



December 13, 2016

#5B25501-BG4

NMOCD District I  
Kristen Lynch  
1625 N. French Dr.  
Hobbs, NM 88240

SUBJECT: WORK PLAN FOR INCIDENT, Barr None Federal #1  
UNIT E SECTION 10-T22S-R32E NMPM, API# 30-025-32221, LEA COUNTY, NEW MEXICO

Dear Ms. Lynch:

On behalf Judah Oil, LLC, Souder Miller & Associates (SMA) is pleased to submit a work plan summarizing the planned soil remediation for the release site located at the Barr None Federal #1 in Lea County, New Mexico. The purpose of the work plan is to obtain approval from the New Mexico Oil Conservation Division (NMOCD) for the remediation of the release that occurred on Bureau of Land Management land.

SMA responded on December 3, 2016 at the request of Judah Oil, to assess and delineate the release of production fluids associated with the Barr None Federal #1 well location. The release was initially reported to NMOCD by Judah Oil. The table below summarizes information regarding the release. Results of the assessment and delineation are described in the following Soil Remediation Workplan.

Table 1: Release information and Site Ranking					
Name	Barr None Federal #1				
Location	Incident Number	API Number	Section, Township, Range		
	TBD	30-025-32221	SW/NE (Unit E)	Section 10	T22S, R32E NMPM
Estimated Date of Release	TBD				
Date Reported to NMOCD	TBD				
Reported by	TBD				
Land Owner	Bureau of Land Management				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	TBD				
Released Material	TBD				
Released Volume	TBD bbls Produced Water				
Recovered Volume	TBD bbls Produced Water				

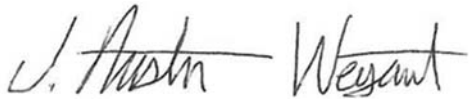


Net Release	TBD bbls Produced Water
Nearest Waterway	11.5 miles west of the location
Depth to Groundwater	Estimated to be 350 feet
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	0
SMA Response Dates	12/3/16, 12/12/16
Subcontractors	TBD
Disposal Facility	TBD
Estimated Yd3 Contaminated Soil Excavated and Disposed	TBD

Attached is a copy of the C-141 initial located in Appendix B. For questions or comments pertaining to the release or the attached work plan please feel free to contact either of us.

Submitted by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant  
Project Scientist

Reviewed by:



Shawna Chubbuck  
Senior Scientist

# SOIL REMEDIATION WORK PLAN FOR INCIDENT 1RP-TBD

JUDAH OIL, LLC

BARR NONE FEDERAL #1  
UL E, SECTION 10, T22S R32E, NMPM  
API #30-025-32221  
LEA COUNTY, NM



Prepared for:  
Judah Oil, LLC  
611 West Mahone Drive # D  
Artesia, NM 88210  
Phone: (575) 746-1280

Prepared by:  
Souder, Miller & Associates  
201 S. Halagueno  
Carlsbad, NM 88221  
575-689-7040

December 13, 2016  
SMA Reference  
5B25501-BG4

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Table 3: Summary of Laboratory Analyses

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## **1.0 Introduction**

On behalf of Judah Oil, LLC, Souder, Miller & Associates (SMA) has prepared this report that describes the assessment, initial delineation and proposed remediation for a release associated with the Barr None Federal #1 location API# 30-025-32221. The site is located in Section 10, Township 22S, Range 32E NMPM, Lea County, New Mexico, on Bureau of Land Management property. Figure 1 illustrates the vicinity and location of the site.

## **2.0 Site Ranking and Land Jurisdiction**

The release site is located approximately 11.5 miles east of Pecos River, with an elevation of approximately 3,805 feet above sea level. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be 350 feet below ground surface (bgs).

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. Zero wells are located within a one-mile radius of the site. Figure 1 depicts the site vicinity and Figure 2 shows the site itself. The physical location of this release is within the jurisdiction of NMOCD.

Based on the NMOCD Guidelines Ranking Criteria, this release location has been assigned a NMOCD ranking of 0 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 5000 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates site ranking rationale.

## **3.0 Assessment and Initial Results**

On November 9, 2016 after receiving 811 clearance, SMA field personnel assessed the release area with soil samples collected using a gas powered auger. Samples were screened for hydrocarbons using a calibrated Photo Ionization Detector (PID), and for chlorides using a mobile chlorides titration kit (EPA method 9045D) meter. Field screening results are included in Table 2. The potentially affected area was determined to be approximately 140 feet long and 20 feet wide. The site delineation samples were taken to depths of 1.5 feet bgs. In the north area of the spill over the old pit a plastic liner was found at 8 inches bgs. Samples indicate the impacted soil does not appear to extend past one foot bgs. Specific sample locations for all samples are depicted on Figure 2 (Sample Location Map). All samples were collected and processed according to NMOCD soil sampling procedures. The samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analyses of BTEX (EPA Method 8021B), TPH (EPA Method 8015) and/or total chlorides (EPA Method 300.0).

Soil contaminant concentrations found during the initial delineation are included in Table 3. Laboratory reports are included in Appendix A. Photo documentation is available by request.

## **4.0 Soil Remediation Work Plan**

Judah and its subcontractors will begin the excavation of affected soils, with approval from area utilities owners via 811 and NMOCD. SMA will continuously guide the excavation activities by collecting composite soil samples for field screening with a mobile titration unit (NRCS1:1) and a calibrated PID. Excavation will occur to depths to sufficient to delineate the plume by NMOCD

standards, which is estimated to be 1 feet bgs. Excavation on the pad will be done to remove all the affected soils. Excavation in the north area over the old drill pit no more than 6" bgs will be excavated to protect the underlying liner for the pit. Closure samples will be collected at the final depth of excavation and sidewalls. Approximately 110 cubic yards of contaminated soil are projected to be removed and replaced with clean backfill material sufficient to return the contours to surface gradient. The contaminated soil will be transported for proper disposal at an NMOCD permitted facility.

After this soil remediation work plan is approved by NMOCD, SMA will begin soil remediation activities on site.

## **5.0 Limitations**

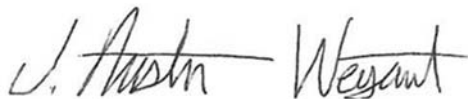
The scope of our services consisted of the performance of initial spill assessment sampling, verification of release stabilization, regulatory liaison, and preparation of this work plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-7040 or Cindy Gray at 505-325-7535.

Submitted by:

Reviewed by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant  
Project Scientist



Shawna Chubbuck  
Senior Scientist

**Figures:**

Figure 1: Vicinity Map

Figure 2: Detailed Site and Sample Map

**Tables:**

Table 1: Release Information and Site Ranking

Table 2: Summary of Chloride Field Screening Results

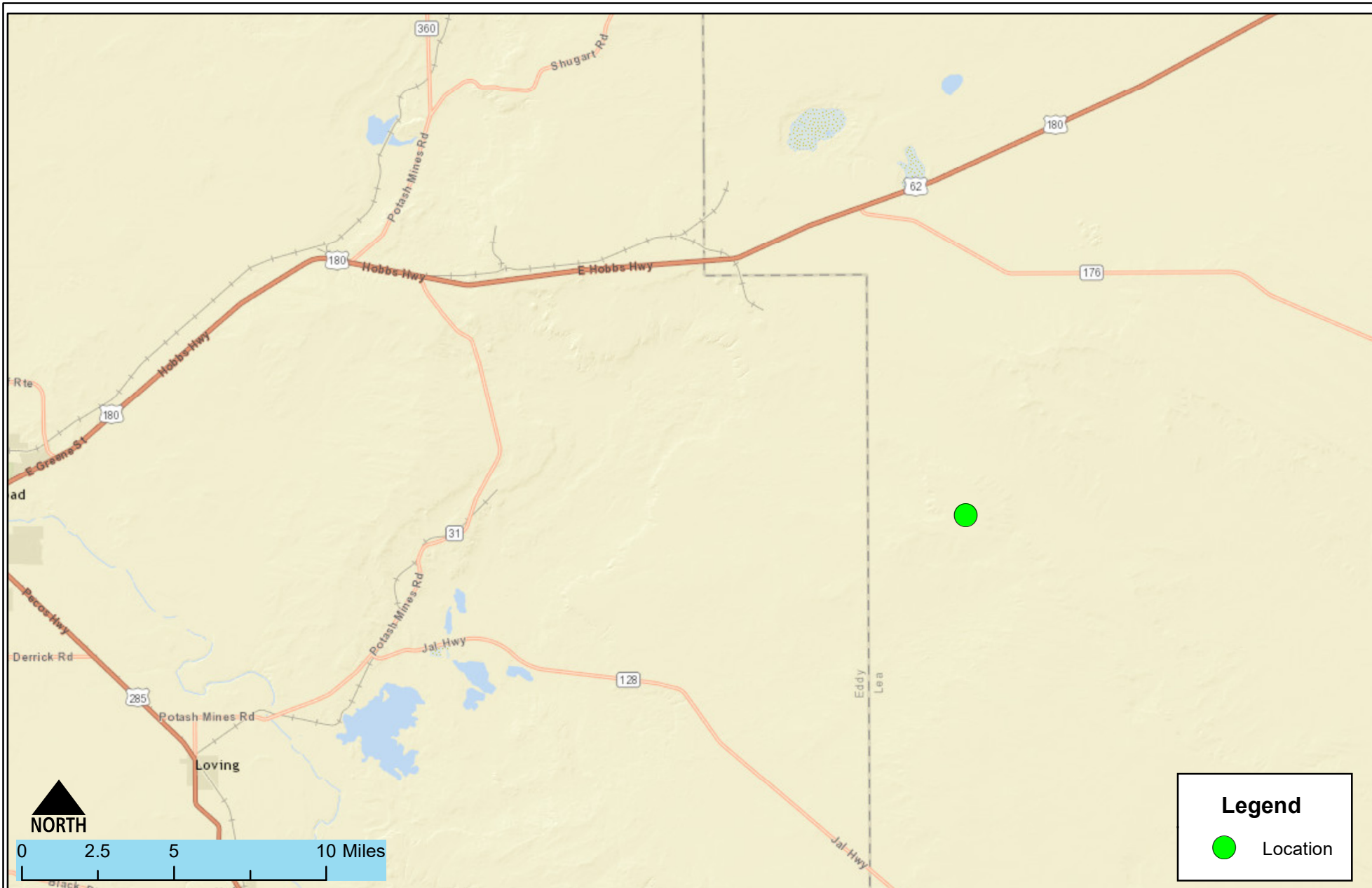
Table 3: Summary of Laboratory Analyses

**Appendices:**

Appendix A: Laboratory Analytical Reports

Appendix B: Form C141 Final

# FIGURE 1 VICINITY MAP



Vicinity Map  
Barr None Federal #1- Judah Oil  
Loving, New Mexico

Figure 1

Date Saved:  
1/9/2017

By: _____	Date: _____	Revisions	Descr: _____
By: _____	Date: _____		Descr: _____

Copyright 2015 Souder, Miller & Associates - All Rights Reserved

Drawn	<u>Lucas Middleton</u>
Checked	_____
Approved	_____



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# FIGURE 2

## DETAILED SITE AND SAMPLE MAP



Detailed Site and Sample Map  
Barr None Federal #1- Judah Oil  
Loving, New Mexico

Figure 2

Date Saved: 1/9/2017	By: _____	Date: _____	Revisions	Descr: _____
	By: _____	Date: _____		Descr: _____
Copyright 2015 Souder, Miller & Associates - All Rights Reserved				

Drawn Lucas Middleton  
Checked \_\_\_\_\_  
Approved \_\_\_\_\_



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# TABLE 1

## RELEASE INFORMATION AND SITE RANKING

Table 1: Release information and Site Ranking					
Name	Barr None Federal #1				
Company	Judah Oil, LLC				
Location	Incident Number	API Number	Section, Township, Range		
	1RP-TBD	30-025-32221	SW/NE (Unit E)	Section 10	T22S, R32E NMPM
Estimated Date of Release	TBD				
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Reported by	TBD				
Land Owner	Bureau of Land Management				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	TBD				
Released Material	TBD				
Released Volume	TBD bbls Produced Water				
Recovered Volume	TBD bbls Produced Water				
Net Release	TBD bbls Produced Water				
Nearest Waterway	11.5 miles west of the location				
Depth to Groundwater	Estimated to be 350 feet				
Nearest Domestic Water Source	Greater than 1,000 feet				
NMOCD Ranking	0				
SMA Response Dates	12/3/16, 12/12/16				
Subcontractors	TBD				
Disposal Facility	TBD				
Estimated Yd3 Contaminated Soil Excavated and Disposed	TBD				

## TABLE 2

# SUMMARY OF CHLORIDE FIELD SCREENING RESULTS

Table 2: Summary of Chloride Field Screening Results

BARR NONE FEDERAL #1

Sample Event

8/24/16

FIELD SCREENING RESULTS SUMMARY					
Date	Time	Field Screening Reference	Sample Depth (Feet BGS)	Chlorides Results	Lab Sample Collected Y/N
12/3/2016	9:00	L1	1.5'	256	Y
12/3/2016	9:00	L2	1.5'	>200	Y
12/3/2016	9:00	L3	1.5'	632	Y
12/3/2016	9:00	L4	1.5'	667	Y
12/3/2016	9:00	L5	1.5'	575	Y
12/3/2016	9:00	L6	1.5'	530	Y
12/3/2016	9:00	L7	1.5'	2,870	Y



# TABLE 3

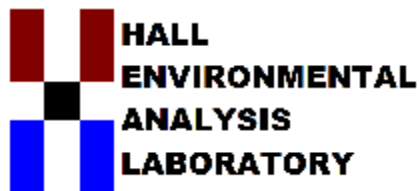
## SUMMARY OF LABORATORY ANALYSES

**Table 3: Summary of Laboratory Analyses**

Analytical Report- 1612A79	Sample Number on Figure 1 Map	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1612B63-001	L1	12/13/2016	Surface	N/A	N/A	N/A	N/A	170
1612B63-002	L2	12/13/2016	Surface	N/A	N/A	N/A	N/A	210
1612B63-003	L3	12/13/2016	Surface	NA	N/A	N/A	N/A	290
1612B63-004	L5	12/13/2016	Surface	N/A	N/A	N/A	N/A	72
1612B63-005	L7	12/13/2016	Surface	N/A	N/A	N/A	N/A	4,500
1612B63-006	D2-3	12/13/2016	3 Feet	<0.055	<0.024	<4.9	<9.2	420
1612B63-007	D2-2	12/13/2016	2 Feet	N/A	N/A	N/A	N/A	230
1612B63-008	L4	12/13/2016	Surface	N/A	N/A	N/A	N/A	35
1612B63-009	L6	12/13/2016	Surface	N/A	N/A	N/A	N/A	600

# APPENDIX A

## LABORATORY ANALYTICAL REPORTS



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

January 06, 2017

Austin Weyant  
Souder, Miller & Associates  
201 S Halagueno  
Carlsbad, NM 88221  
TEL: (575) 689-7040  
FAX

RE: Barr None

OrderNo.: 1612B53

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 9 sample(s) on 12/20/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L1

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-001

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	170	30		mg/Kg	20	12/28/2016 4:11:45 PM	29432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L2

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-002

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	210	30		mg/Kg	20	12/28/2016 4:48:59 PM	29432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L3

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-003

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	290	30		mg/Kg	20	12/28/2016 5:01:23 PM	29432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L5

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-004

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	72	30		mg/Kg	20	12/28/2016 5:13:48 PM	29432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L7

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-005

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	4500	150		mg/Kg	100	1/3/2017 1:32:17 PM	29432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** D2-3

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-006

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	420	30		mg/Kg	20	12/28/2016 5:38:38 PM	29432
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/28/2016 1:01:51 PM	29384
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/28/2016 1:01:51 PM	29384
Surr: DNOP	93.8	70-130		%Rec	1	12/28/2016 1:01:51 PM	29384
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/27/2016 10:25:59 AM	29391
Surr: BFB	96.3	68.3-144		%Rec	1	12/27/2016 10:25:59 AM	29391
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	12/27/2016 10:25:59 AM	29391
Toluene	ND	0.049		mg/Kg	1	12/27/2016 10:25:59 AM	29391
Ethylbenzene	ND	0.049		mg/Kg	1	12/27/2016 10:25:59 AM	29391
Xylenes, Total	ND	0.098		mg/Kg	1	12/27/2016 10:25:59 AM	29391
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	1	12/27/2016 10:25:59 AM	29391

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** D2-2

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-007

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	230	30		mg/Kg	20	12/28/2016 9:35:05 PM	29448

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L4

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-008

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>LGT</b>	
Chloride	35	30		mg/Kg	20	12/28/2016 10:12:18 PM	29448

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612B53**

Date Reported: **1/6/2017**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** L6

**Project:** Barr None

**Collection Date:** 12/13/2016 10:00:00 AM

**Lab ID:** 1612B53-009

**Matrix:** SOIL

**Received Date:** 12/20/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>LGT</b>	
Chloride	600	30		mg/Kg	20	12/28/2016 10:24:42 PM	29448

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612B53

06-Jan-17

**Client:** Souder, Miller & Associates

**Project:** Barr None

Sample ID	MB-29448		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 29448		RunNo: 39709					
Prep Date:	12/28/2016		Analysis Date: 12/28/2016		SeqNo: 1244207		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-29448		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 29448		RunNo: 39709					
Prep Date:	12/28/2016		Analysis Date: 12/28/2016		SeqNo: 1244208		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Sample ID	MB-29432		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS		Batch ID:	29432		RunNo:	39711				
Prep Date:	12/28/2016		Analysis Date:	12/28/2016		SeqNo:	1244304		Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-29432			SampType:	LCS		TestCode:	EPA Method 300.0: Anions			
Client ID:	LCSS			Batch ID:	29432		RunNo:	39711			
Prep Date:	12/28/2016			Analysis Date:	12/28/2016		SeqNo:	1244305		Units:	mg/Kg
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	14	1.5	15.00	0	93.5	90	110				

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612B53

06-Jan-17

Client: Souder, Miller &amp; Associates

Project: Barr None

Sample ID	LCS-29384		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 29384		RunNo: 39672					
Prep Date:	12/23/2016		Analysis Date: 12/28/2016		SeqNo: 1243438		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.2	63.8	116			
Surr: DNOP	4.1		5.000		82.6	70	130			

Sample ID	MB-29384		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 29384		RunNo: 39672					
Prep Date:	12/23/2016		Analysis Date: 12/28/2016		SeqNo: 1243440		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		86.6	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612B53

06-Jan-17

Client: Souder, Miller &amp; Associates

Project: Barr None

Sample ID	MB-29391		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 29391		RunNo: 39665					
Prep Date:	12/23/2016		Analysis Date: 12/27/2016		SeqNo: 1242742		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		94.8	68.3	144			

Sample ID	LCS-29391		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 29391		RunNo: 39665					
Prep Date:	12/23/2016		Analysis Date: 12/27/2016		SeqNo: 1242743		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	74.6	123			
Surr: BFB	1000		1000		99.6	68.3	144			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612B53

06-Jan-17

Client: Souder, Miller &amp; Associates

Project: Barr None

Sample ID	<b>MB-29391</b>		SampType:	<b>MBLK</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>29391</b>		RunNo:	<b>39665</b>			
Prep Date:	<b>12/23/2016</b>		Analysis Date:	<b>12/27/2016</b>		SeqNo:	<b>1242788</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Sample ID	<b>LCS-29391</b>		SampType:	<b>LCS</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>29391</b>		RunNo:	<b>39665</b>			
Prep Date:	<b>12/23/2016</b>		Analysis Date:	<b>12/27/2016</b>		SeqNo:	<b>1242789</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	75.2	115			
Toluene	0.96	0.050	1.000	0	96.4	80.7	112			
Ethylbenzene	0.94	0.050	1.000	0	93.6	78.9	117			
Xylenes, Total	2.8	0.10	3.000	0	94.4	79.2	115			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID	<b>1612B53-006AMS</b>		SampType:	<b>MS</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>D2-3</b>		Batch ID:	<b>29391</b>		RunNo:	<b>39665</b>			
Prep Date:	<b>12/23/2016</b>		Analysis Date:	<b>12/27/2016</b>		SeqNo:	<b>1242792</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.023	0.9183	0	104	61.5	138			
Toluene	0.88	0.046	0.9183	0	96.2	71.4	127			
Ethylbenzene	0.85	0.046	0.9183	0	92.0	70.9	132			
Xylenes, Total	2.5	0.092	2.755	0	92.1	76.2	123			
Surr: 4-Bromofluorobenzene	1.1		0.9183		115	80	120			

Sample ID	<b>1612B53-006AMSD</b>		SampType:	<b>MSD</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>D2-3</b>		Batch ID:	<b>29391</b>		RunNo:	<b>39665</b>			
Prep Date:	<b>12/23/2016</b>		Analysis Date:	<b>12/27/2016</b>		SeqNo:	<b>1242793</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.023	0.9217	0	91.8	61.5	138	11.7	20	
Toluene	0.84	0.046	0.9217	0	90.8	71.4	127	5.43	20	
Ethylbenzene	0.83	0.046	0.9217	0	90.2	70.9	132	1.64	20	
Xylenes, Total	2.5	0.092	2.765	0	91.0	76.2	123	0.851	20	
Surr: 4-Bromofluorobenzene	1.1		0.9217		116	80	120	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 1612B53

RcptNo: 1

Received by/date: AJ 12/20/16

Logged By: Lindsey Concha 12/20/2016 9:40:00 AM

Completed By: Lindsey Concha 12/21/16

Reviewed By: AJ 12/22/16

### Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

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

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

Turn-Around Time:

☒ Standard      ☐ Rush

Project Name:

Project #:

Project Manager:

Sampler: 1-10X

On Ice: ☒ Yes ☐ No

Sample Temperature: 110°C

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Container	Preservative	HEAL No.
-----------	--------------	----------

☐ EDD (Type)

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTB	BTEX + MTB	TPH Method	TPH (Method)	EDB (Method)	8310 (PNA)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> )	8081 Pesticides	8260B (VOA)	8270 (Semi-VOCs)	Air Bubbles
12-13-16	17:00	Soil	L1	402		1612B53									X			
			L2			-001									X			
			L3			-002									X			
			L5			-003									X			
			L7			-004									X			
			D2-3			-005									X			
			D2-2			-006	X		X						X			
			L4			-007									X			
			L6			-008									X			
						-009									X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
			<i>and [Signature]</i>	12/20/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly noted on the analytical report.

# APPENDIX B

## FORM C141 INITIAL