



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

June 10, 2020

#5E29133-BG15

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

SUBJECT: Remediation Closure Report for the Thistle Unit 17H Release (1RP-4393), Lea County, New Mexico

To Whom It May Concern:

On behalf of Devon Energy Production Co. LP (Devon), 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 Thistle Unit 17H site. The site is in Unit O, Section 33, Township 23S, 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.

<b>Table 1: Release Information and Closure Criteria</b>			
Name	Thistle Unit 17H	Company	Devon Energy Production
API Number	30-025-39893	Location	32.2543602, -103.5734558
Incident Number	nKL1622537497		
Estimated Date of Release	8/6/2016	Date Reported to NMOCD	8/10/2016
Landowner	State	Reported To	NMOCD- District 1, NMSLO
Source of Release	Water tank was struck by lightning		
Released Volume	148.5 bbls	Released Material	Produced Water
Recovered Volume	147.5 bbls	Net Release	1 bbl
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	4/2/2020, 5/14/2020, 5/29/2020		

## **1.0 Background**

On August 9, 2016, a release was discovered at the Thistle Unit 17H site due to a water tank being struck by lightning which resulted in the release of produced water and a fire. Initial response activities were conducted by Devon personnel, and included source elimination by immediately shutting off the wells and flow lines upon discovery. To secure the site, 911 was called and the local fire department was dispatched to extinguish the fire. A total of 148.5 barrels were released, with 147.5 barrels contained in the lined containment around the tank battery. For site stabilization a vacuum truck was dispatched which recovered approximately 147.5 barrels of fluid resulting in a net release of 1 barrel of produced water that did not leave the well pad. The entire tank battery and associated equipment has since been removed. Figure 1 illustrates the vicinity and site location; Figure 2 illustrates the release location. The C-141 form is included in Appendix A.

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

The Thistle Unit 17H is located approximately 24 miles northwest of Jal, New Mexico on State land at an elevation of approximately 3,656 feet above mean sea level (amsl).

Based upon the New Mexico Office of the State Engineer (NMOSE) (Appendix B), depth to groundwater in the area is estimated to be 311.2 feet below grade surface (bgs) after adjusting for elevation differences between water well locations and the release site. There are no 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 5/26/2020). However, there are five known water wells (C-02278, C-02308, C-02280, C-02279, C-02281) within 1.53 miles of the release point. Water well C-02278 is located 1.53 miles from the location with a depth to groundwater recorded at 400 feet, water well C-02308 is 1.39 miles with a depth of 20 feet, water well C-02280 is 1.29 miles with a depth of 400 feet, water well C-02279 is 1.11 miles with a depth of 400 feet, and water well C-02281 is 1.03 miles from the point of release, with a depth to groundwater recorded at 400 feet. The nearest significant watercourse is an unnamed playa, located approximately 5,748 feet to the southwest. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

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, in addition to the requirements of reclamation of the upper four feet of impacted soil. 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 and Remediation Activities**

On April 2, 2020, SMA personnel arrived on site in response to the release associated with the Thistle Unit 17H. Since the incident occurred, the tank battery, containment, and other associated equipment have been removed from the location. The area where the tank battery and containment once stood is now apparent as a flat, smooth area that is free of debris. Attached to the C-141 are a series of photos taken immediately after the release occurred that depict the tank battery and a telephone pole. At the time of SMA's site visits, the telephone was still on site. By considering the location of the telephone pole and the smooth, flat area, SMA was able to determine the location of the release. SMA performed site delineation activities by collecting soil samples around the release site and visibly stained area. Soil samples were field screened for chloride using an electrical conductivity (EC) meter. The one sample

Thistle Unit 17H Remediation Closure Report (1RP-4393)  
June 10, 2020

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that was collected from the visibly stained area (S1) was also screened for hydrocarbon impacts using a calibrated MiniRAE 3000 photoionization detector (PID) equipped with a 10.6 eV lamp.

A total of eight sample locations (S1-S4 and SW1-SW4) were investigated using a hand-auger, to depths up to six inches bgs. A total of eight 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.

As summarized in Table 3, results indicated that an area approximately 34 feet by 29 feet by 1 foot deep had been impacted.

On May 14 and 29, 2020 SMA returned to the site to guide excavation of contaminated soil. SMA guided the excavation activities by collecting soil samples for field screening. The walls and base were excavated until field screening results indicated that the NMOCD Closure Criteria would be met. NMOCD was notified on May 12, 2020 that closure samples were expected to be collected in two (2) business days.

SMA conducted confirmation sampling of the walls and base of the excavation, which measured approximately 34 feet by 29 feet, by two (2) feet bgs.

Confirmation samples were comprised of five-point composites of the base (CS1, CS2, CS3, CS4) and walls (SW1, SW2, SW3, SW4).

A total of eleven (11) 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. 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).

Figure 3 shows the extent of the excavation and sample locations. All laboratory results are summarized in Table 3. Laboratory reports are included in Appendix D. All samples are below the NMOCD Closure Criteria for this site; therefore, on behalf of Devon, SMA requests closure for release 1RP-4393.

In addition to meeting the Closure Criteria, the top four (4) feet of all offsite areas meet the Reclamation requirement of 19.15.29.13(D)(1). 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 Environmental Solutions near Hobbs, NM, an NMOCD permitted disposal facility.

#### **4.0 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 Ashley Maxwell at 505-320-9241 or Shawna Chubbuck at 505-325-7535.

Thistle Unit 17H Remediation Closure Report (1RP-4393)  
June 10, 2020

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Submitted by:  
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Handwritten signature of Ashley Maxwell in black ink.

Ashley Maxwell  
Project Manager

Handwritten signature of Shawna Chubbuck in blue ink.

Shawna Chubbuck  
Senior Scientist

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**ATTACHMENTS:**

**Figures:**

Figure 1: Vicinity and Well Head Protection Map

Figure 2: Surface Water Radius Map

Figure 3: Site and Sample Location Map

**Tables:**

Table 2: NMOCD Closure Criteria Justification

Table 3a: Summary of Initial Sample Results

Table 3b: Summary of Closure Sample Results

**Appendices:**

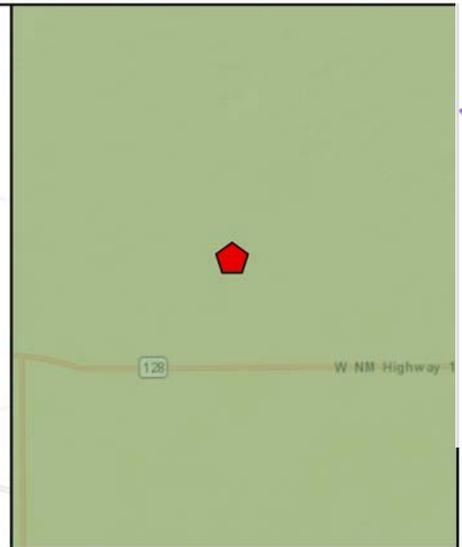
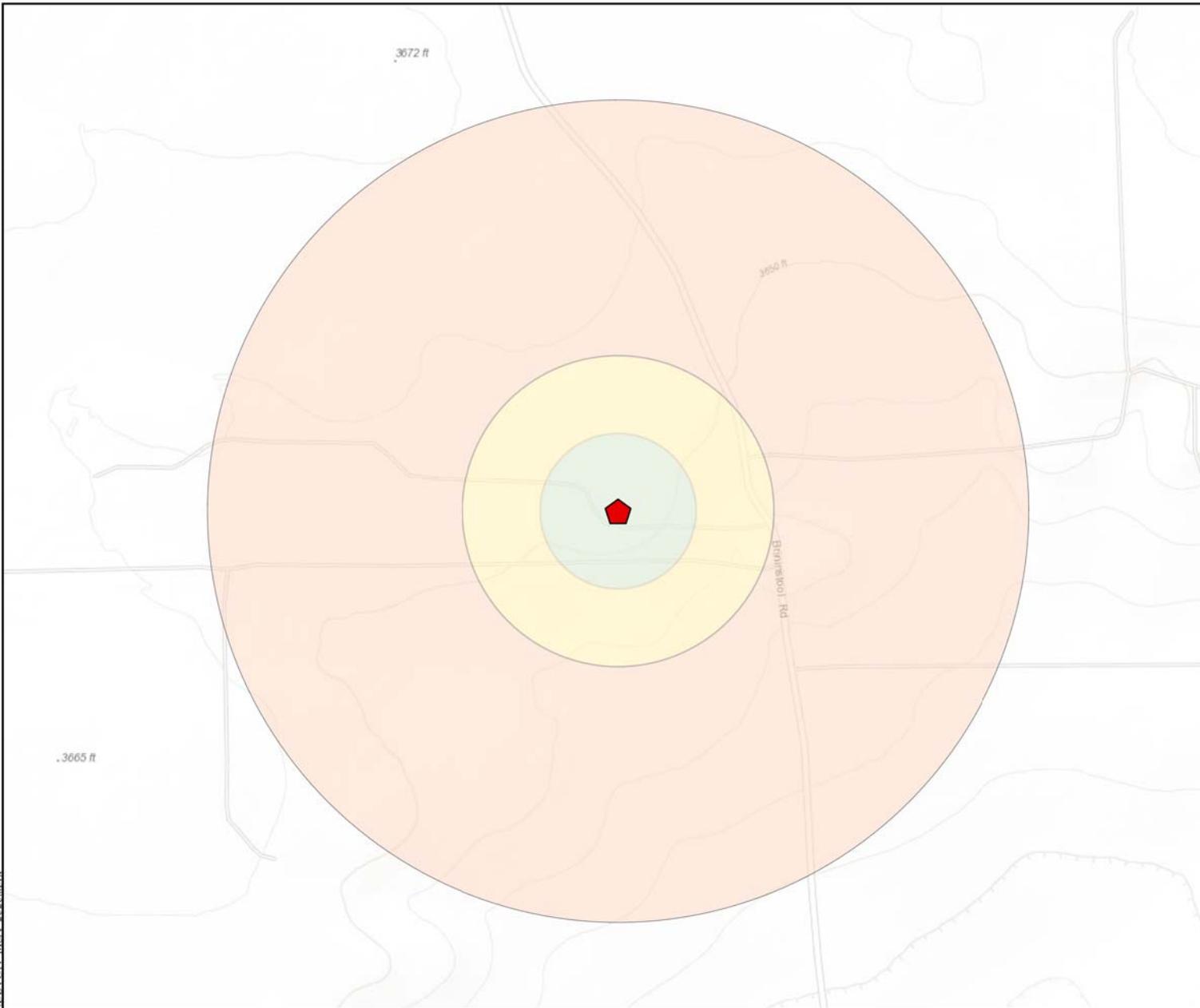
Appendix A: Form C141

Appendix B: NMOSE Wells Report

Appendix C: Photographs

Appendix D: Laboratory Analytical Reports

# FIGURES



**Buffer Distance**

-  .5 Mile
-  1000 Feet
-  500 Feet

**Legend**

-  OSE Depth to GW
-  USGS GW Well
-  Point of Release

**Karst Potential**

-  Critical
-  High
-  Medium
-  Low

**Scale**

0 320 640 1,280 1,920  
Feet

**North Arrow**

N

**Site Map**  
**Thistle Unit 17H - Devon Energy Production**  
**UL: O S: 33 T: 23S R: 33E, Lea County, New Mexico**

Figure 1

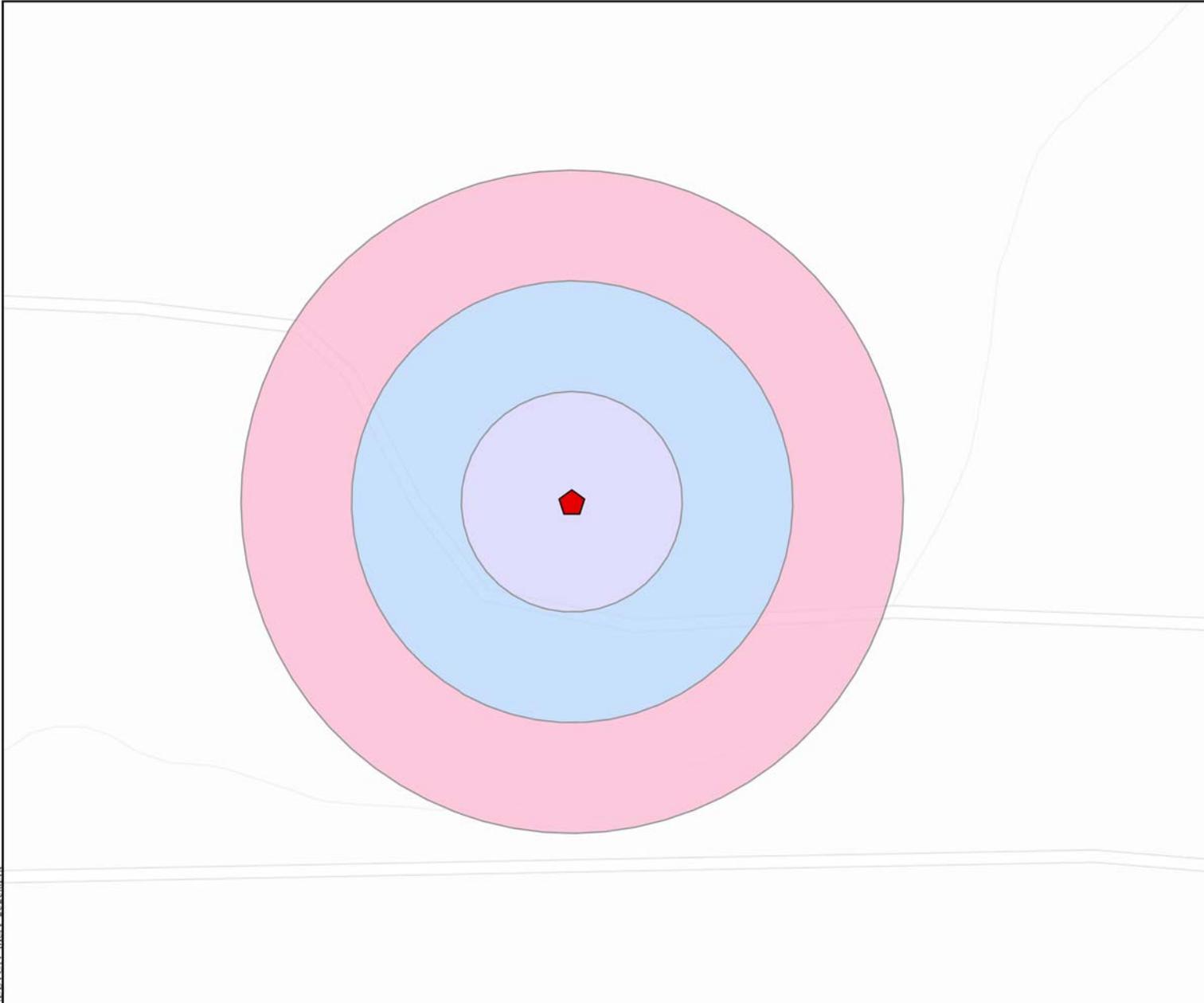
Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

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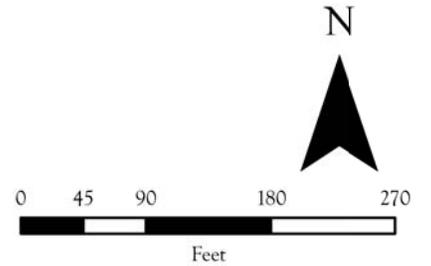
Drawn	<u>Brent Jackson</u>
Date	<u>4/22/2020</u>
Checked	_____
Approved	_____



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- Buffer Distance**
- 300 Feet
  - 200 Feet
  - 100 Feet
  - Springs & Seeps
  - Streams & Canals
  - Rivers
  - Flowlines SENM
  - NM Wetlands
  - Lakes & Playas
  - FEMA Flood Zones 2011
  - Point of Release



*Surface Water Protection Map*  
 Thistle Unit 17H- Devon Energy Production  
 UL: O S: 33 T: 23S R: 33E Lea County, New Mexico

Figure 2

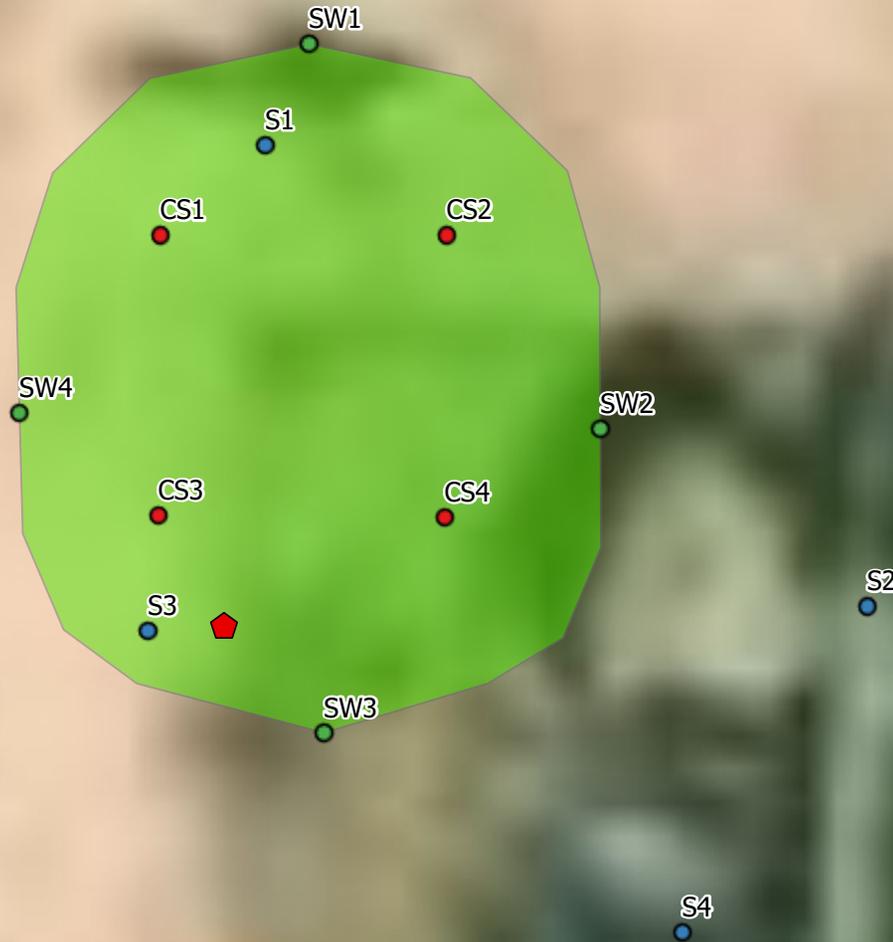
Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

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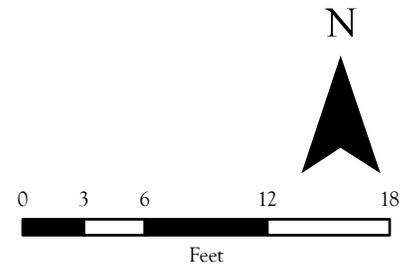
Drawn	Brent Jackson
Date	4/22/2020
Checked	_____
Approved	_____



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- 2' Excavation**
- Sample Points**
- Bottom Hole Closure Samples
  - Side Wall Closure Samples
  - Initial Soil Samples
  - ⬠ Point of Release



Site and Sample Location Map  
 Thistle Unit 17H- Devon Energy Production  
 UL: O S: 33 T: 23S R: 33E, Lea County, New Mexico

Figure 3

P:\5-Devon\MSA 2020\GIS\201313\GIS\DEVON\_MSA\_2020.aprx  
 Date Saved: 6/5/2020

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

Drawn	Sebastian Orozco
Date	6/5/2020
Checked	_____
Approved	_____



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# TABLES

Table 2:  
NMOCD Closure Criteria

Devon Energy Production  
Thistle Unit 17H  
(1RP-4393)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes				
Depth to Groundwater (feet bgs)	311.2	New Mexico Office of the State Engineer				
Horizontal Distance From All Water Sources Within 1/2 Mile (ft)	N/A	USGS Topographic Map				
Horizontal Distance to Nearest Significant Watercourse (ft)	5,748	Unnamed Playa to Southwest				
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					

Table 3a:  
Summary of Sample Results

Devon Energy Production  
Thistle Unit 17H (1RP-4393)

Sample ID	Sample Date	Depth (feet bgs)	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria			50	10	1000		2500	20000	
S1	4/2/2020	Surface	<1.09	<0.12	<24	<b>10000</b>	<b>15000</b>	<b>25000</b>	<60
		0.5	<0.22	<0.024	<4.9	220	320	540	<60
S2		Surface	<0.208	<0.023	<4.6	13	<47	13	<60
S3		Surface	<0.215	<0.024	<4.8	20	110	130	400
S4		Surface	<0.217	<0.024	<4.8	<9.1	<45	<58.9	<60
SW1		Surface	<0.212	<0.024	<4.7	9.6	<47	9.6	<60
SW2		Surface	<0.225	<0.025	<5.0	56	120	176	<60
SW3		Surface	<0.211	<0.023	<4.7	10	50	60	<61
SW4	Surface	<0.220	<0.024	<4.9	28	310	338	72	

"-" = Not Analyzed

Table 3b:  
Summary of Sample Results

Devon Energy Production  
Thistle Unit 17H (1RP-4393)

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action/ Action Taken	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMOCD Reclamation Requirement (0-4 ft)				50	10	--	--	--	100	600
NMOCD Closure Criteria				50	10	1000			2500	20000
CS1	5/14/2020	1	Excavated	<0.224	<0.025	<5.0	120	220	340	<60
	5/29/2020	2	In-situ	<0.213	<0.024	<4.7	<8.7	<44	<57.4	<59
CS2	5/14/2020	1	Excavated	<0.217	<0.024	<4.8	330	520	850	<60
	5/29/2020	2	In-situ	<0.216	<0.024	<4.8	<9.9	<49	<63.7	<60
CS3	5/14/2020	1	Excavated	<0.219	<0.024	<4.9	200	330	530	<60
	5/29/2020	2	In-situ	<0.211	<0.023	<4.7	<8.5	<42	<55.2	<60
CS4	5/14/2020	2	In-situ	<0.225	<0.025	<5.0	<9.8	<49	<63.8	<60
SW1	5/14/2020	0-2	In-situ	<0.221	<0.025	<4.9	<9.5	<48	<62.4	<60
SW2	5/14/2020	0-2	In-situ	<0.222	<0.025	<4.9	<9.9	<50	<64.8	<60
SW3	5/14/2020	0-2	In-situ	<0.224	<0.025	<5.0	<9.7	<48	<62.7	<60
SW4	5/14/2020	0-2	In-situ	<0.224	<0.025	<5.0	<9.3	<46	<60.3	<60

"--" = Not Analyzed

# APPENDIX A FORM C141

Incident ID	
District RP	1RP-4393
Facility ID	
Application ID	

## 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?	311.2 (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	
District RP	1RP-4393
Facility ID	
Application ID	

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: Lupe Carrasco Title: EHS Professional

Signature: *Lupe Carrasco* Date: 7/9/20

email: Lupe.Carrasco@dvn.com Telephone: 575-7480165

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	1RP-4393
Facility ID	
Application ID	

## 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: Lupe Carrasco Title: EHS Professional

Signature: *Lupe Carrasco* Date: 7/9/20

email: Lupe.Carrasco@dvn.com Telephone: 575-748-0165

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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: *Brittany Hall* Date: 10/25/2022

Printed Name: Brittany Hall 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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
<a href="#">C 02281</a>		CUB	LE	3	4	4	28	23S	33E	634495	3571183*	1664	545	400	145
<a href="#">C 02279</a>		CUB	LE	3	4	3	28	23S	33E	633691	3571173*	1787	650	400	250
<a href="#">C 03591</a> <b>POD1</b>		CUB	LE	2	1	4	05	24S	33E	632731	3568518	1929			
<a href="#">C 02280</a>		CUB	LE	3	2	4	28	23S	33E	634489	3571586*	2066	650	400	250
<a href="#">C 02308</a>		CUB	LE	1	3	1	10	24S	33E	634953	3567364*	2233	40	20	20
<a href="#">C 02278</a>		CUB	LE	3	4	2	28	23S	33E	634484	3571989*	2468	650	400	250

Average Depth to Water: **324 feet**  
Minimum Depth: **20 feet**  
Maximum Depth: **400 feet**

**Record Count:** 6

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 634378.3

**Northing (Y):** 3569522.47

**Radius:** 2500

\*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.

3/31/20 3:39 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Depth To Groundwater			Calculations	
Location Elevation (ft):		3656		
Well Name	Well Elevation (ft)	Well Depth to GW	Adjusted elevation	Adjusted Depth to GW
C-02281	3694	400	3294	362
C-02279	3686	400	3286	370
C-02280	3682	400	3282	374
C-02308	3594	20	3574	82
C-02278	3688	400	3288	368
<b>Total # of Wells</b>	<b>5</b>			<b>1556</b>

<b>Average Depth to Groundwater:</b>	<b>311.2</b>
--------------------------------------	--------------

# APPENDIX C PHOTOGRAPHS

60

90

120

150

180

210

☉ 142°SE (T) ● 32.254231, -103.573315 ±17ft ▲ 3562ft



NE

E

SE

S

30

60

90

120

150

180

☉ 115°E (T) ● 32.254275, -103.573259 ±24ft ▲ 3549ft



90

120

50

180

210

☀ 148°SE (T) ● 32°15'15"N, 103°34'23"W ±29ft ▲ 3658ft





60

90

120

150

180

☉ 109°E (T) ● 32°15'15"N, 103°34'23"W ±16ft ▲ 3659ft



30 60 90 120 150

92°E (T) 32°15'15"N, 103°34'23"W ±13ft ▲ 3659ft



# 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)

April 14, 2020

Ashley Maxwell  
Souder, Miller & Associates  
201 S Halagueno  
Carlsbad, NM 88221  
TEL: (575) 689-8801  
FAX

RE: Thistle 17H

OrderNo.: 2004191

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/4/2020 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 white background.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW1

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 2:58:00 PM

**Lab ID:** 2004191-001

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	60		mg/Kg	20	4/8/2020 6:35:39 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	9.6	9.4		mg/Kg	1	4/8/2020 12:36:28 PM	51622
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/8/2020 12:36:28 PM	51622
Surr: DNOP	94.3	55.1-146		%Rec	1	4/8/2020 12:36:28 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/8/2020 8:59:31 PM	51593
Surr: BFB	96.4	66.6-105		%Rec	1	4/8/2020 8:59:31 PM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2020 8:59:31 PM	51593
Toluene	ND	0.047		mg/Kg	1	4/8/2020 8:59:31 PM	51593
Ethylbenzene	ND	0.047		mg/Kg	1	4/8/2020 8:59:31 PM	51593
Xylenes, Total	ND	0.094		mg/Kg	1	4/8/2020 8:59:31 PM	51593
Surr: 4-Bromofluorobenzene	99.5	80-120		%Rec	1	4/8/2020 8:59:31 PM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW2

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 2:50:00 PM

**Lab ID:** 2004191-002

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	60		mg/Kg	20	4/9/2020 9:57:09 AM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	56	9.4		mg/Kg	1	4/8/2020 1:01:00 PM	51622
Motor Oil Range Organics (MRO)	120	47		mg/Kg	1	4/8/2020 1:01:00 PM	51622
Surr: DNOP	94.5	55.1-146		%Rec	1	4/8/2020 1:01:00 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/8/2020 9:23:22 PM	51593
Surr: BFB	95.8	66.6-105		%Rec	1	4/8/2020 9:23:22 PM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	4/8/2020 9:23:22 PM	51593
Toluene	ND	0.050		mg/Kg	1	4/8/2020 9:23:22 PM	51593
Ethylbenzene	ND	0.050		mg/Kg	1	4/8/2020 9:23:22 PM	51593
Xylenes, Total	ND	0.10		mg/Kg	1	4/8/2020 9:23:22 PM	51593
Surr: 4-Bromofluorobenzene	97.9	80-120		%Rec	1	4/8/2020 9:23:22 PM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW3

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 2:54:00 PM

**Lab ID:** 2004191-003

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	61		mg/Kg	20	4/8/2020 7:25:17 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	4/8/2020 1:25:21 PM	51622
Motor Oil Range Organics (MRO)	50	48		mg/Kg	1	4/8/2020 1:25:21 PM	51622
Surr: DNOP	92.0	55.1-146		%Rec	1	4/8/2020 1:25:21 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/8/2020 10:58:46 PM	51593
Surr: BFB	98.6	66.6-105		%Rec	1	4/8/2020 10:58:46 PM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	4/8/2020 10:58:46 PM	51593
Toluene	ND	0.047		mg/Kg	1	4/8/2020 10:58:46 PM	51593
Ethylbenzene	ND	0.047		mg/Kg	1	4/8/2020 10:58:46 PM	51593
Xylenes, Total	ND	0.094		mg/Kg	1	4/8/2020 10:58:46 PM	51593
Surr: 4-Bromofluorobenzene	99.7	80-120		%Rec	1	4/8/2020 10:58:46 PM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW4

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 2:56:00 PM

**Lab ID:** 2004191-004

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	72	59		mg/Kg	20	4/8/2020 7:37:42 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	28	9.3		mg/Kg	1	4/8/2020 1:49:49 PM	51622
Motor Oil Range Organics (MRO)	310	47		mg/Kg	1	4/8/2020 1:49:49 PM	51622
Surr: DNOP	79.4	55.1-146		%Rec	1	4/8/2020 1:49:49 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/8/2020 11:22:36 PM	51593
Surr: BFB	97.1	66.6-105		%Rec	1	4/8/2020 11:22:36 PM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2020 11:22:36 PM	51593
Toluene	ND	0.049		mg/Kg	1	4/8/2020 11:22:36 PM	51593
Ethylbenzene	ND	0.049		mg/Kg	1	4/8/2020 11:22:36 PM	51593
Xylenes, Total	ND	0.098		mg/Kg	1	4/8/2020 11:22:36 PM	51593
Surr: 4-Bromofluorobenzene	97.7	80-120		%Rec	1	4/8/2020 11:22:36 PM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** S1-Surface

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 3:21:00 PM

**Lab ID:** 2004191-005

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	60		mg/Kg	20	4/8/2020 7:50:06 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	10000	190		mg/Kg	20	4/8/2020 3:08:41 PM	51622
Motor Oil Range Organics (MRO)	15000	960		mg/Kg	20	4/8/2020 3:08:41 PM	51622
Surr: DNOP	0	55.1-146	S	%Rec	20	4/8/2020 3:08:41 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	4/8/2020 11:46:26 PM	51593
Surr: BFB	96.8	66.6-105	D	%Rec	5	4/8/2020 11:46:26 PM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.12	D	mg/Kg	5	4/8/2020 11:46:26 PM	51593
Toluene	ND	0.24	D	mg/Kg	5	4/8/2020 11:46:26 PM	51593
Ethylbenzene	ND	0.24	D	mg/Kg	5	4/8/2020 11:46:26 PM	51593
Xylenes, Total	ND	0.49	D	mg/Kg	5	4/8/2020 11:46:26 PM	51593
Surr: 4-Bromofluorobenzene	97.5	80-120	D	%Rec	5	4/8/2020 11:46:26 PM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2004191

Date Reported: 4/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates

Client Sample ID: S1-6"

Project: Thistle 17H

Collection Date: 4/2/2020 3:27:00 PM

Lab ID: 2004191-006

Matrix: SOIL

Received Date: 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: CAS
Chloride	ND	60		mg/Kg	20	4/8/2020 8:02:31 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: TOM
Diesel Range Organics (DRO)	220	49		mg/Kg	5	4/10/2020 8:50:33 PM	51622
Motor Oil Range Organics (MRO)	320	250		mg/Kg	5	4/10/2020 8:50:33 PM	51622
Surr: DNOP	90.3	55.1-146		%Rec	5	4/10/2020 8:50:33 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/9/2020 12:10:08 AM	51593
Surr: BFB	96.8	66.6-105		%Rec	1	4/9/2020 12:10:08 AM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	4/9/2020 12:10:08 AM	51593
Toluene	ND	0.049		mg/Kg	1	4/9/2020 12:10:08 AM	51593
Ethylbenzene	ND	0.049		mg/Kg	1	4/9/2020 12:10:08 AM	51593
Xylenes, Total	ND	0.098		mg/Kg	1	4/9/2020 12:10:08 AM	51593
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	4/9/2020 12:10:08 AM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** S2

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 3:35:00 PM

**Lab ID:** 2004191-007

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	60		mg/Kg	20	4/8/2020 8:14:55 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	13	9.5		mg/Kg	1	4/8/2020 4:22:01 PM	51622
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/8/2020 4:22:01 PM	51622
Surr: DNOP	91.2	55.1-146		%Rec	1	4/8/2020 4:22:01 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/9/2020 12:33:36 AM	51593
Surr: BFB	98.5	66.6-105		%Rec	1	4/9/2020 12:33:36 AM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	4/9/2020 12:33:36 AM	51593
Toluene	ND	0.046		mg/Kg	1	4/9/2020 12:33:36 AM	51593
Ethylbenzene	ND	0.046		mg/Kg	1	4/9/2020 12:33:36 AM	51593
Xylenes, Total	ND	0.093		mg/Kg	1	4/9/2020 12:33:36 AM	51593
Surr: 4-Bromofluorobenzene	99.7	80-120		%Rec	1	4/9/2020 12:33:36 AM	51593

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 Limit
	S % Recovery outside of range due to dilution or matrix	

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** S3

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 3:35:00 PM

**Lab ID:** 2004191-008

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	400	60		mg/Kg	20	4/8/2020 8:27:20 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	20	9.3		mg/Kg	1	4/8/2020 4:46:41 PM	51622
Motor Oil Range Organics (MRO)	110	46		mg/Kg	1	4/8/2020 4:46:41 PM	51622
Surr: DNOP	88.2	55.1-146		%Rec	1	4/8/2020 4:46:41 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/9/2020 12:57:32 AM	51593
Surr: BFB	95.6	66.6-105		%Rec	1	4/9/2020 12:57:32 AM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/9/2020 12:57:32 AM	51593
Toluene	ND	0.048		mg/Kg	1	4/9/2020 12:57:32 AM	51593
Ethylbenzene	ND	0.048		mg/Kg	1	4/9/2020 12:57:32 AM	51593
Xylenes, Total	ND	0.095		mg/Kg	1	4/9/2020 12:57:32 AM	51593
Surr: 4-Bromofluorobenzene	97.2	80-120		%Rec	1	4/9/2020 12:57:32 AM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2004191**

Date Reported: **4/14/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** S4

**Project:** Thistle 17H

**Collection Date:** 4/2/2020 3:40:00 PM

**Lab ID:** 2004191-009

**Matrix:** SOIL

**Received Date:** 4/4/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CAS</b>
Chloride	ND	60		mg/Kg	20	4/8/2020 9:04:33 PM	51662
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	4/8/2020 5:10:56 PM	51622
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/8/2020 5:10:56 PM	51622
Surr: DNOP	93.6	55.1-146		%Rec	1	4/8/2020 5:10:56 PM	51622
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/9/2020 1:21:31 AM	51593
Surr: BFB	101	66.6-105		%Rec	1	4/9/2020 1:21:31 AM	51593
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/9/2020 1:21:31 AM	51593
Toluene	ND	0.048		mg/Kg	1	4/9/2020 1:21:31 AM	51593
Ethylbenzene	ND	0.048		mg/Kg	1	4/9/2020 1:21:31 AM	51593
Xylenes, Total	ND	0.097		mg/Kg	1	4/9/2020 1:21:31 AM	51593
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/9/2020 1:21:31 AM	51593

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2004191

14-Apr-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>MB-51662</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51662</b>	RunNo: <b>67978</b>								
Prep Date: <b>4/8/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2349318</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-51662</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51662</b>	RunNo: <b>67978</b>								
Prep Date: <b>4/8/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2349333</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	91.1	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 Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2004191

14-Apr-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>MB-51622</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51622</b>	RunNo: <b>67900</b>								
Prep Date: <b>4/7/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2347566</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	55.1	146			

Sample ID: <b>LCS-51622</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51622</b>	RunNo: <b>67900</b>								
Prep Date: <b>4/7/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2347586</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.9	70	130			
Surr: DNOP	4.1		5.000		81.2	55.1	146			

Sample ID: <b>LCS-51634</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51634</b>	RunNo: <b>67900</b>								
Prep Date: <b>4/7/2020</b>	Analysis Date: <b>4/9/2020</b>	SeqNo: <b>2348958</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		74.0	55.1	146			

Sample ID: <b>MB-51634</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51634</b>	RunNo: <b>67900</b>								
Prep Date: <b>4/7/2020</b>	Analysis Date: <b>4/9/2020</b>	SeqNo: <b>2348959</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.5		10.00		84.9	55.1	146			

Sample ID: <b>LCS-51667</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51667</b>	RunNo: <b>68031</b>								
Prep Date: <b>4/8/2020</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>2350865</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		101	55.1	146			

Sample ID: <b>MB-51667</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51667</b>	RunNo: <b>68031</b>								
Prep Date: <b>4/8/2020</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>2350866</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		105	55.1	146			

**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 Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2004191

14-Apr-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>mb-51593</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51593</b>	RunNo: <b>67938</b>								
Prep Date: <b>4/6/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2348352</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	1000		1000		99.9	66.6	105			

Sample ID: <b>ics-51593</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51593</b>	RunNo: <b>67938</b>								
Prep Date: <b>4/6/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2348353</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.6	80	120			
Surr: BFB	1000		1000		104	66.6	105			

**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 Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2004191

14-Apr-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>mb-51593</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>51593</b>	RunNo: <b>67938</b>								
Prep Date: <b>4/6/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2348393</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-51593</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>51593</b>	RunNo: <b>67938</b>								
Prep Date: <b>4/6/2020</b>	Analysis Date: <b>4/8/2020</b>	SeqNo: <b>2348394</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	1.000	0	88.6	80	120			
Toluene	0.92	0.050	1.000	0	92.2	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.3	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	80	120			

**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 Limit



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

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 2004191 RcptNo: 1

Received By: Erin Melendrez 4/4/2020 8:15:00 AM
Completed By: Erin Melendrez 4/4/2020 10:39:52 AM
Reviewed By: ENM 4/4/20

Chain of Custody

- 1. Is Chain of Custody sufficiently complete? Yes [checked] No [ ] Not Present [ ]
2. How was the sample delivered? Courier

Log In

- 3. Was an attempt made to cool the samples? Yes [checked] No [ ] NA [ ]
4. Were all samples received at a temperature of >0° C to 6.0°C Yes [checked] No [ ] NA [ ]
5. Sample(s) in proper container(s)? Yes [checked] No [ ]
6. Sufficient sample volume for indicated test(s)? Yes [checked] No [ ]
7. Are samples (except VOA and ONG) properly preserved? Yes [checked] No [ ]
8. Was preservative added to bottles? Yes [ ] No [checked] NA [ ]
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes [ ] No [ ] NA [checked]
10. Were any sample containers received broken? Yes [ ] No [checked]
11. Does paperwork match bottle labels? Yes [checked] No [ ]
12. Are matrices correctly identified on Chain of Custody? Yes [checked] No [ ]
13. Is it clear what analyses were requested? Yes [checked] No [ ]
14. Were all holding times able to be met? Yes [checked] No [ ]

# of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: JP 04/04/20

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [ ] No [ ] NA [checked]

Person Notified:
By Whom:
Regarding:
Client Instructions:
Date:
Via: [ ] eMail [ ] Phone [ ] Fax [ ] In Person

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 1.1, Good, [ ], [ ], [ ]

### Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S. Halagueño St.  
 Carlsbad, NM 88220

Phone #: \_\_\_\_\_

email or Fax#: ashley.maxwell@swidermiller.com

QA/QC Package:  Standard  Level 4 (Full Validation)

Accreditation:  Az Compliance  NELAC  Other

EDD (Type) \_\_\_\_\_

Turn-Around Time:  Standard  Rush

Project Name: Thistle 17H

Project #: 20847733

Project Manager: Ashley Maxwell

Sampler: Brent Jackson

On Ice:  Yes  No

# of Coolers: 1

Cooler Temp (including CF): 1.1 - 0(CF) = 1.1 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
4/2/20	2:58	Soil	SW 1	I (4oz)	Cool	2004191
	2:50		SW 2			-001
	2:54		SW 3			-002
	2:56		SW 4			-003
	3:21		SI - Surface			-004
	3:27		SI - 6"			-005
	3:35		S2			-006
	3:35		S3			-007
	3:40		S4			-008
						-009

Analysis Request	
<input checked="" type="checkbox"/> BTEX / MTBE / TMB's (8021)	<input checked="" type="checkbox"/>
TPH:8015D(GRO / DRO / MRO)	<input checked="" type="checkbox"/>
8081 Pesticides/8082 PCB's	<input type="checkbox"/>
EDB (Method 504.1)	<input type="checkbox"/>
PAHs by 8310 or 8270SIMS	<input type="checkbox"/>
RCRA 8 Metals	<input checked="" type="checkbox"/>
Cl <sup>-</sup> , Br <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup>	<input checked="" type="checkbox"/>
8260 (VOA)	<input type="checkbox"/>
8270 (Semi-VOA)	<input type="checkbox"/>
Total Coliform (Present/Absent)	<input type="checkbox"/>

Received by: *[Signature]* Date: 4/3 Time: 12:30

Relinquished by: Brent Jackson

Date: 4/3 Time: 1900

Received by: *[Signature]* Date: 4/4 Time: 0815

Relinquished by: *[Signature]* Date: 4/4 Time: 0815

Remarks: Direct Bill Dewar



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com  
 4901 Hawkins NE - Albuquerque, NM 87109  
 Tel. 505-345-3975 Fax 505-345-4107

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.

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS1-1'

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:21:00 PM

**Lab ID:** 2005733-001

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 3:54:13 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	120	9.2		mg/Kg	1	5/19/2020 3:08:47 PM	52521
Motor Oil Range Organics (MRO)	220	46		mg/Kg	1	5/19/2020 3:08:47 PM	52521
Surr: DNOP	91.6	55.1-146		%Rec	1	5/19/2020 3:08:47 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/18/2020 10:27:22 AM	52510
Surr: BFB	80.6	66.6-105		%Rec	1	5/18/2020 10:27:22 AM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 10:27:22 AM	52510
Toluene	ND	0.050		mg/Kg	1	5/18/2020 10:27:22 AM	52510
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2020 10:27:22 AM	52510
Xylenes, Total	ND	0.099		mg/Kg	1	5/18/2020 10:27:22 AM	52510
Surr: 4-Bromofluorobenzene	93.1	80-120		%Rec	1	5/18/2020 10:27:22 AM	52510

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 Limit
	S % Recovery outside of range due to dilution or matrix	

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS2-1'

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:23:00 PM

**Lab ID:** 2005733-002

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 4:31:25 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	330	46		mg/Kg	5	5/19/2020 3:06:15 PM	52521
Motor Oil Range Organics (MRO)	520	230		mg/Kg	5	5/19/2020 3:06:15 PM	52521
Surr: DNOP	102	55.1-146		%Rec	5	5/19/2020 3:06:15 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/18/2020 10:50:51 AM	52510
Surr: BFB	87.2	66.6-105		%Rec	1	5/18/2020 10:50:51 AM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2020 10:50:51 AM	52510
Toluene	ND	0.048		mg/Kg	1	5/18/2020 10:50:51 AM	52510
Ethylbenzene	ND	0.048		mg/Kg	1	5/18/2020 10:50:51 AM	52510
Xylenes, Total	ND	0.097		mg/Kg	1	5/18/2020 10:50:51 AM	52510
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	5/18/2020 10:50:51 AM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS3-1'

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:25:00 PM

**Lab ID:** 2005733-003

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 4:43:49 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	200	48		mg/Kg	5	5/19/2020 3:31:02 PM	52521
Motor Oil Range Organics (MRO)	330	240		mg/Kg	5	5/19/2020 3:31:02 PM	52521
Surr: DNOP	94.8	55.1-146		%Rec	5	5/19/2020 3:31:02 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/18/2020 11:14:25 AM	52510
Surr: BFB	87.8	66.6-105		%Rec	1	5/18/2020 11:14:25 AM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2020 11:14:25 AM	52510
Toluene	ND	0.049		mg/Kg	1	5/18/2020 11:14:25 AM	52510
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2020 11:14:25 AM	52510
Xylenes, Total	ND	0.097		mg/Kg	1	5/18/2020 11:14:25 AM	52510
Surr: 4-Bromofluorobenzene	99.9	80-120		%Rec	1	5/18/2020 11:14:25 AM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS4-1'

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:27:00 PM

**Lab ID:** 2005733-004

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 4:56:14 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/18/2020 1:12:53 PM	52521
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/18/2020 1:12:53 PM	52521
Surr: DNOP	117	55.1-146		%Rec	1	5/18/2020 1:12:53 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/18/2020 11:38:06 AM	52510
Surr: BFB	84.2	66.6-105		%Rec	1	5/18/2020 11:38:06 AM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 11:38:06 AM	52510
Toluene	ND	0.050		mg/Kg	1	5/18/2020 11:38:06 AM	52510
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2020 11:38:06 AM	52510
Xylenes, Total	ND	0.10		mg/Kg	1	5/18/2020 11:38:06 AM	52510
Surr: 4-Bromofluorobenzene	98.7	80-120		%Rec	1	5/18/2020 11:38:06 AM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW1

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:36:00 PM

**Lab ID:** 2005733-005

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 5:08:38 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/18/2020 1:37:29 PM	52521
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/18/2020 1:37:29 PM	52521
Surr: DNOP	118	55.1-146		%Rec	1	5/18/2020 1:37:29 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/18/2020 12:01:33 PM	52510
Surr: BFB	86.5	66.6-105		%Rec	1	5/18/2020 12:01:33 PM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 12:01:33 PM	52510
Toluene	ND	0.049		mg/Kg	1	5/18/2020 12:01:33 PM	52510
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2020 12:01:33 PM	52510
Xylenes, Total	ND	0.098		mg/Kg	1	5/18/2020 12:01:33 PM	52510
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/18/2020 12:01:33 PM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW2

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:38:00 PM

**Lab ID:** 2005733-006

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 5:21:03 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/18/2020 2:02:12 PM	52521
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2020 2:02:12 PM	52521
Surr: DNOP	110	55.1-146		%Rec	1	5/18/2020 2:02:12 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/18/2020 12:25:07 PM	52510
Surr: BFB	88.1	66.6-105		%Rec	1	5/18/2020 12:25:07 PM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 12:25:07 PM	52510
Toluene	ND	0.049		mg/Kg	1	5/18/2020 12:25:07 PM	52510
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2020 12:25:07 PM	52510
Xylenes, Total	ND	0.099		mg/Kg	1	5/18/2020 12:25:07 PM	52510
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/18/2020 12:25:07 PM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW3

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:45:00 PM

**Lab ID:** 2005733-007

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 5:58:17 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/18/2020 2:26:50 PM	52521
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/18/2020 2:26:50 PM	52521
Surr: DNOP	108	55.1-146		%Rec	1	5/18/2020 2:26:50 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/18/2020 12:48:37 PM	52510
Surr: BFB	86.8	66.6-105		%Rec	1	5/18/2020 12:48:37 PM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 12:48:37 PM	52510
Toluene	ND	0.050		mg/Kg	1	5/18/2020 12:48:37 PM	52510
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2020 12:48:37 PM	52510
Xylenes, Total	ND	0.099		mg/Kg	1	5/18/2020 12:48:37 PM	52510
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	5/18/2020 12:48:37 PM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005733**

Date Reported:

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SW4

**Project:** Thistle 17H

**Collection Date:** 5/14/2020 2:51:00 PM

**Lab ID:** 2005733-008

**Matrix:** SOIL

**Received Date:** 5/16/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>CJS</b>
Chloride	ND	60		mg/Kg	20	5/18/2020 6:10:42 PM	52539
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/18/2020 2:51:32 PM	52521
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/18/2020 2:51:32 PM	52521
Surr: DNOP	105	55.1-146		%Rec	1	5/18/2020 2:51:32 PM	52521
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/18/2020 1:12:07 PM	52510
Surr: BFB	84.8	66.6-105		%Rec	1	5/18/2020 1:12:07 PM	52510
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2020 1:12:07 PM	52510
Toluene	ND	0.050		mg/Kg	1	5/18/2020 1:12:07 PM	52510
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2020 1:12:07 PM	52510
Xylenes, Total	ND	0.099		mg/Kg	1	5/18/2020 1:12:07 PM	52510
Surr: 4-Bromofluorobenzene	98.6	80-120		%Rec	1	5/18/2020 1:12:07 PM	52510

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 Limit
	S	% Recovery outside of range due to dilution or matrix		



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

June 04, 2020

Ashley Maxwell  
Souder, Miller & Associates  
201 S Halagueno  
Carlsbad, NM 88221  
TEL:  
FAX

RE: Thistle 17H

OrderNo.: 2005D01

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/30/2020 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 in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Analytical Report**

Lab Order **2005D01**

Date Reported: 6/4/2020

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS1

**Project:** Thistle 17H

**Collection Date:** 5/29/2020 10:15:00 AM

**Lab ID:** 2005D01-001

**Matrix:** SOIL

**Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JMT</b>
Chloride	ND	59		mg/Kg	20	6/3/2020 12:20:49 PM	52850
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	5/31/2020 4:57:49 PM	52791
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/31/2020 4:57:49 PM	52791
Surr: DNOP	80.0	55.1-146		%Rec	1	5/31/2020 4:57:49 PM	52791
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2020 12:17:56 PM	52788
Surr: BFB	82.0	66.6-105		%Rec	1	6/1/2020 12:17:56 PM	52788
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	6/1/2020 12:17:56 PM	52788
Toluene	ND	0.047		mg/Kg	1	6/1/2020 12:17:56 PM	52788
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2020 12:17:56 PM	52788
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2020 12:17:56 PM	52788
Surr: 4-Bromofluorobenzene	94.2	80-120		%Rec	1	6/1/2020 12:17:56 PM	52788

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2005D01

Date Reported: 6/4/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates

Client Sample ID: CS2

Project: Thistle 17H

Collection Date: 5/29/2020 10:25:00 AM

Lab ID: 2005D01-002

Matrix: SOIL

Received Date: 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/3/2020 12:33:13 PM	52850
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/31/2020 6:12:03 PM	52791
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/31/2020 6:12:03 PM	52791
Surr: DNOP	69.4	55.1-146		%Rec	1	5/31/2020 6:12:03 PM	52791
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2020 1:28:22 PM	52788
Surr: BFB	80.4	66.6-105		%Rec	1	6/1/2020 1:28:22 PM	52788
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	6/1/2020 1:28:22 PM	52788
Toluene	ND	0.048		mg/Kg	1	6/1/2020 1:28:22 PM	52788
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2020 1:28:22 PM	52788
Xylenes, Total	ND	0.096		mg/Kg	1	6/1/2020 1:28:22 PM	52788
Surr: 4-Bromofluorobenzene	92.2	80-120		%Rec	1	6/1/2020 1:28:22 PM	52788

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 Limit
	S	% Recovery outside of range due to dilution or matrix		

**Analytical Report**

Lab Order **2005D01**

Date Reported: **6/4/2020**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** CS3

**Project:** Thistle 17H

**Collection Date:** 5/29/2020 10:30:00 AM

**Lab ID:** 2005D01-003

**Matrix:** SOIL

**Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/3/2020 1:10:26 PM	52850
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	5/31/2020 6:36:35 PM	52791
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	5/31/2020 6:36:35 PM	52791
Surr: DNOP	73.5	55.1-146		%Rec	1	5/31/2020 6:36:35 PM	52791
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2020 2:39:05 PM	52788
Surr: BFB	78.3	66.6-105		%Rec	1	6/1/2020 2:39:05 PM	52788
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	6/1/2020 2:39:05 PM	52788
Toluene	ND	0.047		mg/Kg	1	6/1/2020 2:39:05 PM	52788
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2020 2:39:05 PM	52788
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2020 2:39:05 PM	52788
Surr: 4-Bromofluorobenzene	91.8	80-120		%Rec	1	6/1/2020 2:39:05 PM	52788

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 Limit
	S % Recovery outside of range due to dilution or matrix	

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005D01

04-Jun-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>MB-52850</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>52850</b>	RunNo: <b>69377</b>								
Prep Date: <b>6/3/2020</b>	Analysis Date: <b>6/3/2020</b>	SeqNo: <b>2405931</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-52850</b>	SampType: <b>lcs</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>52850</b>	RunNo: <b>69377</b>								
Prep Date: <b>6/3/2020</b>	Analysis Date: <b>6/3/2020</b>	SeqNo: <b>2405932</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	93.7	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 Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2005D01

04-Jun-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>2005D01-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>CS1</b>	Batch ID: <b>52791</b>	RunNo: <b>69277</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>5/31/2020</b>	SeqNo: <b>2401809</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.2	45.96	0	103	47.4	136			
Surr: DNOP	3.4		4.596		73.0	55.1	146			

Sample ID: <b>2005D01-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>CS1</b>	Batch ID: <b>52791</b>	RunNo: <b>69277</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>5/31/2020</b>	SeqNo: <b>2401810</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.9	49.41	0	103	47.4	136	7.30	43.4	
Surr: DNOP	3.5		4.941		70.5	55.1	146	0	0	

Sample ID: <b>LCS-52791</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>52791</b>	RunNo: <b>69277</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>5/31/2020</b>	SeqNo: <b>2401817</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	70	130			
Surr: DNOP	3.6		5.000		72.3	55.1	146			

Sample ID: <b>MB-52791</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>52791</b>	RunNo: <b>69277</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>5/31/2020</b>	SeqNo: <b>2401818</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	8.5		10.00		85.0	55.1	146			

**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 Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2005D01

04-Jun-20

**Client:** Souder, Miller & Associates

**Project:** Thistle 17H

Sample ID: <b>mb-52788</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>52788</b>		RunNo: <b>69307</b>							
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>		SeqNo: <b>2403247</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	820		1000		82.3	66.6	105			

Sample ID: <b>lcs-52788</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>52788</b>		RunNo: <b>69307</b>							
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>		SeqNo: <b>2403248</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.6	80	120			
Surr: BFB	890		1000		89.3	66.6	105			

Sample ID: <b>2005d01-002ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>CS2</b>	Batch ID: <b>52788</b>		RunNo: <b>69307</b>							
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>		SeqNo: <b>2403251</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	4.6	22.89	0	92.8	80	120			
Surr: BFB	850		915.8		92.4	66.6	105			

Sample ID: <b>2005d01-002amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>CS2</b>	Batch ID: <b>52788</b>		RunNo: <b>69307</b>							
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>		SeqNo: <b>2403252</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	4.7	23.34	0	88.2	80	120	3.14	20	
Surr: BFB	850		933.7		91.1	66.6	105	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 Limit

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

WO#: 2005D01

04-Jun-20

**Client:** Souder, Miller & Associates**Project:** Thistle 17H

Sample ID: <b>mb-52788</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>52788</b>	RunNo: <b>69307</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>	SeqNo: <b>2403285</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		94.3	80	120			

Sample ID: <b>LCS-52788</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>52788</b>	RunNo: <b>69307</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>	SeqNo: <b>2403286</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	95.0	80	120			
Toluene	0.98	0.050	1.000	0	98.3	80	120			
Ethylbenzene	0.99	0.050	1.000	0	99.3	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.4	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.2	80	120			

Sample ID: <b>2005d01-001ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>CS1</b>	Batch ID: <b>52788</b>	RunNo: <b>69307</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>	SeqNo: <b>2403293</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	0.9416	0.01538	98.0	78.5	119			
Toluene	0.98	0.047	0.9416	0.01320	103	75.7	123			
Ethylbenzene	1.0	0.047	0.9416	0	106	74.3	126			
Xylenes, Total	3.0	0.094	2.825	0	106	72.9	130			
Surr: 4-Bromofluorobenzene	0.91		0.9416		96.5	80	120			

Sample ID: <b>2005d01-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>CS1</b>	Batch ID: <b>52788</b>	RunNo: <b>69307</b>								
Prep Date: <b>5/31/2020</b>	Analysis Date: <b>6/1/2020</b>	SeqNo: <b>2403302</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	0.9980	0.01538	91.3	78.5	119	1.19	20	
Toluene	0.96	0.050	0.9980	0.01320	95.3	75.7	123	1.43	20	
Ethylbenzene	0.99	0.050	0.9980	0	99.4	74.3	126	0.941	20	
Xylenes, Total	3.0	0.10	2.994	0	99.6	72.9	130	0.864	20	
Surr: 4-Bromofluorobenzene	0.95		0.9980		95.0	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 Limit

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

Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 2005D01

RcptNo: 1

Received By: Isaiah Ortiz

5/30/2020 8:22:00 AM

IOX

Completed By: Isaiah Ortiz

5/30/2020 8:34:54 AM

IOX

Reviewed By: LB

5/30/20

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [ ] Not Present [ ]
2. How was the sample delivered? Courier

Log In

- 3. Was an attempt made to cool the samples? Yes [checked] No [ ] NA [ ]
4. Were all samples received at a temperature of >0° C to 6.0°C Yes [checked] No [ ] NA [ ]
5. Sample(s) in proper container(s)? Yes [checked] No [ ]
6. Sufficient sample volume for indicated test(s)? Yes [checked] No [ ]
7. Are samples (except VOA and ONG) properly preserved? Yes [checked] No [ ]
8. Was preservative added to bottles? Yes [ ] No [checked] NA [ ]
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes [ ] No [ ] NA [checked]
10. Were any sample containers received broken? Yes [ ] No [checked]
11. Does paperwork match bottle labels? Yes [checked] No [ ]
12. Are matrices correctly identified on Chain of Custody? Yes [checked] No [ ]
13. Is it clear what analyses were requested? Yes [checked] No [ ]
14. Were all holding times able to be met? Yes [checked] No [ ]

# of preserved bottles checked for pH: 5/30/20 (<2 or >12 unless noted)
Adjusted?
Checked by:

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [ ] No [ ] NA [checked]

Person Notified: Date:
By Whom: Via: [ ] eMail [ ] Phone [ ] Fax [ ] In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 4.1, Good, Not Present, , ,



**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 9164

**CONDITIONS**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 9164
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
bhall	None	10/25/2022