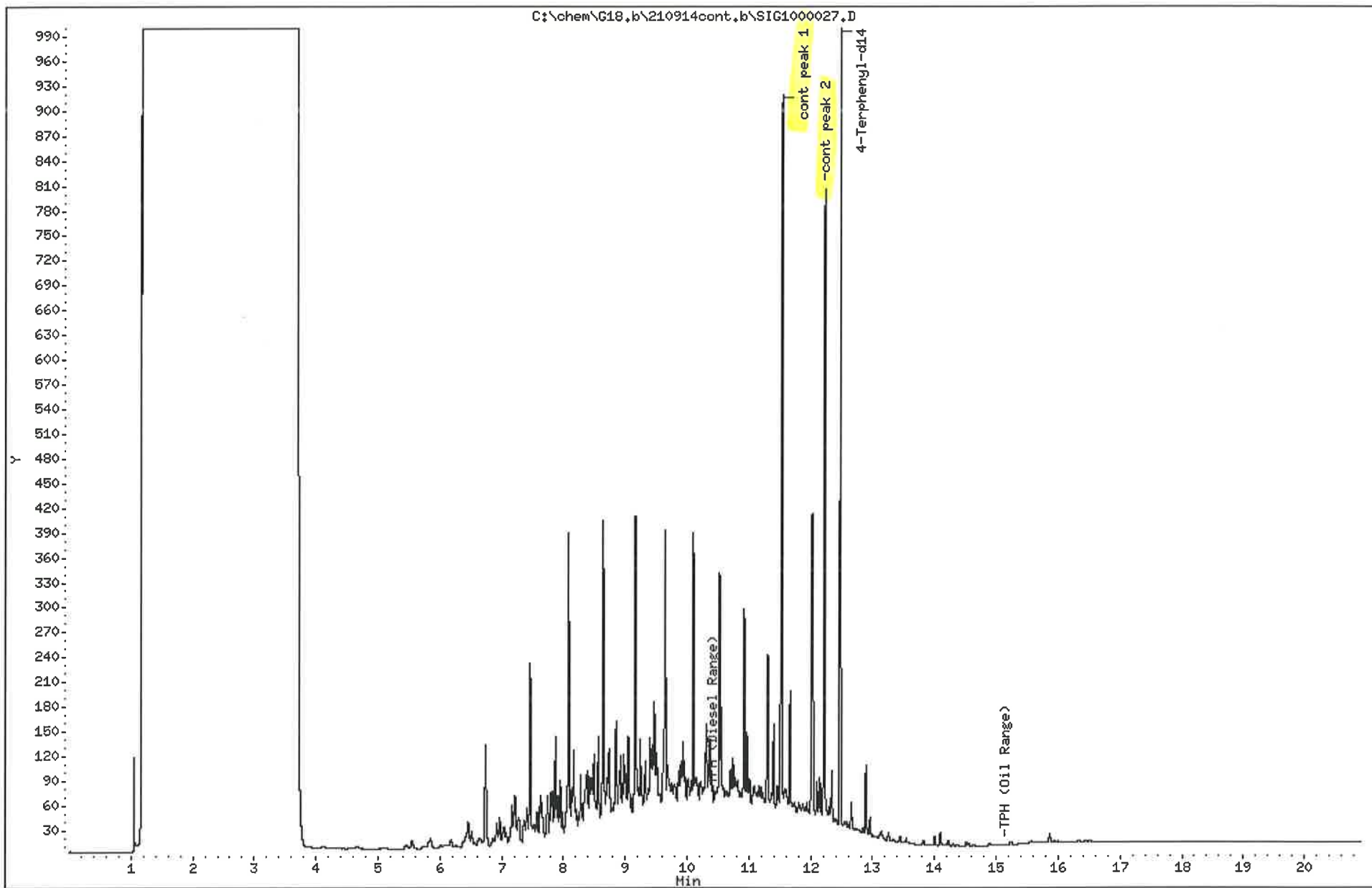
C:\chem\G18,b\210914cont,b\SIG1000033.D













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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental  
**Project:** Drew Estates '15' 11397

**BatchID:** 40932

Sample ID: <b>21090298-004AMS-D</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504268</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	90.6	10.0	100.0	6.286	84.3	23.4	123				
Surr: 4-Terphenyl-d14	2.82		3.333		84.6	33	152				

Sample ID: <b>21090298-004AMSD-</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504269</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	79.6	10.0	100.0	6.286	73.3	23.4	123	90.59	12.9	35.6	
Surr: 4-Terphenyl-d14	2.42		3.333		72.8	33	152		0	40	

Sample ID: <b>21090298-005AMS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504271</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	88.3	20.0	100.0	14.98	73.3	14.5	174				
Surr: 4-Terphenyl-d14	2.65		3.333		79.5	33	152				

Sample ID: <b>21090298-005AMSD-</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504272</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	95.2	20.0	100.0	14.98	80.3	14.5	174	88.29	7.58	48.8	
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental  
**Project:** Drew Estates '15' 11397

**BatchID:** 40932

Sample ID: <b>21090298-005AMSD-</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504272</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      2.92      3.333      87.5      33      152      0      40

Sample ID: <b>mb-40932</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>PBS</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504284</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)      < 10.0      10.0  
 TPH (Oil Range)      < 20.0      20.0  
 Surr: 4-Terphenyl-d14      2.82      3.333      84.8      33      152

Sample ID: <b>lcs-D40932</b>	SampType: <b>lcs</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504341</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)      81.7      10.0      100.0      0      81.7      63.4      109  
 Surr: 4-Terphenyl-d14      2.53      3.333      75.8      33      152

Sample ID: <b>lcsd-d40932</b>	SampType: <b>lcsd</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504342</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)      92.7      10.0      100.0      0      92.7      63.4      109      81.69      12.6      21.9

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40932

Sample ID: <b>lcsd-d40932</b>	SampType: <b>lcsd</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504344</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14	2.78		3.333		83.5	33	152		0	40	
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Sample ID: <b>lcsd-m40932</b>	SampType: <b>lcsd</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504344</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	91.4	20.0	100.0	0	91.4	63.9	120	82.82	9.82	20.7	
Surr: 4-Terphenyl-d14	2.89		3.333		86.8	33	152		0	40	

Sample ID: <b>lcs-m40932</b>	SampType: <b>lcs</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/13/2021</b>	RunNo: <b>102605</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40932</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>9/13/2021</b>	SeqNo: <b>2504344</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	82.8	20.0	100.0	0	82.8	63.9	120				
Surr: 4-Terphenyl-d14	2.81		3.333		84.3	33	152				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40947

Sample ID: <b>LCS-D40947</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102795</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2507796</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.02	0.135	1.779	0	114	70	130				N
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**NOTES:**

N: See case narrative for an explanation of results

Sample ID: <b>LCSD-D40947</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102795</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2507797</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.00	0.134	1.768	0	113	70	130	2.022	0.903	14.1	N
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**NOTES:**

N: See case narrative for an explanation of results

Sample ID: <b>MB-40947</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102795</b>						
Client ID: <b>PBW</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2507798</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	< 0.136	0.136									N
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**NOTES:**

N: See case narrative for an explanation of results

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40947

Sample ID: <b>LCSD-M40947</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b> Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102717</b>							
Client ID: <b>LCSS02</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505811</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	1.93	0.125	1.784	0	108	70	130	1.868	3.06	23.2	
Surr: 4-Terphenyl-d14	0.0866		0.05947		146	51.4	146		0	40	

Sample ID: <b>LCS-M40947</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b> Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102717</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505812</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	1.87	0.126	1.793	0	104	70	130				
Surr: 4-Terphenyl-d14	0.0840		0.05977		141	51.4	146				

Sample ID: <b>MB-40947</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b> Units: <b>mg/L</b>	Prep Date: <b>9/14/2021</b>	RunNo: <b>102717</b>							
Client ID: <b>PBW</b>	Batch ID: <b>40947</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>9/17/2021</b>	SeqNo: <b>2505813</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	< 0.125	0.125									
Surr: 4-Terphenyl-d14	0.0599		0.05965		100	51.4	146				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40959

Sample ID: <b>MB-40959</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>PBW</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505079</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.0100	0.0100									
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Manganese	< 0.0100	0.0100									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-40959</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505080</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.517	0.0100	0.5000	0	103	80	120				
Barium	0.505	0.0100	0.5000	0	101	80	120				
Cadmium	0.502	0.00500	0.5000	0	100	80	120				
Chromium	0.502	0.0100	0.5000	0	100	80	120				
Iron	0.505	0.0100	0.5000	0	101	80	120				
Lead	0.497	0.0100	0.5000	0	99.4	80	120				
Manganese	0.506	0.0100	0.5000	0	101	80	120				
Sodium	49.5	10.0	50.00	0	99.0	80	120				
Strontium	0.502	0.0100	0.5000	0	100	80	120				
Zinc	0.494	0.0100	0.5000	0	98.8	80	120				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				





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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40959

Sample ID: <b>LCS-40959</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505080</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>LCSD-40959</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505081</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.522	0.0100	0.5000	0	104	80	120	0.5165	1.03	20	
Barium	0.509	0.0100	0.5000	0	102	80	120	0.5054	0.694	20	
Cadmium	0.508	0.00500	0.5000	0	102	80	120	0.5024	1.18	20	
Chromium	0.506	0.0100	0.5000	0	101	80	120	0.5020	0.734	20	
Iron	0.509	0.0100	0.5000	0	102	80	120	0.5050	0.812	20	
Lead	0.501	0.0100	0.5000	0	100	80	120	0.4972	0.823	20	
Manganese	0.505	0.0100	0.5000	0	101	80	120	0.5062	0.162	20	
Sodium	49.4	10.0	50.00	0	98.7	80	120	49.52	0.310	20	
Strontium	0.506	0.0100	0.5000	0	101	80	120	0.5024	0.787	20	
Zinc	0.498	0.0100	0.5000	0	99.6	80	120	0.4942	0.792	20	

Sample ID: <b>21090354-020BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>MW-03</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505089</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.515	0.0100	0.5000	0	103	75	125				
Barium	0.681	0.0100	0.5000	0.1782	101	75	125				
Cadmium	0.502	0.00500	0.5000	0.001160	100	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental  
**Project:** Drew Estates '15' 11397

**BatchID:** 40959

Sample ID: <b>21090354-020BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>MW-03</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505089</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.527	0.0100	0.5000	0.02486	100	75	125				
Iron	13.7	0.0100	0.5000	11.52	432	75	125				S
Lead	0.498	0.0100	0.5000	0.007870	98.0	75	125				
Manganese	1.28	0.0100	0.5000	0.7620	104	75	125				
Sodium	101	10.0	50.00	50.20	102	75	125				
Strontium	0.843	0.0100	0.5000	0.3294	103	75	125				
Zinc	0.524	0.0100	0.5000	0.02394	100	75	125				

Sample ID: <b>21090354-020BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>9/16/2021</b>	RunNo: <b>102669</b>						
Client ID: <b>MW-03</b>	Batch ID: <b>40959</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>9/16/2021</b>	SeqNo: <b>2505090</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.528	0.0100	0.5000	0	106	75	125	0.5149	2.54	20	
Barium	0.687	0.0100	0.5000	0.1782	102	75	125	0.6814	0.874	20	
Cadmium	0.506	0.00500	0.5000	0.001160	101	75	125	0.5024	0.704	20	
Chromium	0.528	0.0100	0.5000	0.02486	101	75	125	0.5270	0.159	20	
Iron	13.9	0.0100	0.5000	11.52	477	75	125	13.68	1.64	20	S
Lead	0.497	0.0100	0.5000	0.007870	97.8	75	125	0.4979	0.189	20	
Manganese	1.29	0.0100	0.5000	0.7620	106	75	125	1.280	0.990	20	
Sodium	102	10.0	50.00	50.20	105	75	125	101.1	1.35	20	
Strontium	0.847	0.0100	0.5000	0.3294	104	75	125	0.8427	0.550	20	
Zinc	0.527	0.0100	0.5000	0.02394	101	75	125	0.5242	0.567	20	

**NOTES:**

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 40988

Sample ID: <b>21090415-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>9/20/2021</b>	RunNo: <b>102832</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>40988</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2509194</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	1.67	0.10						1.78	6.38	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceede
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 41002

Sample ID: <b>MB-41002</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/20/2021</b>	RunNo: <b>102819</b>						
Client ID: <b>PBS</b>	Batch ID: <b>41002</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/22/2021</b>	SeqNo: <b>2509373</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic < 1.00 1.00

Sample ID: <b>LCS-41002</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/20/2021</b>	RunNo: <b>102819</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>41002</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/22/2021</b>	SeqNo: <b>2509376</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 23.2 1.00 25.00 0 92.7 80 120

Sample ID: <b>LCSD-41002</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/20/2021</b>	RunNo: <b>102819</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>41002</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/22/2021</b>	SeqNo: <b>2509377</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 23.9 1.00 25.00 0 95.7 80 120 23.19 3.14 20

Sample ID: <b>21090354-016AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/20/2021</b>	RunNo: <b>102819</b>						
Client ID: <b>B-29R (10-12.5)</b>	Batch ID: <b>41002</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/22/2021</b>	SeqNo: <b>2509379</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 29.2 1.03 25.75 8.555 80.4 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 41002

Sample ID: <b>21090354-016AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>9/20/2021</b>	RunNo: <b>102819</b>						
Client ID: <b>B-29R (10-12.5)</b>	Batch ID: <b>41002</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>9/22/2021</b>	SeqNo: <b>2509380</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	29.2	1.04	26.05	8.555	79.4	75	125	29.25	0.0652	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 41012

Sample ID: <b>21090282-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>9/21/2021</b>	RunNo: <b>102774</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>41012</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2507404</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.12	0.10						2.15	1.26	20	
Soluble Calcium	2.15	0.02						2.13	0.70	20	
Soluble Magnesium	1.00	0.05						0.99	0.96	20	
Soluble Sodium	2.66	0.25						2.68	0.87	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental  
**Project:** Drew Estates '15' 11397

**BatchID:** 41017

Sample ID: <b>MB-41017</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102828</b>
Client ID: <b>PBW</b>	Batch ID: <b>41017</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>9/23/2021</b>	SeqNo: <b>2508802</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury < 0.000200 0.000200

Sample ID: <b>LCS-41017</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102828</b>
Client ID: <b>LCSW</b>	Batch ID: <b>41017</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>9/23/2021</b>	SeqNo: <b>2508803</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.0113 0.000200 0.01000 0 113 80 120

Sample ID: <b>LCSD-41017</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102828</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>41017</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>9/23/2021</b>	SeqNo: <b>2508804</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.0114 0.000200 0.01000 0 114 80 120 0.01134 0.219 20

Sample ID: <b>21090548-006BMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102828</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>41017</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>9/23/2021</b>	SeqNo: <b>2508818</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.0110 0.000200 0.01000 0 110 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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

# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** 41017

Sample ID: <b>21090548-006BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>9/22/2021</b>	RunNo: <b>102828</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>41017</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>9/23/2021</b>	SeqNo: <b>2508819</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0110	0.000200	0.01000	0	110	75	125	0.01097	0.392	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				





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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102623

Sample ID: <b>MB-R102623</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504936</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) < 20.0 20.0

Sample ID: <b>LCS-R102623</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504937</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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

Sample ID: <b>LCSD-R102623</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504938</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 1,000 20.0 1,000 0 100 85 115 1,001 0.200 10

Sample ID: <b>21090354-020ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>MW-03</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504948</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 375 20.0 369.0 1.61 10

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102623

Sample ID: <b>21090354-020ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>MW-03</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504948</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>21090354-017ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102623</b>						
Client ID: <b>MW-02</b>	Batch ID: <b>R102623</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504949</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	772	20.0						771.0	0.130	10	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102643

Sample ID: <b>BTEXLCS</b>		SampType: <b>LCS</b>		TestCode: <b>8021_BTEX_</b>		Units: <b>mg/L</b>		Prep Date:		RunNo: <b>102643</b>	
Client ID: <b>LCSW</b>		Batch ID: <b>R102643</b>		TestNo: <b>SW8021B</b>		Analysis Date: <b>9/15/2021</b>		SeqNo: <b>2504735</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0497	0.00500	0.05000	0	99.4	72	120				
Ethylbenzene	0.0467	0.00500	0.05000	0	93.4	76	129				
m,p-Xylene	0.0942	0.0100	0.1000	0	94.2	75	125				
o-Xylene	0.0473	0.00500	0.05000	0	94.6	75	125				
Toluene	0.0480	0.0100	0.05000	0	96.0	78	120				
Xylenes, Total	0.142	0.0500	0.1500	0	94.3	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0434		0.05000		86.8	70	130				

Sample ID: <b>BTEXLCSD</b>		SampType: <b>LCSD</b>		TestCode: <b>8021_BTEX_</b>		Units: <b>mg/L</b>		Prep Date:		RunNo: <b>102643</b>	
Client ID: <b>LCSS02</b>		Batch ID: <b>R102643</b>		TestNo: <b>SW8021B</b>		Analysis Date: <b>9/15/2021</b>		SeqNo: <b>2504736</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0478	0.00500	0.05000	0	95.6	72	120	0.04970	3.90	20	
Ethylbenzene	0.0452	0.00500	0.05000	0	90.4	76	129	0.04670	3.26	20	
m,p-Xylene	0.0907	0.0100	0.1000	0	90.7	75	125	0.09420	3.79	20	
o-Xylene	0.0459	0.00500	0.05000	0	91.8	75	125	0.04730	3.00	20	
Toluene	0.0465	0.0100	0.05000	0	93.0	78	120	0.04800	3.17	20	
Xylenes, Total	0.137	0.0500	0.1500	0	91.1	75	125	0.1415	3.52	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0441		0.05000		88.2	70	130		0	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102643

Sample ID: <b>BTEXMBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102643</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R102643</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504737</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0446		0.05000		89.2	70	130				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102647

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504514</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504515</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	10.9	0.250	10.00	0	109	80	120				
Sulfate	11.0	0.250	10.00	0	110	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504516</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	10.9	0.250	10.00	0	109	80	120	10.90	0.000772	15	
Sulfate	11.0	0.250	10.00	0	110	80	120	10.97	0.0253	15	

Sample ID: <b>21090354-019AMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>MW-04</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504522</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	531	12.5	250.0	242.5	116	80	120				
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102647

Sample ID: <b>21090354-019AMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>MW-04</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504522</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	370	12.5	250.0	105.7	106	80	120				
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Sample ID: <b>21090354-019AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>102647</b>						
Client ID: <b>MW-04</b>	Batch ID: <b>R102647</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>9/15/2021</b>	SeqNo: <b>2504523</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	541	12.5	250.0	242.5	119	80	120	531.4	1.75	15	
Sulfate	375	12.5	250.0	105.7	108	80	120	369.7	1.50	15	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102758

Sample ID: <b>MB-R102758</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102758</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R102758</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506897</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>LCS1-R102758</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102758</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102758</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506898</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity

0.46 0.10 0.46 0 100 90 110

Sample ID: <b>LCS2-R102758</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102758</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102758</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506899</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity

54.2 0.10 53.00 0 102 90 110

Sample ID: <b>21090415-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>102758</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R102758</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2506913</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity

0.57 0.10 0.57 0.88 20

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
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# QC SUMMARY REPORT

WO#: 21090354  
 30-Sep-21

**Client:** Southland Environmental

**Project:** Drew Estates '15' 11397

**BatchID:** R102760

Sample ID: <b>MB-R102760</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>102760</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R102760</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2507091</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	< 10.0	10.0									
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0									
Alkalinity, Phenolphthalein	< 10.0	10.0									
Alkalinity, Total (As CaCO3)	< 10.0	10.0									

Sample ID: <b>21090354-017ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>102760</b>						
Client ID: <b>MW-02</b>	Batch ID: <b>R102760</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2507094</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	202	10.0						205.0	1.23	20	

Sample ID: <b>LCS-R102760</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>102760</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R102760</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>9/21/2021</b>	SeqNo: <b>2514617</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	48.0	10.0	50.00	0	96.0	90	110				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		





# Sample Log-In Check List

Client Name: SOUTHLAND\_ENV

Work Order Number: 21090354

RcptNo: 1

Logged by:	Alicia Boudreaux	9/13/2021 1:28:00 PM	<i>Alicia Boudreaux</i>
Completed By:	Alicia Boudreaux	9/13/2021 4:00:20 PM	<i>Alicia Boudreaux</i>
Reviewed By:	Caitlin Duplantis	9/20/2021 10:29:03 AM	<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   
 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" value="Duane Piranio"/>	Date:	<input type="text" value="9/14/2021"/>
By Whom:	<input type="text" value="Cristina Thibeaux"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="PAH vials received, but test is not requested on the COC."/>		
Client Instructions:	<input type="text" value="extract and hold for potential analysis. Correct metals: remove Ag.; Add As and Na"/>		

18. Additional remarks:  
 Two 1LPU bottles labeled as MW-03, but times are unique and correspond to MW-03 and MW-02. The lab labeled the containers based on the collection time recorded on the bottles as they correspond to the COCs.

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good	Not Present			



# Chain of Custody

Laboratory Number: **21090354**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b> Southland Env. Dvane Pirano 510 Clarence St. Lake Charles LA 70601 337-436-3248 Ext:	<b>Billing Information:</b> Same	PO Number: Quote Number: Required QC Level: Bill Monthly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Name/Number: DREW ESTATE '15' 11397 Sampler's Signature:	Page 1 of 1 <b>Matrix Code</b> 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
	<b>Shipping Method:</b> UPS / FedEx / NOW DHL / <u>Element</u> / Hand / Mail				

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests										Comments				
					Quantity	Type	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>												
<input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard 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.)	Date: 9/08/21 Time: 9:40 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*													* EC, SAR, ESP
		Date: 9/08/21 Time: 9:42 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 9:44 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 11:40 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 11:55 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 14:45 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 15:00 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 16:45 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														
		Date: 9/10/21 Time: 16:52 Grab / Composite: G Matrix: So	Quantity: 1 Type: G	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> : -	ZAB Salts*														

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		9/10/21 12:20		9/10/21 12:20	
2		9/13/21 1115		9/13/21 1115	Received at lab on ice?
3		9/13/21 1328	Alicia Boudreau	9/13/21 1328	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 3.6c

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.







element™

# Chain of Custody

Laboratory Number: 21090354

Company Name:  
Contact Name:  
Address:  
City, State Zip:  
Phone Number:  
Fax Number:  
E-mail Address:

**Client Information:**  
Southland Env.  
Duane P. Smith  
510 Clarence St.  
Lake Charles, LA 70601  
337.436.3248 Ext:  
Ext:

**Billing Information:**  
Special

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

Project Name/Number:  
DREW ESTATE '15'  
11397  
Sampler's Signature:  
Required QC Level:  
Shipping Method:  
UPS / FedEx / NOW  
DHL / Element / Hand / Mail

Page 4 of 4  
**Matrix Code**  
DW = Drinking Water  
WW = Waste Water  
GW = Ground Water  
AQ = Aqueous  
OT = Other  
SL = Sludge SOL = Solid  
O = Oil SO = Soil  
F = Food SW = Swab  
NG = Natural Gas  
NGL = Natural Gas Liquid  
PW = Produced Water  
CF = Completion Fluid

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <input checked="" 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		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		
			Quantity	Type P=Plastic, G=Glass, V=Vial		TDS/AIR/CI/Substrate	Total Metals	BOZ1 BTEX	TPH DO	Prep & Hold Parameters	(9/20/21 CD)			
Sample ID/Description	Collection Information			Matrix	Quantity	Type	Pres.	TDS/AIR/CI/Substrate	Total Metals	BOZ1 BTEX	TPH DO	Prep & Hold Parameters	(9/20/21 CD)	Comments
Date	Time	Grab / Composite												
MW-04	9/09/21	14:45		GW	1	P	-	✓	✓					* Ag, Ba, Cd, Cr, Fe, Pb, Mn, Hg, Sr, & Zn As and Na CCT 9/14/21
MW-04					1	P	HNO <sub>3</sub>	✓						
MW-04					2	V	-		✓					
MW-04					4	V	-				✓			
MW-03		16:00		GW	1	P	-	✓						
MW-03					1	P	HNO <sub>3</sub>	✓						
MW-03					2	V	-		✓					
MW-03					4	V	-				✓			

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>[Signature]</i>	9/10/21 12:20	<i>[Signature]</i>	9/10/21 12:20	
2	<i>[Signature]</i>	9/13/21 1115	<i>[Signature]</i>	9/13/21 1115	Received at lab on ice?
3	<i>[Signature]</i>	9/13/21 1328	Alicia Boudreau	9/13/21 1328	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 3.6

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8800 North US 31  
Columbus, IN  
47201 USA  
P 812-375-0531  
F 812-375-0731

328 Ley Road, Suite 100  
Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-210-0354  
F 574-269-6569

3371 Cleveland Road, Suite 100A  
South Bend, IN  
46628 USA  
P 574-277-0707  
F 574-273-6599

2417 W. Pinhook Rd  
Lafayette, LA  
70508 USA  
P 337-233-6550  
F 337-233-6540

36 6510