



Souder, Miller & Associates ♦ 201 S. Halagueno St. ♦ Carlsbad, NM 88220  
(575) 689-8801

November 28, 2018

#5E27499-BG13

NMOCD District 1  
Ms. Christina Hernandez  
1625 N. French Drive  
Hobbs, New Mexico 88240

SUBJECT: Remediation Closure Report for the Abe Unit #2 Release (1RP-5187), Lea County, New Mexico

Dear Ms. Hernandez:

On behalf of Marathon Oil Permian LLC (Marathon), Souder, Miller & Associates (SMA) has prepared this Remediation Closure Report that describes the remediation of a release of liquids related to oil and gas production activities at the Abe Unit #2 site. The site is in Unit H, Section 29, Township 21S, Range 33E, Lea County, New Mexico, on state land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1 summarizes release information and closure criteria.

Table 1: Release Information and Closure Criteria			
Name	Abe Unit #2	Company	Marathon Oil Permian LLC
API Number	30-025-34146	Location	32.448363° -103.575446°
Incident Number	1RP-5187		
Estimated Date of Release	September 2, 2018	Date Reported to NMOCD	September 2, 2018
Land Owner	State	Reported To	NMOCD District 1
Source of Release	Water Transfer Line		
Released Volume	200 bbls	Released Material	Produced Water
Recovered Volume	1 bbl	Net Release	199 bbls
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	September 5 and 12, 2018		

## **1.0 Background**

On September 2, 2018, a release was discovered due to a rupture in a water transfer line associated with the Abe Unit #2. Initial response activities were conducted by Marathon, and included stopping the source of the release, securing the area to protect human health and the environment, and the utilization of a vac truck to recover standing liquids. Approximately one (1) foot of soil was scraped in the immediate area of the release. Figure 1 illustrates the vicinity and site location. The C-141 form is included in Appendix A.

## **2.0 Site Information and Closure Criteria**

The Abe Unit #2 release site is located approximately thirty-one (31) miles southwest of Hobbs, New Mexico on privately-owned land. As summarized in Table 2 and illustrated in Figure 1, depth to groundwater in the area is estimated to be 179 feet below grade surface (bgs). There are two (2) known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database ([https://gis.ose.state.nm.us/gisapps/ose\\_pod\\_locations/](https://gis.ose.state.nm.us/gisapps/ose_pod_locations/); accessed 9/13/2018). One of the USGS wells was not located at the mapped location, and the NMOSE well did not have depth of water data. Therefore, the USGS well located approximately 0.3 miles northwest of the location was used to determine depth to groundwater. The nearest surface water is an unnamed drainage feature located approximately 0.5 miles to the south.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of greater than 100 feet bgs. The site has been restored to meet the standards of Table I of 19.15.29.12 NMAC. Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

## **3.0 Release Characterization Activities and Findings**

On September 5, 2018, SMA personnel arrived on site in response to the release associated with Abe Unit #2. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter.

A total of twelve (12) sample locations (L1-L12) were investigated using excavated test pits, to depths up to 3.5 feet bgs. Discreet samples were collected at each sampling location and field-screened using the method above. A total of twenty-two (22) samples were collected for field screening, and sixteen (16) of those samples were submitted for laboratory analysis for total chloride using EPA Method 300.0; a subset of the samples were also analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Table 3 itemizes the samples and field-screening results. Locations for all samples are depicted on Figure 2.

Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Results indicated that an area approximately 460 feet long by up to 100 feet wide and anywhere from 1 to 3.5 feet deep had been impacted.

Abe Unit #2 Closure Report (1RP-5187)  
November 28, 2018

Page 3 of 4

## **4.0 Soil Remediation Summary**

SMA returned to the site to guide the excavation of contaminated soil. After approval from area utilities via 811, SMA guided the excavation activities by collecting soil samples for field screening. Samples were screened for chloride using an electrical conductivity (EC). The walls and base were excavated until field screening results indicated that the NMOCD closure criteria would be met. NMOCD was notified on September 10, 2018 that closure samples were expected to be collected in two (2) business days.

On September 12, 2018, SMA conducted confirmation sampling. Excavation depths are outlined in Figure 2 and in Table 3. The confirmation samples were collected from within the excavation in accordance with the sampling protocol included in Appendix C and included nine (9) composite samples from the bottom of the excavation, representing each area of differing depths (CS1-CS9) and twenty-two composite side wall samples (SW1-SW22).

Figure 2 shows the extent of the excavation and sample locations. All field screening and laboratory results are summarized in Table 3. Laboratory reports are included in Appendix D.

Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at R360 near Hobbs, NM, an NMOCD permitted disposal facility.

## **5.0 Scope and Limitations**

The scope of our services included: assessment sampling; verifying release stabilization; regulatory liaison; remediation; and preparing this closure report. 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 575-689-8801 or Shawna Chubbuck at 505-325-7535.

Submitted by:  
SOUDER, MILLER & ASSOCIATES

Reviewed by:



Heather Patterson  
Staff Scientist



Shawna Chubbuck  
Senior Scientist

Abe Unit #2 Closure Report (1RP-5187)  
November 28, 2018

Page 4 of 4

## **ATTACHMENTS:**

### **Figures:**

Figure 1: Vicinity and Well Head Protection Map

Figure 2: Site and Sample Location Map

### **Tables:**

Table 2: NMOCD Closure Criteria Justification

Table 3: Summary of Sample Results

### **Appendices:**

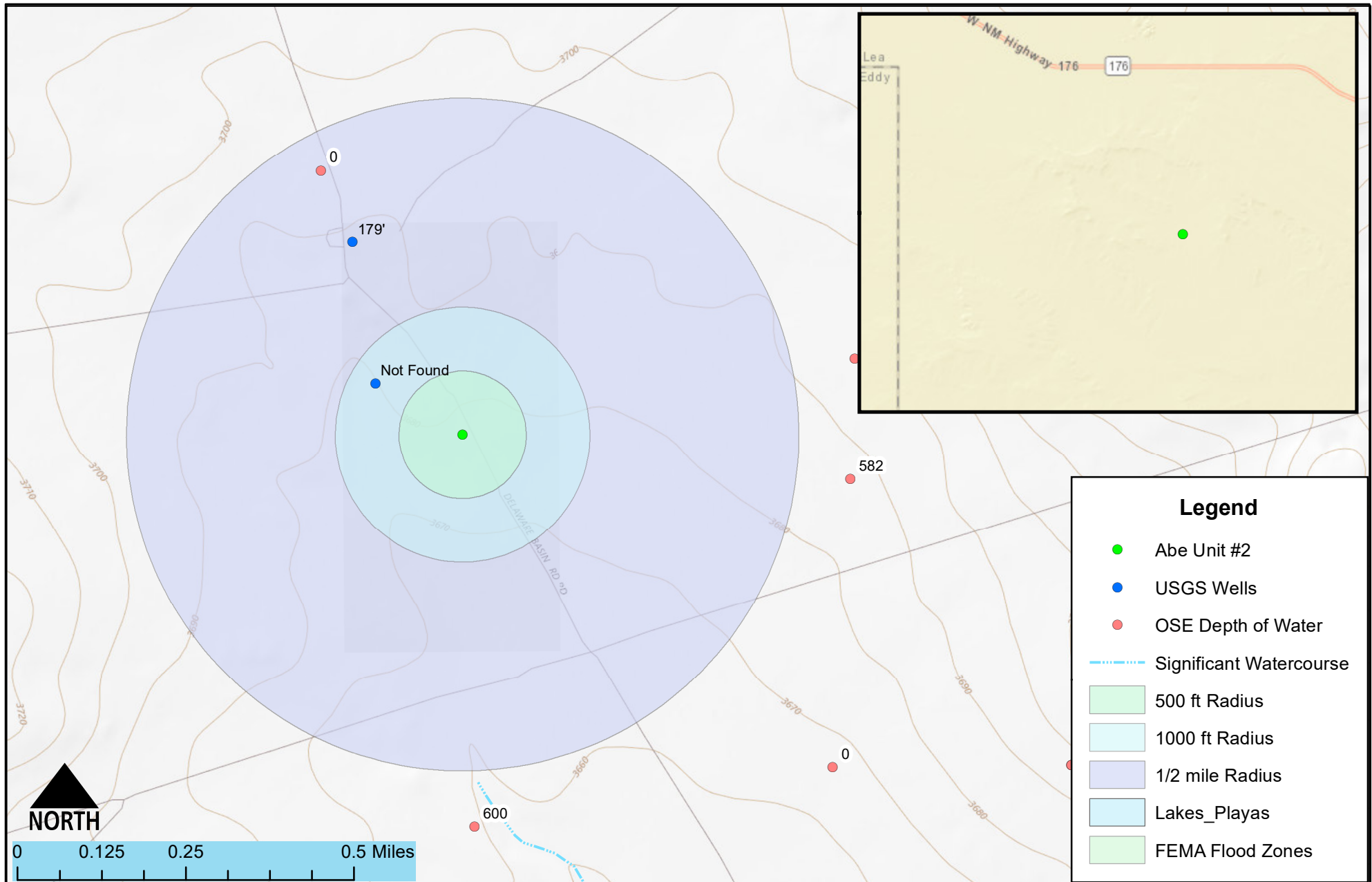
Appendix A: Form C141 Initial and Final

Appendix B: NMOSE Wells Report

Appendix C: Sampling Protocol, Field Notes and Photo Documentation

Appendix D: Laboratory Analytical Reports

# FIGURES



Vicinity and Well Head Protection Map

Abe Unit #2 - Marathon

S 28-T21S-R33E, New Mexico

Figure 1

Date Saved:  
10/10/2018

Revisions

By: \_\_\_\_\_ Date: \_\_\_\_\_ Descr: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_ Descr: \_\_\_\_\_

Copyright 2015 Souder, Miller & Associates - All Rights Reserved

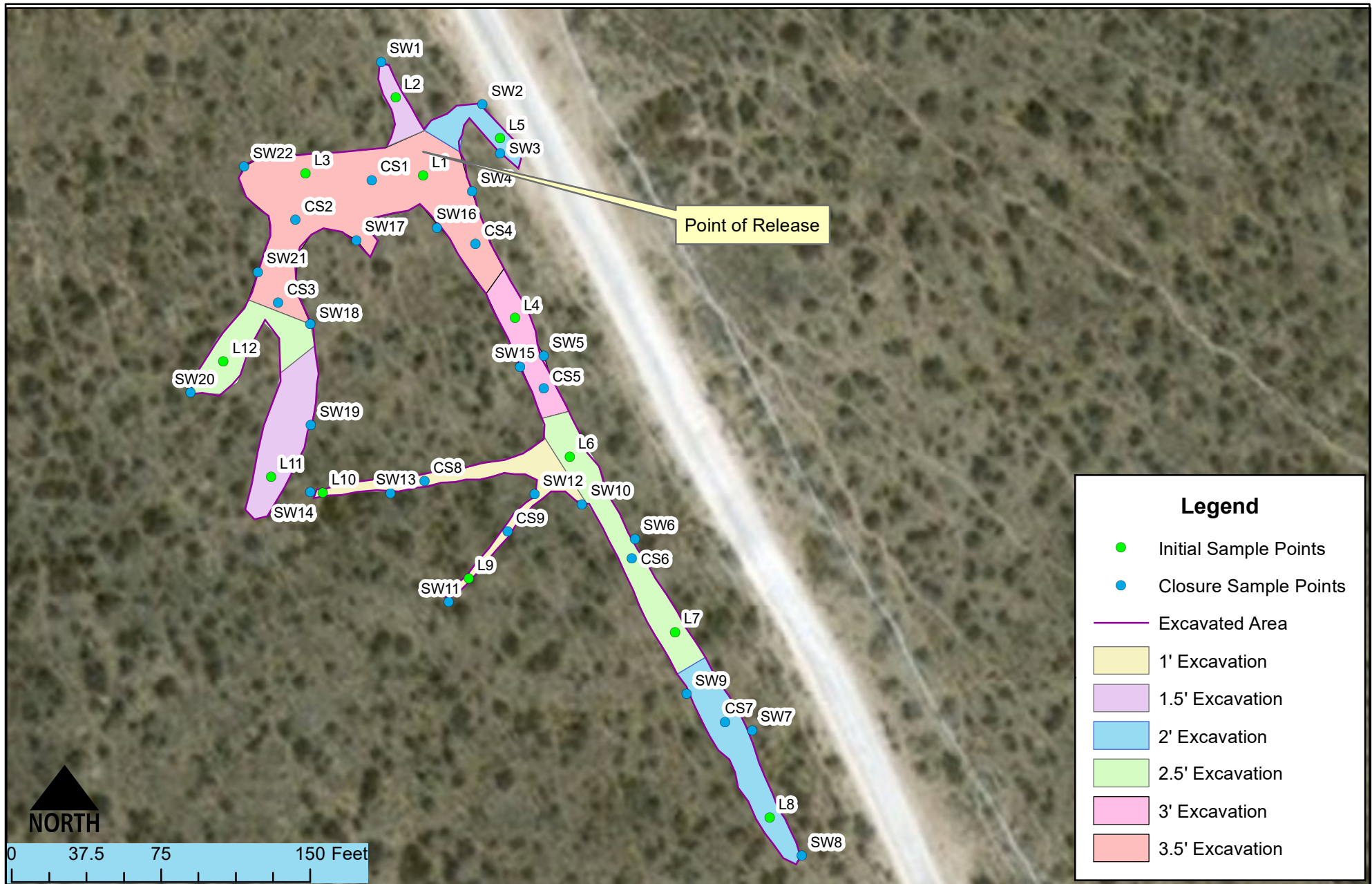
Drawn **Heather Patterson**

Checked \_\_\_\_\_

Approved \_\_\_\_\_



201 South Halaguena Street  
Carlsbad, New Mexico 88221  
(575) 689-7040  
www.soudermiller.com  
Serving the Southwest & Rocky Mountains



Site and Sample Location Map  
 Abe Unit #2 - Marathon  
 S 28-T21S-R33E, New Mexico

Figure 2

Date Saved:  
 10/10/2018

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

Copyright 2015 Souder, Miller & Associates - All Rights Reserved

Drawn **Heather Patterson**  
 Checked \_\_\_\_\_  
 Approved \_\_\_\_\_



201 South Halaguena Street  
 Carlsbad, New Mexico 88221  
 (575) 689-7040  
 www.soudermiller.com  
 Serving the Southwest & Rocky Mountains

# TABLES

Table 2:  
NMOCD Closure Criteria

Marathon Oil Permian LLC  
Abe Unit #2 (1RP-5187)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes				
Depth to Groundwater (feet bgs)	179	NMOSE/USGS				
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	2	NMOSE/USGS				
Hortizontal Distance to Nearest Significant Watercourse (ft)	4.9 miles	USGS 7.5 minute quadrangle map				

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		Closure Criteria (units in mg/kg)				
		Chloride *numerical limit or background, whichever is greater	TPH	GRO + DRO	BTEX	Benzene
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'	x	20000	2500	1000	50	10
Surface Water	yes or no	if yes, then				
<300' from continuously flowing watercourse or other significant watercourse?	No	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	No					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	No					
<1000' from fresh water well or spring?	No					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	No					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	No					
<100' from wetland?	No					
within area overlying a subsurface mine	No					
within an unstable area?	No					
within a 100-year floodplain?	No					

SMA #

## Abe Unit #2

Table 3. Initial Sampling

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl-Field Screens (ppm)	Cl-Laboratory mg/Kg
NMOCD Closure Criteria (mg/Kg)				50	10	1000			2500		20000
L1	9/5/2018	1.5	excavated	<0.216	<0.024	<4.8	<10	<50	<64.8	14022	<30
	9/5/2018	2.5	excavated	--	--	--	--	--	--	981	--
	9/5/2018	3.5	in-situ	--	--	--	--	--	--	<300	<30
L2	9/5/2018	1.5	in-situ	<0.224	<0.025	<5.0	<10	<50	<65	<300	32
L3	9/5/2018	1	in-situ	<0.23	<0.024	<4.9	<9.9	<50	<65	<300	50
L4	9/5/2018	1	excavated	--	--	--	--	--	--	11371	--
	9/5/2018	2.5	in-situ	--	--	--	--	--	--	<300	60
L5	9/5/2018	1	excavated	--	--	--	--	--	--	1080	--
	9/5/2018	1.5	in-situ	<0.22	<0.025	<4.9	<9.9	<50	<64.8	357	380
	9/5/2018	2.5	in-situ	--	--	--	--	--	--	<300	<30
L6	9/5/2018	1	excavated	<0.217	<0.024	<4.8	<9.6	<48	<62.4	11556	--
	9/5/2018	1.5	excavated	--	--	--	--	--	--	1350	--
	9/5/2018	2.5	in-situ	--	--	--	--	--	--	<300	70
L7	9/5/2018	1.5	excavated	--	--	--	--	--	--	5347	--
	9/5/2018	2.5	in-situ	--	--	--	--	--	--	<300	38
L8	9/5/2018	1.5	in-situ	<0.217	<0.024	<4.8	<9.8	<49	<63.6	<300	<30
L9	9/5/2018	1	in-situ	<0.210	<0.023	<4.7	<10	<50	<60.7	<300	<30
L10	9/5/2018	1.5	excavated	--	--	--	--	--	--	8763	--
	9/5/2018	2.5	in-situ	--	--	--	--	--	--	<300	<30
L11	9/5/2018	1.5	in-situ	<0.225	<0.025	<5.0	<9.9	<50	<64.9	<300	79
L12	9/5/2018	2	excavated	<0.224	<0.025	<5.0	<9.9	<49	<63.9	825	700
	9/5/2018	3	in-situ	--	--	--	--	--	--	<300	39

Table 3. Confirmation Sampling

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	CI-Field Screens (ppm)	CI-Laboratory mg/Kg
NMOCD Closure Criteria (mg/Kg)				50	10	1000			2500		20000
CS1	9/12/2018	3.5	in-situ	<0.23	<0.024	<4.7	<9.9	<49	<64	<300	<30
CS2	9/12/2018	3.5	in-situ	<0.23	<0.025	<4.9	<9.9	<49	<64	<300	<30
CS3	9/12/2018	3.5	in-situ	<0.23	<0.025	<4.9	<9.9	<49	<64	<300	120
CS4	9/14/2018	3.5	in-situ	<0.23	<0.024	<4.8	<10	<50	<65	<300	43
CS5	9/12/2018	3	in-situ	<0.23	<0.024	<4.8	<9.8	<49	<64	<300	240
CS6	9/12/2018	2.5	in-situ	<0.23	<0.023	<4.6	<9.9	<49	<64	<300	100
CS7	9/12/2018	2	in-situ	<0.23	<0.024	<4.8	<9.9	<49	<64	<300	260
CS8	9/12/2018	1	in-situ	<0.23	<0.024	<4.9	<9.9	<49	<64	<300	<30
CS9	9/12/2018	1	in-situ	<0.23	<0.025	<4.9	<10	<50	<65	357	<30
SW1	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<4.9	<10	<50	<65	<300	130
SW2	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.6	<48	<63	<300	<30
SW3	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.7	<9.8	<49	<64	<300	480
SW4	9/12/2018	Sidewall	in-situ	<0.23	<0.023	<4.7	<9.9	<50	<65	<300	<30
SW5	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<10	<50	<65	<300	<30
SW6	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<5.0	<9.9	<49	<64	<300	100
SW7	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.8	<49	<64	<300	180
SW8	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.7	<10	<50	<65	<300	<30
SW9	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<5.0	<9.9	<50	<65	<300	<30
SW10	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<4.9	<9.9	<49	<64	<300	35
SW11	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<10	<50	<65	<300	<30
SW12	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.7	<9.9	<50	<65	<300	73
SW13	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.7	<48	<63	<300	110
SW14	9/12/2018	Sidewall	in-situ	<0.23	<0.023	<4.7	<9.9	<50	<65	<300	<30
SW15	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.9	<50	<65	<300	<30
SW16	9/12/2018	Sidewall	in-situ	<0.23	<0.023	<4.7	<9.9	<50	<65	<300	<30
SW17	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<4.9	<10	<50	<65	<300	33
SW18	9/12/2018	Sidewall	in-situ	<0.23	<0.023	<4.6	<10	<50	<65	<300	<30

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl-Field Screens (ppm)	Cl-Laboratory mg/Kg
NMOCD Closure Criteria (mg/Kg)				50	10	1000			2500		20000
SW19	9/12/2018	Sidewall	in-situ	<0.23	<0.023	<4.6	<9.8	<49	<64	<300	<30
SW20	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.4	<47	<62	<300	<30
SW21	9/12/2018	Sidewall	in-situ	<0.23	<0.025	<5.0	<9.9	<49	<64	<300	58
SW22	9/12/2018	Sidewall	in-situ	<0.23	<0.024	<4.8	<9.8	<49	<64	<300	240

"--" = Not Analyzed

# APPENDIX A

## FORM C141

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural  
Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	nCH1825355191
District RP	1RP-5187
Facility ID	
Application ID	pCH1825356049

## Release Notification

### Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 020305 372098
Contact Name Callie Karrigan	Contact Telephone 575-297-0956
Contact email cnkarrigan@marathonoil.com	Incident # NCH1825355191 ABE UNIT 2 @
Contact mailing address 4111 Tidwell Road Carlsbad NM 88220	30-025-34146

### Location of Release Source

Latitude 32.448363 Longitude -103.575446  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Abe Unit 2	Site Type oil
Date Release Discovered 9/2/2018	API# (if applicable) 30-025-34146

Unit Letter	Section	Township	Range	County
H	29	21S	33E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☒ Private (Name: Merchant Livestock)

State Minerals

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 200 bbls	Volume Recovered (bbls) 1 bbl
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

#### Cause of Release

At approximately 1:45 pm 9/2/18, Marathon received a third party notification that a flowline between the Abe Unit 2 and the Battle 34 Federal 4H was leaking. Upon further investigation, the pumper found the water transfer line had ruptured and released an estimated 200 barrels of produced water in the surrounding area of the line. The Pumper had previously began transferring water between the Battle 34 Federal 4H and the Battle 1H locations. The valve on the discharge line was not verified open before the transfer began, resulting the line to deadhead and release the volume through the rupture.

Incident ID	nCH1825355191
District RP	1RP-5187
Facility ID	
Application ID	pCH1825356049

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? This release exceeded 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notification provided by Callie Karrigan via email 9/2/2018 10:15 PM	

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: Fluid transfer was commenced and a vac truck was dispatched to recover standing liquids. The line was also emptied to ensure no further leaks. An emergency one call was placed to recover and dispose of saturated soils. Approximately 1 foot of soil was scraped at the immediate area of the leak.	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: Callie Karrigan	Title: HES Professional
Signature: <u>Callie Karrigan</u>	Date: 9/7/18
email: cnkarrigan@marathonoil.com	Telephone: 575-297-0956
<b>OCD Only</b> Received by: <b>RECEIVED</b> By CHernandez at 3:02 pm, Sep 10, 2018 Date: _____	

Incident ID	nCH1825355191
District RP	1RP-5187
Facility ID	
Application ID	pCH1825356049

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>179</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	nCH1825355191
District RP	1RP-5187
Facility ID	
Application ID	pCH1825356049

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Callie Karrigan Title: HES ProfessionalSignature: Callie Karrigan Date: 11/29/2018email: cnkarrigan@marathonoil.com Telephone: 575-297-0956**OCD Only**Received by: Jocelyn Harimon Date: 03/22/2023

Incident ID	nCH1825355191
District RP	1RP-5187
Facility ID	
Application ID	pCH1825356049

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Callie Karrigan Title: HES Professional

Signature: Callie Karrigan Date: 11/29/18

email: cnkarrigan@marathonoil.com Telephone: 575-297-0956

### OCD Only

Received by: Jocelyn Harimon Date: 03/22/2023

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 03/22/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist

# APPENDIX B

## NMOSE WELLS REPORT



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 00854 POD1</a>	CP	LE		1	1	2	33	21S	33E	633879	3590223	805	950	600	350
<a href="#">CP 00601 POD1</a>	CP	LE			2	1	28	21S	33E	633502	3591791*	861	223		
<a href="#">CP 01355 POD1</a>	CP	LE		2	1	3	27	21S	33E	634773	3591061	869	1192	582	610
<a href="#">CP 01357 POD1</a>	CP	LE		4	3	1	27	21S	33E	634782	3591347	934	1286	578	708
<a href="#">CP 01356 POD1</a>	CP	LE		4	2	2	33	21S	33E	634560	3590014	1207	1098	555	543
<a href="#">CP 01349 POD1</a>	CP	LE		2	3	1	27	21S	33E	635304	3591576	1503	1188	572	616

Average Depth to Water: **577 feet**

Minimum Depth: **555 feet**

Maximum Depth: **600 feet**

Record Count: 6

UTMNAD83 Radius Search (in meters):

Easting (X): 633903.73

Northing (Y): 3591028.37

Radius: 1610

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

9/13/18 11:52 AM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER



USGS Home  
Contact USGS  
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:  
Groundwater

Geographic Area:  
United States

GO

Click to hideNews Bulletins

- [Please see news on new formats](#)
- [Full News](#) 

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs  
site\_no list =

- 322702103344001

Minimum number of levels = 1  
[Save file of selected sites](#) to local disk for future upload

USGS 322702103344001 21S.33E.28.12443

Lea County, New Mexico  
Latitude 32°27'13", Longitude 103°34'42" NAD27  
Land-surface elevation 3,688.00 feet above NGVD29  
The depth of the well is 224 feet below land surface.  
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

Table of data

Tab-separated data

Graph of data

Reselect period

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status
1971-02-04			D	178.62		2			U		A
1972-09-22			D	178.60		2			U		A
1976-12-16			D	178.86		2			U		A
1981-03-10			D	184.67		2			U		A
1986-03-20			D	179.24		2			U		A
1991-04-19			D	179.10		2			U		A
1996-02-21			D	178.85		2			S		A

## Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

[Questions about sites/data?](#)[Feedback on this web site](#)[Automated retrievals](#)[Help](#)[Data Tips](#)[Explanation of terms](#)[Subscribe for system changes](#)[News](#)[Accessibility](#)[Plug-Ins](#)[FOIA](#)[Privacy](#)[Policies and Notices](#)[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

URL: [https://nwis.waterdata.usgs.gov/nwis/gwlevels?site\\_no=322702103344001&agency\\_cd=USGS&format=html](https://nwis.waterdata.usgs.gov/nwis/gwlevels?site_no=322702103344001&agency_cd=USGS&format=html)

Page Contact Information: [USGS Water Data Support Team](#)  
Page Last Modified: 2018-10-15 17:18:59 EDT  
0.51 0.44 nadww01

# APPENDIX C

## SAMPLING PROTOCOL & FIELD NOTES



## Sampling Protocol

Representatives from SMA chose the Judgmental Sampling Method as described in EPA's Final Sampling Guidance for SW-846, 2002 to adequately quantify contaminant concentrations on the Abe Unit #2 Location. The utility of this particular method functions on the sufficient knowledge of the contaminant, which we possess. This design is also useful when identifying the composition of a release, which we have documented. In addition, this sampling design was chosen for this project because of the locations uniform soil type.

The soil samples were collected in laboratory supplied containers in accordance with this sampling protocol, immediately placed on ice and sent under standard chain-of-custody protocols to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis. A total of forty-eight (48) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

## Sampling Analysis Field Quality Assurance Procedures

A unique sample numbering was used to identify each sample collected and designated for on-site and off-site laboratory analysis. The purpose of this numbering scheme was to provide a tracking system for the retrieval of analytical and field data on each sample. Sample identification numbers were recorded on sample labels or tags, field notes, chain-of-custody records (COC) and all other applicable documentation used during the project. Sample labels were affixed to all sample containers during sampling activities. Information was recorded on each sample container label at the time of sample collection. The information recorded on the labels were as follows: sample identification number; sample type (discrete or composite); site name and area/location number; analysis to be performed; type of chemical preservative present in container; date and time of sample collection; and sample collector's name and initials. All samples were packed in ice in an approved rigid body container, custody sealed signed and shipped to the appropriate laboratory via insured carrier service.

COC procedures implemented for the project provided documentation of the handling of each sample from the time of collection until completion of laboratory analysis. A COC form serves as a legal record of possession of the sample. A sample is considered to be under custody if one or more of the following criteria are met: the sample is in the sampler's possession; the sample is in the sampler's view after being in possession; the sample was in the sampler's possession and then was placed into a locked area to prevent tampering; and/or the sample is in a designated secure area. Custody was documented throughout the project field sampling activities by a chain-of custody form initiated each day during which samples are collected. Container custody seals placed on either individual samples or on the rigid body container were used to ensure that no sample tampering occurs between the time the samples are placed into the containers and the time the containers are opened for analysis at the laboratory. Container custody seals were signed and dated by the individual responsible for completing the COC form contained within the container.

Field Screening						Pg 2 of 4	
Location Name				Date			
Athe Unit #2				9/12/18			
Location Name	Description	Depth (Feet BGS)	Time Collected	Temp Time Screened	PID Reading (ppm)		
SW8	Sandy	6"	7:09	18.00	0.09		
CS7-2	Sand		7:16	18.40	0.30		
SW11	Sand/Caliche	1'	7:40	18.50	0.07		
CS9-1	Sand	1'	7:43	18.70	0.06		
SW9	Sand		7:54	18.80	0.08		
SW6	Sand		7:59	19.00	0.10		
SW7	Sand		8:05	19.10	0.24		
SW12	S	1	8:31	18.90	0.17		
SW13	S	1	8:35	19.00	0.17		
CS8-1	S/Caliche	1	8:38	19.00	0.06		
SW10	S	2.5'	8:59	19.30	0.50		
11	S	71'	10:23	20.0	0.15		

E2

## Field Screening

pg. 3 of 4

Location Name Ake Unst #2				Date 9/12/18	
Location Name	Description	Depth (Feet BGS)	Time Collected	<del>Temp</del> Screened	<del>EC</del> pH Reading (ppm)
CS3-3.5	Caliche	3.5	9:25	20.10	0.17
SW19	Sand	SW	9:30	19.6°	0.08
SW22	S	SW	9:54	19.9°	0.30
SW15	S	SW	10:40	20.1°	0.08
SW5	S	SW	10:49	21.0°	0.08
CS6-2.5	Caliche	2.5	10:52	21.2°	0.14
CS2-3.5	Caliche	3.5	11:10	20.7°	0.08
SW17	S	1	11:22	21.7°	0.24
SW18	S	3.5	11:48	22.7°	0.11

Start Date/Time: 1/12/2019  
Stop Date/Time: \_\_\_\_\_  
Borehole Diameter: \_\_\_\_\_

**Notes:**

Project: \_\_\_\_\_  
 Project # \_\_\_\_\_  
 SMA Field Tech: \_\_\_\_\_

Borehole# \_\_\_\_\_  
 Rig/Sampler Type: \_\_\_\_\_  
 Driller: \_\_\_\_\_

Start Date/Time: \_\_\_\_\_  
 Stop Date/Time: \_\_\_\_\_  
 Borehole Diameter: \_\_\_\_\_

Sample Depth	Time	Color	Secondary Soil Type	Primary Soil Type	Sorted	Grain Size (Sands Only)	Consolidation	Moisture	OVA results (ppm)	Remarks (Use trace, occasional, frequent and with to describe increasing amounts)
	2:44	Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		0.15 0.15 31.0
	2:50	Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		0.15 0.19 33.0
	3:00	Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		0.6 0.6 Blair 0.0 33
	3:10	Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		
	3:25	Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		
		Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		
		Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		
		Light tan Dark brown gray yellow olive red	Gravelly Sandy Silty Clayey	Boulder Cobble Pebble Clay Gravel	Well	Very Coarse Coarse Medium Fine	Rock Semi-consolidated Dense Plastic Unconsolidated	Dry Moist Wet		

Notes:

Photo Log

Photo Taken September 12, 2018

Facing south

32.449565 °, -103.576055°



Photo Taken September 12, 2018

Facing North

32.449523°, -103.576301°



Photo Taken September 12, 2018

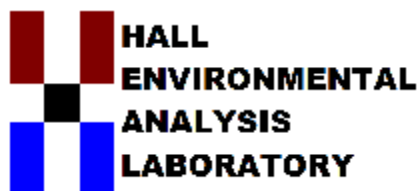
Facing West

32.449411°, -103.576337°



# APPENDIX D

## 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)

September 18, 2018

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

RE: Abe/ Battle

OrderNo.: 1809456

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 16 sample(s) on 9/8/2018 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 #NM0901

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

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L1-1.5

Project: Abe/ Battle

Collection Date: 9/5/2018 9:22:00 AM

Lab ID: 1809456-001

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/13/2018 6:02:54 AM	40261
Surr: BFB	105	70-130		%Rec	1	9/13/2018 6:02:54 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: lrm
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/14/2018 12:39:04 AM	40273
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 12:39:04 AM	40273
Surr: DNOP	116	50.6-138		%Rec	1	9/14/2018 12:39:04 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	9/13/2018 6:02:54 AM	40261
Toluene	ND	0.048		mg/Kg	1	9/13/2018 6:02:54 AM	40261
Ethylbenzene	ND	0.048		mg/Kg	1	9/13/2018 6:02:54 AM	40261
Xylenes, Total	ND	0.096		mg/Kg	1	9/13/2018 6:02:54 AM	40261
Surr: 4-Bromofluorobenzene	118	70-130		%Rec	1	9/13/2018 6:02:54 AM	40261
Surr: Toluene-d8	95.5	70-130		%Rec	1	9/13/2018 6:02:54 AM	40261

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L1-3.5

Project: Abe/ Battle

Collection Date: 9/5/2018 9:31:00 AM

Lab ID: 1809456-002

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	ND	30		mg/Kg	20	9/14/2018 7:12:22 PM	40359

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 2 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L2-1.5

Project: Abe/ Battle

Collection Date: 9/5/2018 9:38:00 AM

Lab ID: 1809456-003

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	32	30		mg/Kg	20	9/14/2018 7:49:36 PM	40359
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/13/2018 6:25:47 AM	40261
Surr: BFB	99.0	70-130		%Rec	1	9/13/2018 6:25:47 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/14/2018 1:00:59 AM	40273
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 1:00:59 AM	40273
Surr: DNOP	117	50.6-138		%Rec	1	9/14/2018 1:00:59 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	0.025		mg/Kg	1	9/13/2018 6:25:47 AM	40261
Toluene	ND	0.050		mg/Kg	1	9/13/2018 6:25:47 AM	40261
Ethylbenzene	ND	0.050		mg/Kg	1	9/13/2018 6:25:47 AM	40261
Xylenes, Total	ND	0.099		mg/Kg	1	9/13/2018 6:25:47 AM	40261
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	9/13/2018 6:25:47 AM	40261
Surr: Toluene-d8	93.7	70-130		%Rec	1	9/13/2018 6:25:47 AM	40261

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 3 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L3-1

Project: Abe/ Battle

Collection Date: 9/5/2018 10:01:00 AM

Lab ID: 1809456-004

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	50	30		mg/Kg	20	9/14/2018 8:02:01 PM	40359
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/13/2018 6:48:52 AM	40261
Surr: BFB	102	70-130		%Rec	1	9/13/2018 6:48:52 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/14/2018 1:22:54 AM	40273
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 1:22:54 AM	40273
Surr: DNOP	119	50.6-138		%Rec	1	9/14/2018 1:22:54 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	9/13/2018 6:48:52 AM	40261
Toluene	ND	0.049		mg/Kg	1	9/13/2018 6:48:52 AM	40261
Ethylbenzene	ND	0.049		mg/Kg	1	9/13/2018 6:48:52 AM	40261
Xylenes, Total	ND	0.098		mg/Kg	1	9/13/2018 6:48:52 AM	40261
Surr: 4-Bromofluorobenzene	115	70-130		%Rec	1	9/13/2018 6:48:52 AM	40261
Surr: Toluene-d8	93.8	70-130		%Rec	1	9/13/2018 6:48:52 AM	40261

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 4 of 22

Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates

Client Sample ID: L4-2.5

Project: Abe/ Battle

Collection Date: 9/5/2018 10:24:00 AM

Lab ID: 1809456-005

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	60	30		mg/Kg	20	9/14/2018 8:39:15 PM	40359

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L5-1.5

Project: Abe/ Battle

Collection Date: 9/5/2018 10:40:00 AM

Lab ID: 1809456-006

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: MRA
Chloride	380	30		mg/Kg	20	9/14/2018 8:51:39 PM	40359
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/13/2018 7:11:54 AM	40261
Surr: BFB	103	70-130		%Rec	1	9/13/2018 7:11:54 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: lrm
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/14/2018 1:44:57 AM	40273
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 1:44:57 AM	40273
Surr: DNOP	116	50.6-138		%Rec	1	9/14/2018 1:44:57 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	9/13/2018 7:11:54 AM	40261
Toluene	ND	0.049		mg/Kg	1	9/13/2018 7:11:54 AM	40261
Ethylbenzene	ND	0.049		mg/Kg	1	9/13/2018 7:11:54 AM	40261
Xylenes, Total	ND	0.099		mg/Kg	1	9/13/2018 7:11:54 AM	40261
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	1	9/13/2018 7:11:54 AM	40261
Surr: Toluene-d8	92.7	70-130		%Rec	1	9/13/2018 7:11:54 AM	40261

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 6 of 22

## Analytical Report

Lab Order **1809456**Date Reported: **9/18/2018****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Souder, Miller & Associates**Client Sample ID:** L5-2.5**Project:** Abe/ Battle**Collection Date:** 9/5/2018 10:45:00 AM**Lab ID:** 1809456-007**Matrix:** SOIL**Received Date:** 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/14/2018 9:04:03 PM	40359

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 7 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L6-1

Project: Abe/ Battle

Collection Date: 9/5/2018 10:50:00 AM

Lab ID: 1809456-008

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/13/2018 7:34:57 AM	40261
Surr: BFB	107	70-130		%Rec	1	9/13/2018 7:34:57 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: lrm
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/14/2018 2:06:55 AM	40273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/14/2018 2:06:55 AM	40273
Surr: DNOP	92.7	50.6-138		%Rec	1	9/14/2018 2:06:55 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	9/13/2018 7:34:57 AM	40261
Toluene	ND	0.048		mg/Kg	1	9/13/2018 7:34:57 AM	40261
Ethylbenzene	ND	0.048		mg/Kg	1	9/13/2018 7:34:57 AM	40261
Xylenes, Total	ND	0.097		mg/Kg	1	9/13/2018 7:34:57 AM	40261
Surr: 4-Bromofluorobenzene	119	70-130		%Rec	1	9/13/2018 7:34:57 AM	40261
Surr: Toluene-d8	99.8	70-130		%Rec	1	9/13/2018 7:34:57 AM	40261

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 8 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L6-2.5

Project: Abe/ Battle

Collection Date: 9/5/2018 10:58:00 AM

Lab ID: 1809456-009

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	70	30		mg/Kg	20	9/14/2018 9:16:28 PM	40359

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 9 of 22

## Analytical Report

Lab Order **1809456**Date Reported: **9/18/2018****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Souder, Miller & Associates**Client Sample ID:** L7-2.5**Project:** Abe/ Battle**Collection Date:** 9/5/2018 11:15:00 AM**Lab ID:** 1809456-010**Matrix:** SOIL**Received Date:** 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	38	30		mg/Kg	20	9/14/2018 9:28:52 PM	40359

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 10 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L8-1.5

Project: Abe/ Battle

Collection Date: 9/5/2018 11:38:00 AM

Lab ID: 1809456-011

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: MRA
Chloride	ND	30		mg/Kg	20	9/14/2018 9:41:16 PM	40359
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/13/2018 7:57:54 AM	40261
Surr: BFB	105	70-130		%Rec	1	9/13/2018 7:57:54 AM	40261
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: lrm
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/14/2018 2:29:17 AM	40273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/14/2018 2:29:17 AM	40273
Surr: DNOP	81.1	50.6-138		%Rec	1	9/14/2018 2:29:17 AM	40273
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	9/13/2018 7:57:54 AM	40261
Toluene	ND	0.048		mg/Kg	1	9/13/2018 7:57:54 AM	40261
Ethylbenzene	ND	0.048		mg/Kg	1	9/13/2018 7:57:54 AM	40261
Xylenes, Total	ND	0.097		mg/Kg	1	9/13/2018 7:57:54 AM	40261
Surr: 4-Bromofluorobenzene	119	70-130		%Rec	1	9/13/2018 7:57:54 AM	40261
Surr: Toluene-d8	95.6	70-130		%Rec	1	9/13/2018 7:57:54 AM	40261

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 11 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L9-1

Project: Abe/ Battle

Collection Date: 9/5/2018 12:12:00 PM

Lab ID: 1809456-012

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/14/2018 9:53:41 PM	40359
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/14/2018 5:46:59 AM	40299
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 5:46:59 AM	40299
Surr: DNOP	88.3	50.6-138		%Rec	1	9/14/2018 5:46:59 AM	40299
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/12/2018 4:40:20 PM	40280
Surr: BFB	96.7	15-316		%Rec	1	9/12/2018 4:40:20 PM	40280
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/12/2018 4:40:20 PM	40280
Toluene	ND	0.047		mg/Kg	1	9/12/2018 4:40:20 PM	40280
Ethylbenzene	ND	0.047		mg/Kg	1	9/12/2018 4:40:20 PM	40280
Xylenes, Total	ND	0.093		mg/Kg	1	9/12/2018 4:40:20 PM	40280
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	9/12/2018 4:40:20 PM	40280

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 12 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L10-2.5

Project: Abe/ Battle

Collection Date: 9/5/2018 12:21:00 PM

Lab ID: 1809456-013

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	ND	30		mg/Kg	20	9/14/2018 10:06:06 PM	40359

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 13 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L11-1.5

Project: Abe/ Battle

Collection Date: 9/5/2018 12:28:00 PM

Lab ID: 1809456-014

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	79	30		mg/Kg	20	9/16/2018 11:42:25 AM	40365
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/14/2018 6:08:57 AM	40299
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/14/2018 6:08:57 AM	40299
Surr: DNOP	92.8	50.6-138		%Rec	1	9/14/2018 6:08:57 AM	40299
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/12/2018 5:03:51 PM	40280
Surr: BFB	96.5	15-316		%Rec	1	9/12/2018 5:03:51 PM	40280
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/12/2018 5:03:51 PM	40280
Toluene	ND	0.050		mg/Kg	1	9/12/2018 5:03:51 PM	40280
Ethylbenzene	ND	0.050		mg/Kg	1	9/12/2018 5:03:51 PM	40280
Xylenes, Total	ND	0.10		mg/Kg	1	9/12/2018 5:03:51 PM	40280
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	9/12/2018 5:03:51 PM	40280

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 14 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L12-.2

Project: Abe/ Battle

Collection Date: 9/5/2018 12:34:00 PM

Lab ID: 1809456-015

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	700	30		mg/Kg	20	9/16/2018 11:54:49 AM	40365
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/14/2018 6:30:54 AM	40299
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/14/2018 6:30:54 AM	40299
Surr: DNOP	89.7	50.6-138		%Rec	1	9/14/2018 6:30:54 AM	40299
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/12/2018 5:27:21 PM	40280
Surr: BFB	96.1	15-316		%Rec	1	9/12/2018 5:27:21 PM	40280
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/12/2018 5:27:21 PM	40280
Toluene	ND	0.050		mg/Kg	1	9/12/2018 5:27:21 PM	40280
Ethylbenzene	ND	0.050		mg/Kg	1	9/12/2018 5:27:21 PM	40280
Xylenes, Total	ND	0.099		mg/Kg	1	9/12/2018 5:27:21 PM	40280
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	9/12/2018 5:27:21 PM	40280

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 15 of 22

## Analytical Report

Lab Order 1809456

Date Reported: 9/18/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: L12-3

Project: Abe/ Battle

Collection Date: 9/5/2018 12:40:00 PM

Lab ID: 1809456-016

Matrix: SOIL

Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: smb
Chloride	39	30		mg/Kg	20	9/16/2018 12:07:13 PM	40365

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

Qualifiers:	*	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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 16 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

Sample ID	MB-40359		SampType: mblk		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 40359		RunNo: 54186					
Prep Date:	9/14/2018		Analysis Date: 9/14/2018		SeqNo: 1791703		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-40359		SampType: lcs		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 40359		RunNo: 54186					
Prep Date:	9/14/2018		Analysis Date: 9/14/2018		SeqNo: 1791704		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			

Sample ID	MB-40365		SampType: mblk		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 40365		RunNo: 54187					
Prep Date:	9/16/2018		Analysis Date: 9/16/2018		SeqNo: 1791982		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-40365			SampType:	lcs		TestCode:	EPA Method 300.0: Anions			
Client ID:	LCSS			Batch ID:	40365		RunNo:	54187			
Prep Date:	9/16/2018			Analysis Date:	9/16/2018		SeqNo:	1791983		Units:	mg/Kg
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	14	1.5	15.00	0	94.4	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  
PQL Practical Quantitative Limit  
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

Page 17 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

Sample ID <b>MB-40273</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40273</b>		RunNo: <b>54091</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/13/2018</b>		SeqNo: <b>1790205</b>		Units: <b>mg/Kg</b>					
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	11		10.00		106	50.6	138			

Sample ID <b>LCS-40273</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40273</b>		RunNo: <b>54091</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/13/2018</b>		SeqNo: <b>1790206</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.9	70	130			
Surr: DNOP	5.2		5.000		103	50.6	138			

Sample ID <b>MB-40299</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40299</b>		RunNo: <b>54091</b>							
Prep Date: <b>9/12/2018</b>	Analysis Date: <b>9/14/2018</b>		SeqNo: <b>1790276</b>		Units: <b>mg/Kg</b>					
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	9.1		10.00		91.3	50.6	138			

Sample ID <b>LCS-40299</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40299</b>		RunNo: <b>54091</b>							
Prep Date: <b>9/12/2018</b>	Analysis Date: <b>9/14/2018</b>		SeqNo: <b>1790277</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.6	70	130			
Surr: DNOP	3.8		5.000		75.0	50.6	138			

**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  
PQL Practical Quantitative Limit  
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

Page 18 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

Sample ID <b>MB-40280</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788284</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.9	15	316			

Sample ID <b>LCS-40280</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788285</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	75.9	131			
Surr: BFB	1000		1000		105	15	316			

Sample ID <b>1809456-012AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>L9-1</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788288</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.32	0	121	77.8	128			
Surr: BFB	1000		972.8		107	15	316			

Sample ID <b>1809456-012AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>L9-1</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788289</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	24.88	0	107	77.8	128	10.3	20	
Surr: BFB	1100		995.0		107	15	316	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  
PQL Practical Quantitative Limit  
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

Page 19 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

Sample ID <b>MB-40280</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788316</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	1.0		1.000		101	80	120			

Sample ID <b>LCS-40280</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788317</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.1	77.3	128			
Toluene	0.99	0.050	1.000	0	99.3	79.2	125			
Ethylbenzene	0.98	0.050	1.000	0	97.8	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	98.0	81.6	129			
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	80	120			

Sample ID <b>1809456-014AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>L11-1.5</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788320</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.023	0.9294	0	115	68.5	133			
Toluene	1.1	0.046	0.9294	0.009300	120	75	130			
Ethylbenzene	1.1	0.046	0.9294	0	122	79.4	128			
Xylenes, Total	3.4	0.093	2.788	0	122	77.3	131			
Surr: 4-Bromofluorobenzene	0.92		0.9294		98.8	80	120			

Sample ID <b>1809456-014AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>L11-1.5</b>	Batch ID: <b>40280</b>		RunNo: <b>54096</b>							
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>		SeqNo: <b>1788321</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9434	0	114	68.5	133	1.00	20	
Toluene	1.1	0.047	0.9434	0.009300	119	75	130	0.312	20	
Ethylbenzene	1.1	0.047	0.9434	0	120	79.4	128	0.225	20	
Xylenes, Total	3.4	0.094	2.830	0	122	77.3	131	1.65	20	
Surr: 4-Bromofluorobenzene	0.94		0.9434		100	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

PQL Practical Quantitative Limit

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

Page 20 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

Sample ID	LCS-40261		SampType: LCS4		TestCode: EPA Method 8260B: Volatiles Short List					
Client ID:	BatchQC		Batch ID: 40261		RunNo: 54120					
Prep Date:	9/11/2018		Analysis Date: 9/12/2018		SeqNo: 1788903		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.1	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	0.53		0.5000		105	70	130			
Surr: Toluene-d8	0.47		0.5000		93.6	70	130			

Sample ID	MB-40261		SampType: MBLK		TestCode: EPA Method 8260B: Volatiles Short List					
Client ID:	PBS		Batch ID: 40261		RunNo: 54120					
Prep Date:	9/11/2018		Analysis Date: 9/12/2018		SeqNo: 1788904		Units: mg/Kg			
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	0.59		0.5000		118	70	130			
Surr: Toluene-d8	0.49		0.5000		97.4	70	130			

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Page 21 of 22

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809456

18-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe/ Battle

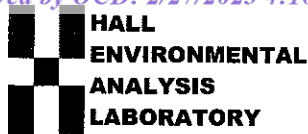
Sample ID <b>LCS-40261</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40261</b>			RunNo: <b>54120</b>						
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>			SeqNo: <b>1788852</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	106	70	130			
Surr: BFB	490		500.0		98.1	70	130			

Sample ID <b>MB-40261</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>40261</b>			RunNo: <b>54120</b>						
Prep Date: <b>9/11/2018</b>	Analysis Date: <b>9/12/2018</b>			SeqNo: <b>1788853</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	520		500.0		104	70	130			

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Page 22 of 22



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87105  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: **SMA-CARLSBAD**Work Order Number: **1809456**

RcptNo: 1

Received By: **Erin Melendrez**

9/8/2018 8:15:00 AM

Completed By: **Ashley Gallegos**

9/10/2018 12:26:39 PM

Reviewed By: **ENM**

9/10/18 Labeled by: **JAB 09/10/18**

### Chain of Custody

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

### Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐  
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐  
5. Sample(s) in proper container(s)? Yes ☒ No ☐  
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐  
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐  
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐  
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒  
10. Were any sample containers received broken? Yes ☐ No ☒  
11. Does paperwork match bottle labels? Yes ☒ No ☐  
(Note discrepancies on chain of custody)  
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐  
13. Is it clear what analyses were requested? Yes ☒ No ☐  
14. Were all holding times able to be met? Yes ☒ No ☐  
(If no, notify customer for authorization.)
- # of preserved bottles checked for pH: 3 (3 or >12 unless noted)  
Adjusted? JAB  
Checked by: JAB 09/10/18

### Special Handling (if applicable)

15. 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: \_\_\_\_\_

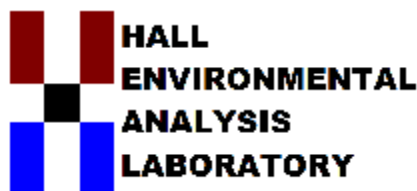
16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			







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)

September 24, 2018

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

RE: Abe Unit 2

OrderNo.: 1809855

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 31 sample(s) on 9/14/2018 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 #NM0901

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

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW8

Project: Abe Unit 2

Collection Date: 9/12/2018 7:09:00 AM

Lab ID: 1809855-001

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 3:03:12 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 1:10:44 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 1:10:44 PM	40397
Surr: DNOP	90.1	50.6-138		%Rec	1	9/18/2018 1:10:44 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/17/2018 10:45:09 AM	40363
Surr: BFB	92.9	15-316		%Rec	1	9/17/2018 10:45:09 AM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 10:45:09 AM	40363
Toluene	ND	0.047		mg/Kg	1	9/17/2018 10:45:09 AM	40363
Ethylbenzene	ND	0.047		mg/Kg	1	9/17/2018 10:45:09 AM	40363
Xylenes, Total	ND	0.094		mg/Kg	1	9/17/2018 10:45:09 AM	40363
Surr: 4-Bromofluorobenzene	95.6	80-120		%Rec	1	9/17/2018 10:45:09 AM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS7-2

Project: Abe Unit 2

Collection Date: 9/12/2018 7:16:00 AM

Lab ID: 1809855-002

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	260	30		mg/Kg	20	9/20/2018 3:15:36 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 2:24:51 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 2:24:51 PM	40397
Surr: DNOP	99.5	50.6-138		%Rec	1	9/18/2018 2:24:51 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 11:55:13 AM	40363
Surr: BFB	93.6	15-316		%Rec	1	9/17/2018 11:55:13 AM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 11:55:13 AM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 11:55:13 AM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 11:55:13 AM	40363
Xylenes, Total	ND	0.096		mg/Kg	1	9/17/2018 11:55:13 AM	40363
Surr: 4-Bromofluorobenzene	94.6	80-120		%Rec	1	9/17/2018 11:55:13 AM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 2 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW11

Project: Abe Unit 2

Collection Date: 9/12/2018 7:40:00 AM

Lab ID: 1809855-003

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 3:28:01 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 2:52:08 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 2:52:08 PM	40397
Surr: DNOP	98.4	50.6-138		%Rec	1	9/18/2018 2:52:08 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 1:05:26 PM	40363
Surr: BFB	91.7	15-316		%Rec	1	9/17/2018 1:05:26 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 1:05:26 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 1:05:26 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 1:05:26 PM	40363
Xylenes, Total	ND	0.096		mg/Kg	1	9/17/2018 1:05:26 PM	40363
Surr: 4-Bromofluorobenzene	94.2	80-120		%Rec	1	9/17/2018 1:05:26 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 3 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS9-1

Project: Abe Unit 2

Collection Date: 9/12/2018 7:43:00 AM

Lab ID: 1809855-004

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 3:40:25 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 3:16:56 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 3:16:56 PM	40397
Surr: DNOP	94.4	50.6-138		%Rec	1	9/18/2018 3:16:56 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 1:28:54 PM	40363
Surr: BFB	95.1	15-316		%Rec	1	9/17/2018 1:28:54 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 1:28:54 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 1:28:54 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 1:28:54 PM	40363
Xylenes, Total	ND	0.098		mg/Kg	1	9/17/2018 1:28:54 PM	40363
Surr: 4-Bromofluorobenzene	96.8	80-120		%Rec	1	9/17/2018 1:28:54 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 4 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW9

Project: Abe Unit 2

Collection Date: 9/12/2018 7:54:00 AM

Lab ID: 1809855-005

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 3:52:49 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 4:19:07 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 4:19:07 PM	40397
Surr: DNOP	93.2	50.6-138		%Rec	1	9/18/2018 4:19:07 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/17/2018 1:52:21 PM	40363
Surr: BFB	95.3	15-316		%Rec	1	9/17/2018 1:52:21 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 1:52:21 PM	40363
Toluene	ND	0.050		mg/Kg	1	9/17/2018 1:52:21 PM	40363
Ethylbenzene	ND	0.050		mg/Kg	1	9/17/2018 1:52:21 PM	40363
Xylenes, Total	ND	0.099		mg/Kg	1	9/17/2018 1:52:21 PM	40363
Surr: 4-Bromofluorobenzene	97.7	80-120		%Rec	1	9/17/2018 1:52:21 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 5 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW6

Project: Abe Unit 2

Collection Date: 9/12/2018 7:59:00 AM

Lab ID: 1809855-006

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	100	30		mg/Kg	20	9/20/2018 4:05:14 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 4:43:41 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 4:43:41 PM	40397
Surr: DNOP	120	50.6-138		%Rec	1	9/18/2018 4:43:41 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/17/2018 2:15:52 PM	40363
Surr: BFB	93.8	15-316		%Rec	1	9/17/2018 2:15:52 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 2:15:52 PM	40363
Toluene	ND	0.050		mg/Kg	1	9/17/2018 2:15:52 PM	40363
Ethylbenzene	ND	0.050		mg/Kg	1	9/17/2018 2:15:52 PM	40363
Xylenes, Total	ND	0.099		mg/Kg	1	9/17/2018 2:15:52 PM	40363
Surr: 4-Bromofluorobenzene	96.8	80-120		%Rec	1	9/17/2018 2:15:52 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 6 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW7

Project: Abe Unit 2

Collection Date: 9/12/2018 8:05:00 AM

Lab ID: 1809855-007

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	180	30		mg/Kg	20	9/20/2018 4:17:39 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/18/2018 5:08:25 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 5:08:25 PM	40397
Surr: DNOP	102	50.6-138		%Rec	1	9/18/2018 5:08:25 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 2:39:24 PM	40363
Surr: BFB	96.4	15-316		%Rec	1	9/17/2018 2:39:24 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 2:39:24 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 2:39:24 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 2:39:24 PM	40363
Xylenes, Total	ND	0.096		mg/Kg	1	9/17/2018 2:39:24 PM	40363
Surr: 4-Bromofluorobenzene	99.9	80-120		%Rec	1	9/17/2018 2:39:24 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 7 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW12

Project: Abe Unit 2

Collection Date: 9/12/2018 8:31:00 AM

Lab ID: 1809855-008

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	73	30		mg/Kg	20	9/20/2018 4:54:52 AM	40463
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>lrm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 5:33:03 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 5:33:03 PM	40397
Surr: DNOP	94.5	50.6-138		%Rec	1	9/18/2018 5:33:03 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/17/2018 3:02:55 PM	40363
Surr: BFB	96.4	15-316		%Rec	1	9/17/2018 3:02:55 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 3:02:55 PM	40363
Toluene	ND	0.047		mg/Kg	1	9/17/2018 3:02:55 PM	40363
Ethylbenzene	ND	0.047		mg/Kg	1	9/17/2018 3:02:55 PM	40363
Xylenes, Total	ND	0.095		mg/Kg	1	9/17/2018 3:02:55 PM	40363
Surr: 4-Bromofluorobenzene	97.0	80-120		%Rec	1	9/17/2018 3:02:55 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 8 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW13

Project: Abe Unit 2

Collection Date: 9/12/2018 8:35:00 AM

Lab ID: 1809855-009

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	110	30		mg/Kg	20	9/19/2018 8:40:43 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/18/2018 5:57:42 PM	40397
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/18/2018 5:57:42 PM	40397
Surr: DNOP	106	50.6-138		%Rec	1	9/18/2018 5:57:42 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 3:26:24 PM	40363
Surr: BFB	95.8	15-316		%Rec	1	9/17/2018 3:26:24 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 3:26:24 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 3:26:24 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 3:26:24 PM	40363
Xylenes, Total	ND	0.096		mg/Kg	1	9/17/2018 3:26:24 PM	40363
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	1	9/17/2018 3:26:24 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 9 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS8-1

Project: Abe Unit 2

Collection Date: 9/12/2018 8:38:00 AM

Lab ID: 1809855-010

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 9:17:57 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 6:22:21 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 6:22:21 PM	40397
Surr: DNOP	83.8	50.6-138		%Rec	1	9/18/2018 6:22:21 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 3:49:57 PM	40363
Surr: BFB	95.3	15-316		%Rec	1	9/17/2018 3:49:57 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 3:49:57 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 3:49:57 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 3:49:57 PM	40363
Xylenes, Total	ND	0.098		mg/Kg	1	9/17/2018 3:49:57 PM	40363
Surr: 4-Bromofluorobenzene	98.5	80-120		%Rec	1	9/17/2018 3:49:57 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 10 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS3-3.5

Project: Abe Unit 2

Collection Date: 9/12/2018 9:25:00 AM

Lab ID: 1809855-011

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	120	30		mg/Kg	20	9/19/2018 9:30:22 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 6:47:06 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 6:47:06 PM	40397
Surr: DNOP	82.3	50.6-138		%Rec	1	9/18/2018 6:47:06 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 8:08:18 PM	40363
Surr: BFB	91.6	15-316		%Rec	1	9/17/2018 8:08:18 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 8:08:18 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 8:08:18 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 8:08:18 PM	40363
Xylenes, Total	ND	0.098		mg/Kg	1	9/17/2018 8:08:18 PM	40363
Surr: 4-Bromofluorobenzene	95.0	80-120		%Rec	1	9/17/2018 8:08:18 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 11 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW19

Project: Abe Unit 2

Collection Date: 9/12/2018 9:30:00 AM

Lab ID: 1809855-012

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 9:42:46 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/18/2018 7:11:43 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 7:11:43 PM	40397
Surr: DNOP	80.2	50.6-138		%Rec	1	9/18/2018 7:11:43 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/17/2018 8:31:36 PM	40363
Surr: BFB	90.4	15-316		%Rec	1	9/17/2018 8:31:36 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/17/2018 8:31:36 PM	40363
Toluene	ND	0.046		mg/Kg	1	9/17/2018 8:31:36 PM	40363
Ethylbenzene	ND	0.046		mg/Kg	1	9/17/2018 8:31:36 PM	40363
Xylenes, Total	ND	0.093		mg/Kg	1	9/17/2018 8:31:36 PM	40363
Surr: 4-Bromofluorobenzene	94.4	80-120		%Rec	1	9/17/2018 8:31:36 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 12 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW10

Project: Abe Unit 2

Collection Date: 9/12/2018 10:23:00 AM

Lab ID: 1809855-013

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	35	30		mg/Kg	20	9/19/2018 10:19:59 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 7:36:21 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 7:36:21 PM	40397
Surr: DNOP	90.3	50.6-138		%Rec	1	9/18/2018 7:36:21 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 8:54:50 PM	40363
Surr: BFB	91.2	15-316		%Rec	1	9/17/2018 8:54:50 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 8:54:50 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 8:54:50 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 8:54:50 PM	40363
Xylenes, Total	ND	0.099		mg/Kg	1	9/17/2018 8:54:50 PM	40363
Surr: 4-Bromofluorobenzene	93.5	80-120		%Rec	1	9/17/2018 8:54:50 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 13 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW22

Project: Abe Unit 2

Collection Date: 9/12/2018 9:54:00 AM

Lab ID: 1809855-014

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	240	30		mg/Kg	20	9/19/2018 10:32:23 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/19/2018 11:16:46 AM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/19/2018 11:16:46 AM	40397
Surr: DNOP	97.1	50.6-138		%Rec	1	9/19/2018 11:16:46 AM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 9:18:15 PM	40363
Surr: BFB	91.5	15-316		%Rec	1	9/17/2018 9:18:15 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 9:18:15 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 9:18:15 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 9:18:15 PM	40363
Xylenes, Total	ND	0.097		mg/Kg	1	9/17/2018 9:18:15 PM	40363
Surr: 4-Bromofluorobenzene	94.5	80-120		%Rec	1	9/17/2018 9:18:15 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 14 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW15

Project: Abe Unit 2

Collection Date: 9/12/2018 10:40:00 AM

Lab ID: 1809855-015

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 10:44:47 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 8:25:17 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 8:25:17 PM	40397
Surr: DNOP	87.3	50.6-138		%Rec	1	9/18/2018 8:25:17 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 9:41:30 PM	40363
Surr: BFB	90.9	15-316		%Rec	1	9/17/2018 9:41:30 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 9:41:30 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 9:41:30 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 9:41:30 PM	40363
Xylenes, Total	ND	0.097		mg/Kg	1	9/17/2018 9:41:30 PM	40363
Surr: 4-Bromofluorobenzene	94.4	80-120		%Rec	1	9/17/2018 9:41:30 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 15 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW5

Project: Abe Unit 2

Collection Date: 9/12/2018 10:49:00 AM

Lab ID: 1809855-016

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 10:57:12 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 8:49:43 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 8:49:43 PM	40397
Surr: DNOP	91.8	50.6-138		%Rec	1	9/18/2018 8:49:43 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2018 10:04:41 PM	40363
Surr: BFB	90.6	15-316		%Rec	1	9/17/2018 10:04:41 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/17/2018 10:04:41 PM	40363
Toluene	ND	0.048		mg/Kg	1	9/17/2018 10:04:41 PM	40363
Ethylbenzene	ND	0.048		mg/Kg	1	9/17/2018 10:04:41 PM	40363
Xylenes, Total	ND	0.095		mg/Kg	1	9/17/2018 10:04:41 PM	40363
Surr: 4-Bromofluorobenzene	93.6	80-120		%Rec	1	9/17/2018 10:04:41 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 16 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS6-2.5

Project: Abe Unit 2

Collection Date: 9/12/2018 10:52:00 AM

Lab ID: 1809855-017

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	100	30		mg/Kg	20	9/19/2018 11:09:36 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 9:14:11 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 9:14:11 PM	40397
Surr: DNOP	86.5	50.6-138		%Rec	1	9/18/2018 9:14:11 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/17/2018 10:27:57 PM	40363
Surr: BFB	91.7	15-316		%Rec	1	9/17/2018 10:27:57 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/17/2018 10:27:57 PM	40363
Toluene	ND	0.046		mg/Kg	1	9/17/2018 10:27:57 PM	40363
Ethylbenzene	ND	0.046		mg/Kg	1	9/17/2018 10:27:57 PM	40363
Xylenes, Total	ND	0.092		mg/Kg	1	9/17/2018 10:27:57 PM	40363
Surr: 4-Bromofluorobenzene	94.8	80-120		%Rec	1	9/17/2018 10:27:57 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 17 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS2-3.5

Project: Abe Unit 2

Collection Date: 9/12/2018 11:10:00 AM

Lab ID: 1809855-018

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 11:22:01 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 9:38:37 PM	40397
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 9:38:37 PM	40397
Surr: DNOP	80.7	50.6-138		%Rec	1	9/18/2018 9:38:37 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 10:51:13 PM	40363
Surr: BFB	93.4	15-316		%Rec	1	9/17/2018 10:51:13 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 10:51:13 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 10:51:13 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 10:51:13 PM	40363
Xylenes, Total	ND	0.098		mg/Kg	1	9/17/2018 10:51:13 PM	40363
Surr: 4-Bromofluorobenzene	95.8	80-120		%Rec	1	9/17/2018 10:51:13 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 18 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW17

Project: Abe Unit 2

Collection Date: 9/12/2018 11:22:00 AM

Lab ID: 1809855-019

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	33	30		mg/Kg	20	9/19/2018 11:34:26 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 10:03:07 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 10:03:07 PM	40397
Surr: DNOP	95.4	50.6-138		%Rec	1	9/18/2018 10:03:07 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/17/2018 11:14:31 PM	40363
Surr: BFB	87.5	15-316		%Rec	1	9/17/2018 11:14:31 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/17/2018 11:14:31 PM	40363
Toluene	ND	0.049		mg/Kg	1	9/17/2018 11:14:31 PM	40363
Ethylbenzene	ND	0.049		mg/Kg	1	9/17/2018 11:14:31 PM	40363
Xylenes, Total	ND	0.098		mg/Kg	1	9/17/2018 11:14:31 PM	40363
Surr: 4-Bromofluorobenzene	91.6	80-120		%Rec	1	9/17/2018 11:14:31 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 19 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW18

Project: Abe Unit 2

Collection Date: 9/12/2018 11:48:00 AM

Lab ID: 1809855-020

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 11:46:50 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 11:16:30 PM	40397
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 11:16:30 PM	40397
Surr: DNOP	99.4	50.6-138		%Rec	1	9/18/2018 11:16:30 PM	40397
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/17/2018 11:37:51 PM	40363
Surr: BFB	89.0	15-316		%Rec	1	9/17/2018 11:37:51 PM	40363
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/17/2018 11:37:51 PM	40363
Toluene	ND	0.046		mg/Kg	1	9/17/2018 11:37:51 PM	40363
Ethylbenzene	ND	0.046		mg/Kg	1	9/17/2018 11:37:51 PM	40363
Xylenes, Total	ND	0.093		mg/Kg	1	9/17/2018 11:37:51 PM	40363
Surr: 4-Bromofluorobenzene	91.4	80-120		%Rec	1	9/17/2018 11:37:51 PM	40363

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 20 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW4

Project: Abe Unit 2

Collection Date: 9/12/2018 1:22:00 PM

Lab ID: 1809855-021

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/19/2018 11:59:15 PM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 2:32:04 PM	40400
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 2:32:04 PM	40400
Surr: DNOP	106	50.6-138		%Rec	1	9/18/2018 2:32:04 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 10:43:34 AM	40379
Surr: BFB	94.0	15-316		%Rec	1	9/18/2018 10:43:34 AM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/18/2018 10:43:34 AM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 10:43:34 AM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 10:43:34 AM	40379
Xylenes, Total	ND	0.094		mg/Kg	1	9/18/2018 10:43:34 AM	40379
Surr: 4-Bromofluorobenzene	97.5	80-120		%Rec	1	9/18/2018 10:43:34 AM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 21 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW2

Project: Abe Unit 2

Collection Date: 9/12/2018 1:37:00 PM

Lab ID: 1809855-022

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 12:11:40 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/18/2018 4:00:35 PM	40400
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/18/2018 4:00:35 PM	40400
Surr: DNOP	95.9	50.6-138		%Rec	1	9/18/2018 4:00:35 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/18/2018 11:53:47 AM	40379
Surr: BFB	93.5	15-316		%Rec	1	9/18/2018 11:53:47 AM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 11:53:47 AM	40379
Toluene	ND	0.049		mg/Kg	1	9/18/2018 11:53:47 AM	40379
Ethylbenzene	ND	0.049		mg/Kg	1	9/18/2018 11:53:47 AM	40379
Xylenes, Total	ND	0.097		mg/Kg	1	9/18/2018 11:53:47 AM	40379
Surr: 4-Bromofluorobenzene	97.3	80-120		%Rec	1	9/18/2018 11:53:47 AM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 22 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW1

Project: Abe Unit 2

Collection Date: 9/12/2018 1:45:00 PM

Lab ID: 1809855-023

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	130	30		mg/Kg	20	9/20/2018 12:48:55 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/18/2018 4:22:33 PM	40400
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 4:22:33 PM	40400
Surr: DNOP	87.8	50.6-138		%Rec	1	9/18/2018 4:22:33 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/18/2018 1:04:17 PM	40379
Surr: BFB	95.5	15-316		%Rec	1	9/18/2018 1:04:17 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/18/2018 1:04:17 PM	40379
Toluene	ND	0.049		mg/Kg	1	9/18/2018 1:04:17 PM	40379
Ethylbenzene	ND	0.049		mg/Kg	1	9/18/2018 1:04:17 PM	40379
Xylenes, Total	ND	0.098		mg/Kg	1	9/18/2018 1:04:17 PM	40379
Surr: 4-Bromofluorobenzene	98.8	80-120		%Rec	1	9/18/2018 1:04:17 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 23 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS1

Project: Abe Unit 2

Collection Date: 9/12/2018 1:58:00 PM

Lab ID: 1809855-024

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 1:01:19 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 4:44:45 PM	40400
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 4:44:45 PM	40400
Surr: DNOP	60.7	50.6-138		%Rec	1	9/18/2018 4:44:45 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 1:27:49 PM	40379
Surr: BFB	96.8	15-316		%Rec	1	9/18/2018 1:27:49 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 1:27:49 PM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 1:27:49 PM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 1:27:49 PM	40379
Xylenes, Total	ND	0.094		mg/Kg	1	9/18/2018 1:27:49 PM	40379
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	9/18/2018 1:27:49 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 24 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS5

Project: Abe Unit 2

Collection Date: 9/12/2018 2:13:00 PM

Lab ID: 1809855-025

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	240	30		mg/Kg	20	9/20/2018 1:13:44 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/18/2018 5:06:49 PM	40400
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 5:06:49 PM	40400
Surr: DNOP	51.3	50.6-138		%Rec	1	9/18/2018 5:06:49 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/18/2018 1:51:21 PM	40379
Surr: BFB	98.2	15-316		%Rec	1	9/18/2018 1:51:21 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 1:51:21 PM	40379
Toluene	ND	0.048		mg/Kg	1	9/18/2018 1:51:21 PM	40379
Ethylbenzene	ND	0.048		mg/Kg	1	9/18/2018 1:51:21 PM	40379
Xylenes, Total	ND	0.096		mg/Kg	1	9/18/2018 1:51:21 PM	40379
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	9/18/2018 1:51:21 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 25 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW21

Project: Abe Unit 2

Collection Date: 9/12/2018 2:39:00 PM

Lab ID: 1809855-026

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	58	30		mg/Kg	20	9/20/2018 1:26:08 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 5:28:59 PM	40400
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 5:28:59 PM	40400
Surr: DNOP	58.3	50.6-138		%Rec	1	9/18/2018 5:28:59 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2018 2:14:53 PM	40379
Surr: BFB	97.1	15-316		%Rec	1	9/18/2018 2:14:53 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	9/18/2018 2:14:53 PM	40379
Toluene	ND	0.050		mg/Kg	1	9/18/2018 2:14:53 PM	40379
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2018 2:14:53 PM	40379
Xylenes, Total	ND	0.099		mg/Kg	1	9/18/2018 2:14:53 PM	40379
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	9/18/2018 2:14:53 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 26 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW20

Project: Abe Unit 2

Collection Date: 9/12/2018 2:44:00 PM

Lab ID: 1809855-027

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 1:38:33 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/18/2018 5:50:56 PM	40400
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/18/2018 5:50:56 PM	40400
Surr: DNOP	59.6	50.6-138		%Rec	1	9/18/2018 5:50:56 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/18/2018 2:38:28 PM	40379
Surr: BFB	96.4	15-316		%Rec	1	9/18/2018 2:38:28 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 2:38:28 PM	40379
Toluene	ND	0.048		mg/Kg	1	9/18/2018 2:38:28 PM	40379
Ethylbenzene	ND	0.048		mg/Kg	1	9/18/2018 2:38:28 PM	40379
Xylenes, Total	ND	0.095		mg/Kg	1	9/18/2018 2:38:28 PM	40379
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	9/18/2018 2:38:28 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 27 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW3

Project: Abe Unit 2

Collection Date: 9/12/2018 2:50:00 PM

Lab ID: 1809855-028

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	480	30		mg/Kg	20	9/20/2018 1:50:57 AM	40464
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/18/2018 6:13:01 PM	40400
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/18/2018 6:13:01 PM	40400
Surr: DNOP	56.4	50.6-138		%Rec	1	9/18/2018 6:13:01 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 3:02:00 PM	40379
Surr: BFB	96.6	15-316		%Rec	1	9/18/2018 3:02:00 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 3:02:00 PM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 3:02:00 PM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 3:02:00 PM	40379
Xylenes, Total	ND	0.094		mg/Kg	1	9/18/2018 3:02:00 PM	40379
Surr: 4-Bromofluorobenzene	99.1	80-120		%Rec	1	9/18/2018 3:02:00 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 28 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW16

Project: Abe Unit 2

Collection Date: 9/12/2018 3:00:00 PM

Lab ID: 1809855-029

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 11:16:39 AM	40474
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 6:35:02 PM	40400
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 6:35:02 PM	40400
Surr: DNOP	62.5	50.6-138		%Rec	1	9/18/2018 6:35:02 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 3:25:35 PM	40379
Surr: BFB	96.9	15-316		%Rec	1	9/18/2018 3:25:35 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/18/2018 3:25:35 PM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 3:25:35 PM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 3:25:35 PM	40379
Xylenes, Total	ND	0.093		mg/Kg	1	9/18/2018 3:25:35 PM	40379
Surr: 4-Bromofluorobenzene	99.4	80-120		%Rec	1	9/18/2018 3:25:35 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 29 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW5

Project: Abe Unit 2

Collection Date: 9/12/2018 3:10:00 PM

Lab ID: 1809855-030

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	310		mg/Kg	20	9/20/2018 11:53:54 AM	40474
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/18/2018 6:57:18 PM	40400
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/18/2018 6:57:18 PM	40400
Surr: DNOP	67.7	50.6-138		%Rec	1	9/18/2018 6:57:18 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 3:49:11 PM	40379
Surr: BFB	96.2	15-316		%Rec	1	9/18/2018 3:49:11 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/18/2018 3:49:11 PM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 3:49:11 PM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 3:49:11 PM	40379
Xylenes, Total	ND	0.094		mg/Kg	1	9/18/2018 3:49:11 PM	40379
Surr: 4-Bromofluorobenzene	98.5	80-120		%Rec	1	9/18/2018 3:49:11 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 30 of 38

## Analytical Report

Lab Order 1809855

Date Reported: 9/24/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: SW14

Project: Abe Unit 2

Collection Date: 9/12/2018 3:25:00 PM

Lab ID: 1809855-031

Matrix: SOIL

Received Date: 9/14/2018 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	9/20/2018 12:06:18 PM	40474
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/18/2018 7:19:15 PM	40400
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/18/2018 7:19:15 PM	40400
Surr: DNOP	58.0	50.6-138		%Rec	1	9/18/2018 7:19:15 PM	40400
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/18/2018 7:21:12 PM	40379
Surr: BFB	93.5	15-316		%Rec	1	9/18/2018 7:21:12 PM	40379
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	9/18/2018 7:21:12 PM	40379
Toluene	ND	0.047		mg/Kg	1	9/18/2018 7:21:12 PM	40379
Ethylbenzene	ND	0.047		mg/Kg	1	9/18/2018 7:21:12 PM	40379
Xylenes, Total	ND	0.094		mg/Kg	1	9/18/2018 7:21:12 PM	40379
Surr: 4-Bromofluorobenzene	97.3	80-120		%Rec	1	9/18/2018 7:21:12 PM	40379

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 31 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID	<b>MB-40463</b>		SampType:	<b>mblk</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>40463</b>		RunNo:	<b>54284</b>			
Prep Date:	<b>9/19/2018</b>		Analysis Date:	<b>9/19/2018</b>		SeqNo:	<b>1796243</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-40463</b>		SampType:	<b>lcs</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>40463</b>		RunNo:	<b>54284</b>			
Prep Date:	<b>9/19/2018</b>		Analysis Date:	<b>9/19/2018</b>		SeqNo:	<b>1796244</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.6	90	110			

Sample ID	<b>MB-40464</b>		SampType:	<b>mblk</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>40464</b>		RunNo:	<b>54277</b>			
Prep Date:	<b>9/19/2018</b>		Analysis Date:	<b>9/19/2018</b>		SeqNo:	<b>1796473</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-40464</b>		SampType:	<b>lcs</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>40464</b>		RunNo:	<b>54277</b>			
Prep Date:	<b>9/19/2018</b>		Analysis Date:	<b>9/19/2018</b>		SeqNo:	<b>1796474</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

Sample ID	<b>MB-40474</b>		SampType:	<b>mblk</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>40474</b>		RunNo:	<b>54278</b>			
Prep Date:	<b>9/20/2018</b>		Analysis Date:	<b>9/20/2018</b>		SeqNo:	<b>1798025</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-40474</b>		SampType:	<b>lcs</b>		TestCode:	<b>EPA Method 300.0: Anions</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>40474</b>		RunNo:	<b>54278</b>			
Prep Date:	<b>9/20/2018</b>		Analysis Date:	<b>9/20/2018</b>		SeqNo:	<b>1798026</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	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#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40397</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40397</b>		RunNo: <b>54224</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793206</b>		Units: <b>mg/Kg</b>					
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	9.8		10.00		98.0	50.6	138			

Sample ID <b>LCS-40397</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40397</b>		RunNo: <b>54224</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793209</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.2	70	130			
Surr: DNOP	4.6		5.000		91.1	50.6	138			

Sample ID <b>1809855-001AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>SW8</b>	Batch ID: <b>40397</b>		RunNo: <b>54224</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793239</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	49.80	0	93.3	53.5	126	0	21.7	
Surr: DNOP	4.5		4.980		90.8	50.6	138	0	0	

Sample ID <b>1809855-001AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>SW8</b>	Batch ID: <b>40397</b>		RunNo: <b>54224</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793241</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.69	0	101	53.5	126			
Surr: DNOP	4.4		4.869		89.4	50.6	138			

Sample ID <b>MB-40400</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40400</b>		RunNo: <b>54220</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793243</b>		Units: <b>mg/Kg</b>					
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	9.4		10.00		93.7	50.6	138			

**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

PQL Practical Quantitative Limit

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

Page 33 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID	LCS-40400		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 40400		RunNo: 54220					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1793245		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.4	70	130			
Surr: DNOP	3.7		5.000		74.5	50.6	138			

Sample ID	1809855-021AMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	SW4		Batch ID: 40400		RunNo: 54220					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1794650		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.10	0	104	53.5	126			
Surr: DNOP	5.1		5.010		101	50.6	138			

Sample ID	1809855-021AMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	SW4		Batch ID: 40400		RunNo: 54220					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1794651		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	49.75	0	95.9	53.5	126	8.69	21.7	
Surr: DNOP	4.6		4.975		91.5	50.6	138	0	0	

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Page 34 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40363</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792370</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		91.3	15	316			

Sample ID <b>LCS-40363</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792371</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.7	75.9	131			
Surr: BFB	1100		1000		109	15	316			

Sample ID <b>1809855-001AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>SW8</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792373</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.6	22.91	0	95.4	77.8	128			
Surr: BFB	1000		916.6		109	15	316			

Sample ID <b>1809855-001AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>SW8</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792374</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	24.02	0	85.4	77.8	128	6.38	20	
Surr: BFB	1000		960.6		109	15	316	0	0	

Sample ID <b>MB-40379</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793581</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		93.7	15	316			

Sample ID <b>LCS-40379</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793582</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**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

PQL Practical Quantitative Limit

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

Page 35 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID	LCS-40379		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 40379		RunNo: 54235					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1793582		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	75.9	131			
Surr: BFB	1100		1000		105	15	316			

Sample ID	1809855-021AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	SW4		Batch ID: 40379		RunNo: 54235					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1793584		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	23.92	0	110	77.8	128			
Surr: BFB	1000		956.9		108	15	316			

Sample ID	1809855-021AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	SW4		Batch ID: 40379		RunNo: 54235					
Prep Date:	9/17/2018		Analysis Date: 9/18/2018		SeqNo: 1793585		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	24.08	0	109	77.8	128	0.280	20	
Surr: BFB	1000		963.4		108	15	316	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  
PQL Practical Quantitative Limit  
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

Page 36 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40363</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792413</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	0.94		1.000		93.8	80	120			

Sample ID <b>LCS-40363</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792414</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.6	77.3	128			
Toluene	0.98	0.050	1.000	0	97.6	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.9	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.4	81.6	129			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.2	80	120			

Sample ID <b>1809855-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>CS7-2</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792417</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	0.9950	0	89.4	68.5	133			
Toluene	0.94	0.050	0.9950	0.009309	93.3	75	130			
Ethylbenzene	0.93	0.050	0.9950	0	93.5	79.4	128			
Xylenes, Total	2.9	0.10	2.985	0.01564	95.1	77.3	131			
Surr: 4-Bromofluorobenzene	0.98		0.9950		98.5	80	120			

Sample ID <b>1809855-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>CS7-2</b>	Batch ID: <b>40363</b>		RunNo: <b>54206</b>							
Prep Date: <b>9/14/2018</b>	Analysis Date: <b>9/17/2018</b>		SeqNo: <b>1792418</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9756	0	86.8	68.5	133	4.83	20	
Toluene	0.89	0.049	0.9756	0.009309	90.5	75	130	4.95	20	
Ethylbenzene	0.90	0.049	0.9756	0	91.9	79.4	128	3.64	20	
Xylenes, Total	2.7	0.098	2.927	0.01564	93.0	77.3	131	4.16	20	
Surr: 4-Bromofluorobenzene	0.98		0.9756		101	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

PQL Practical Quantitative Limit

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

Page 37 of 38

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809855

24-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40379</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793623</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	0.96		1.000		96.1	80	120			

Sample ID <b>LCS-40379</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793624</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.8	77.3	128			
Toluene	0.97	0.050	1.000	0	97.0	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.0	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	95.6	81.6	129			
Surr: 4-Bromofluorobenzene	0.97		1.000		97.0	80	120			

Sample ID <b>1809855-022AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>SW2</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793627</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.024	0.9425	0	100	68.5	133			
Toluene	0.99	0.047	0.9425	0.009524	104	75	130			
Ethylbenzene	0.99	0.047	0.9425	0	106	79.4	128			
Xylenes, Total	3.0	0.094	2.828	0.01574	105	77.3	131			
Surr: 4-Bromofluorobenzene	0.92		0.9425		97.4	80	120			

Sample ID <b>1809855-022AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>SW2</b>	Batch ID: <b>40379</b>		RunNo: <b>54235</b>							
Prep Date: <b>9/17/2018</b>	Analysis Date: <b>9/18/2018</b>		SeqNo: <b>1793628</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9833	0	98.5	68.5	133	2.57	20	
Toluene	1.0	0.049	0.9833	0.009524	103	75	130	3.07	20	
Ethylbenzene	1.0	0.049	0.9833	0	103	79.4	128	2.08	20	
Xylenes, Total	3.1	0.098	2.950	0.01574	103	77.3	131	3.00	20	
Surr: 4-Bromofluorobenzene	0.98		0.9833		99.6	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

PQL Practical Quantitative Limit

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

Page 38 of 38



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87105  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 1809855

RcptNo: 1

Received By: Jazzmine Burkhead

9/14/2018 8:55:00 AM

Completed By: Ashley Gallegos

9/14/2018 11:02:44 AM

Reviewed By: ENM

9/14/18 Labeled by: JAB 09/14/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐  
4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐  
5. Sample(s) in proper container(s)? Yes ☒ No ☐  
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐  
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐  
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐  
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒  
10. Were any sample containers received broken? Yes ☐ No ☒  
11. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐  
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐  
13. Is it clear what analyses were requested? Yes ☒ No ☐  
14. 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: JAB 09/14/18

Special Handling (if applicable)

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

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

16. Additional remarks:

## 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.2	Good	Yes			

## Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other☐ EDD (Type)Turn-Around Time: 5 days☐ Standard ☐ Rush

Project Name:

Abe Unit #2

Project #:

Project Manager:

Austin West

Sampler:

Heather PalmerOn Ice: ☒ Yes ☐ NoSample Temperature: 4.2

HEAL No.

1809955

Container Type and #

402

Sample Request ID

SW8

Matrix

Soil

Date

9/10/18

Time

7:09

Date

7:10

Time

7:40

Date

7:43

Time

7:54

Date

7:59

Time

8:05

Date

8:37

Time

8:38

Date

9:28

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:30

Date

9:30

Time

9:3



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

[illegible]

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 notated on the analytical report.



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)

September 25, 2018

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

RE: Abe Unit 2

OrderNo.: 1809A13

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2018 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 #NM0901

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

## Analytical Report

Lab Order 1809A13

Date Reported: 9/25/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller &amp; Associates

Client Sample ID: CS4

Project: Abe Unit 2

Collection Date: 9/14/2018 3:58:00 AM

Lab ID: 1809A13-001

Matrix: SOIL

Received Date: 9/18/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Chloride	43	30		mg/Kg	20	9/23/2018 10:05:31 PM	40523
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/20/2018 1:57:04 PM	40460
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/20/2018 1:57:04 PM	40460
Surr: DNOP	74.6	50.6-138		%Rec	1	9/20/2018 1:57:04 PM	40460
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/19/2018 11:16:10 PM	40423
Surr: BFB	91.7	15-316		%Rec	1	9/19/2018 11:16:10 PM	40423
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	9/19/2018 11:16:10 PM	40423
Toluene	ND	0.048		mg/Kg	1	9/19/2018 11:16:10 PM	40423
Ethylbenzene	ND	0.048		mg/Kg	1	9/19/2018 11:16:10 PM	40423
Xylenes, Total	ND	0.097		mg/Kg	1	9/19/2018 11:16:10 PM	40423
Surr: 4-Bromofluorobenzene	94.1	80-120		%Rec	1	9/19/2018 11:16:10 PM	40423

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
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809A13  
25-Sep-18

Client: Souder, Miller & Associates  
Project: Abe Unit 2

Sample ID	MB-40523	SampType:	mblk	TestCode:	EPA Method 300.0: Anions						
Client ID:	PBS	Batch ID:	40523	RunNo:	54364						
Prep Date:	9/23/2018	Analysis Date:	9/23/2018	SeqNo:	1800882	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-40523	SampType:	lcs	TestCode:	EPA Method 300.0: Anions						
Client ID:	LCSS	Batch ID:	40523	RunNo:	54364						
Prep Date:	9/23/2018	Analysis Date:	9/23/2018	SeqNo:	1800883	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	14	1.5	15.00	0	94.2	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

PQL Practical Quantitative Limit

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

Page 2 of 5

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1809A13

25-Sep-18

**Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID	LCS-40460		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 40460		RunNo: 54275					
Prep Date:	9/19/2018		Analysis Date: 9/20/2018		SeqNo: 1797655		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	101	70	130			
Surr: DNOP	4.4		5.000		87.3	50.6	138			

Sample ID	MB-40460	SampType:	MBLK			TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS	Batch ID:	40460			RunNo:	54275				
Prep Date:	9/19/2018	Analysis Date:	9/20/2018			SeqNo:	1797656	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	10		10.00		101	50.6	138				

Sample ID	LCS-40485		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 40485		RunNo: 54322					
Prep Date:	9/20/2018		Analysis Date: 9/21/2018		SeqNo: 1798291		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		100	50.6	138			

Sample ID	MB-40485		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 40485		RunNo: 54322					
Prep Date:	9/20/2018		Analysis Date: 9/21/2018		SeqNo: 1798292		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		108	50.6	138			

**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  
PQL Practical Quantitative Limit  
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

Page 3 of 5

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **1809A13****25-Sep-18****Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40423</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40423</b>		RunNo: <b>54264</b>							
Prep Date: <b>9/18/2018</b>	Analysis Date: <b>9/19/2018</b>		SeqNo: <b>1795309</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.3	15	316			

Sample ID <b>LCS-40423</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40423</b>		RunNo: <b>54264</b>							
Prep Date: <b>9/18/2018</b>	Analysis Date: <b>9/19/2018</b>		SeqNo: <b>1795310</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	75.9	131			
Surr: BFB	1100		1000		109	15	316			

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Page 4 of 5

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **1809A13****25-Sep-18****Client:** Souder, Miller & Associates**Project:** Abe Unit 2

Sample ID <b>MB-40423</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>40423</b>		RunNo: <b>54264</b>							
Prep Date: <b>9/18/2018</b>	Analysis Date: <b>9/19/2018</b>		SeqNo: <b>1795348</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	0.98		1.000		98.2	80	120			

Sample ID <b>LCS-40423</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>40423</b>		RunNo: <b>54264</b>							
Prep Date: <b>9/18/2018</b>	Analysis Date: <b>9/19/2018</b>		SeqNo: <b>1795349</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.7	77.3	128			
Toluene	0.97	0.050	1.000	0	97.1	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.6	81.6	129			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.6	80	120			

**Qualifiers:**

* 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
PQL Practical Quantitative Limit	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  
4901 Hawkins NE  
Albuquerque, NM 87105  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 1809A13

RcptNo: 1

Received By: Jazzmine Burkhead

9/18/2018 8:40:00 AM

Completed By: Ashley Gallegos

9/18/2018 10:28:27 AM

Reviewed By: ENM

9/18/18

Labeled by: JAB 09/18/18

### Chain of Custody

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

### Log In

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

# of preserved bottles checked for pH: 09/18/18  
( $<2$  or  $>12$  unless noted)

Adjusted? JABChecked by: JAB

### Special Handling (if applicable)

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

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

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			



Equation (1) Inputs	(LxW)/43560sqft	Equation (1) Assumptions
---------------------	-----------------	--------------------------

1 acre = 43560 sqft

Area	<input type="text"/>	Length (ft)	<input type="text"/>	Width (ft)	<input type="text"/>	Acres
------	----------------------	-------------	----------------------	------------	----------------------	-------

0.5000

Equation (2) Inputs	Ksat*27,154gal/(42gal)	Equation (2) Assumptions
---------------------	------------------------	--------------------------

1 acre/inch = 27,154 gal

Ksat  0.6 in Inches per hour located at<https://websoilsurvey.nrcs.usda.gov>

1 bbl = 42gal

 387.91 BBL/Acre/hr

Equation (3)	(Eq2)X(Eq1) Area adjusted volume
--------------	----------------------------------

 193.96 BBL/hr max

Equation (4) Inputs	(Eq3)X release duration (hours)+recovered volume	Equation (4) Assumptions
---------------------	--	--------------------------

recovered fluids are not in  
soil solution 1 BBL 1 Duration (hr) 194.96 BBL

<sup>1</sup> infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface: (National Soil Survey Handbook (USDA))

<sup>2</sup> (Ksat) Hydraulic Conductivity. (National Soil Survey Handbook (USDA)) conductivity is often referred to as coefficient of permeability, most commonly shortened to permeability



**Souder, Miller & Associates**  
Engineering ♦ Environmental ♦ Surveying

201 S. Halagueno ♦ Carlsbad, NM 88220  
(575) 689-8801 ♦ [www.soudermiller.com](http://www.soudermiller.com)

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

CONDITIONS  
  
Action 191181

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 191181
	Action Type: [IM-SD] Well File Support Doc (ENV) (IM-BWF)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	3/22/2023