State of New Mexico
Oil Conservation Division

Incident ID	nKJ1515231550
District RP	1RP-3655
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?	285 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ 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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nKJ1515231550
District RP	1RP-3655
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: Dale Woodall Title: EHS Consultant

Signature: Dale Woodall Date: 1/4/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: Jocelyn Harimon Date: 01/04/2023

State of New Mexico
Oil Conservation Division

Incident ID	nKJ1515231550
District RP	1RP-3655
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: Dale Woodall Title: EHS Consultant

Signature: Dale Woodall Date: 1/4/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: Jocelyn Harimon Date: 01/04/2023

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

Closure Approved by: Brittany Hall Date: 1/4/2023

Printed Name: Brittany Hall Title: Environmental Specialist

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

October 4, 2020

#5E29133-BG12

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

SUBJECT: Remediation Closure Report for the Thistle Unit 47H Release (1RP-3655), Lea County, New Mexico

To Whom it May Concern:

On behalf of Devon Energy Production, 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 47H site. The site is in Unit N, Section 34, 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.

Table 1: Release Information and Closure Criteria			
Name	Thistle Unit 47H	Company	Devon Energy Production
API Number	30-025-41252	Location	32.2547924, -103.5606962
Incident Number	1RP-3655 (nKJ1515231550)		
Estimated Date of Release	5/24/2015	Date Reported to NMOCD	5/26/2015
Land Owner	State of New Mexico	Reported To	NMOCD District 1
Source of Release	Flow line parted at the threads on the well head		
Released Volume	10bbls	Released Material	Oil/Produced Water
Recovered Volume	8bbls	Net Release	2bbls
NMOCD Closure Criteria	<50 feet to Groundwater		
SMA Response Dates	3/19/2020, 7/20/2020, 8/25/2020		

1.0 Background

On May 24, 2015, a release was discovered at the Thistle Unit 47H site due to a flow line parting at the threads at the wellhead. Initial response activities were conducted by Devon Energy Production, and included source elimination and site stabilization. Approximately eight (8) barrels of fluid were recovered by vac truck. 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 47H is located approximately 24 miles Northwest of Jal, New Mexico on State land at an elevation of approximately 3,645 feet above mean sea level (amsl).

Based upon the New Mexico Office of the State Engineer (NMOSE) online water well database (Appendix B), there are no known water sources within ½-mile of the location, however, there are four within a 1.55-mile radius. Considering this data and adjusting for elevation, the depth to groundwater in this area is estimated to be 285 feet below grade surface (bgs) (see Table 4 for calculation). The nearest significant watercourse is Bell Lake, located approximately 7,400 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.

Due to the lack of supportable groundwater data within ½-mile the applicable NMOCD Closure Criteria for this site is for a groundwater depth of less than 50 feet bgs. The site has been restored to meet the standards of Table I of 19.15.29.12 NMAC.

Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization and Remediation Activities

On March 19 and July 1, 2020, SMA personnel arrived on site in response to the release associated with Thistle Unit 47H. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a calibrated MiniRAE 3000 photoionization detector (PID) equipped with a 10.6 eV lamp.

A total of six sample locations (L1-L6) were investigated using a hand-auger, to depths up to one foot bgs. A total of nine (9) 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. Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Additionally, SMA collected background samples (BG – BG3) from the outer pasture surrounding Thistle Unit 47H. Initial field-screens using an electrical conductivity (EC) meter and confirmation from data by samples sent to Hall Laboratories, indicated that there is a naturally high abundance of chlorides, which would justify the analytical report. According to Table I of 19.15.29.12 NMAC the closure criteria of a site is allowed to be the natural background level of chloride, should it be greater. Based on the analytical results, SMA therefore assumes the closure standard for chloride to be 2700 mg/kg.

On August 25, 2020 SMA returned to the site to guide the excavation of contaminated soil. SMA guided the excavation activities by collecting soil samples for field screening. Samples were screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a calibrated MiniRAE 3000 photoionization detector (PID) equipped with a 10.6 eV lamp. NMOCD was notified on August 23, 2020 that closure samples were expected to be collected in two (2) business days.

On August 25, 2020, SMA conducted confirmation sampling of the walls and base of the excavation, which measured approximately 13 x 40 feet. The area around initial sample locations L1, L2, and L4 was excavated to a depth of 2.5 feet bgs.

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

A total of seven closure 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. Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Cardinal Laboratories in Hobbs, New Mexico.

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

Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at Northern Delaware Basin Landfill near Jal, 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.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Ashley Maxwell
Project Scientist

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Surface Water Radius Map
Figure 3A: Site and Initial Sample Location Map
Figure 3B: Excavation and Confirmation Sample Location Map

Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results
Table 4: Potential Depth to Groundwater

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report
Appendix C: Field Notes and Photo Log
Appendix D: Sampling Protocol
Appendix E: Laboratory Analytical Reports

ADDENDUM

Location name: Thistle Unit 47H

OCD Spill Number: nKJ1515231550 (1RP-3655)

From: Dale Woodall, Devon Energy

Date: 1/4/2023

Since this report for the above referenced spill(s) was written, there has been an update in the status of the PODs for the location.

A review of New Mexico Office of the State Engineers (OSE) online water well database (New Mexico Office of the State Engineer (NMOSE) online water well database https://gis.ose.state.nm.us/gisapps/ose_pod_locations/).

One pod location is within 0.5 miles of the location and less than 25 years old.

C-04595 POD 1 (installed in 2022) did not encounter groundwater and is 0.23 miles west of the location

The spill was remediated to criteria for DTW of 51-100 feet bgs.

Boring log of the well C-4595 POD1 is attached.

NORTH

C-04637- POD1 (51 feet) = 0.23 miles from location

FIGURE 1: NM OSE POD LOCATIONS	
THISTLE UNIT 47H	
32.2546959,-103.5605698	
drawn by: RDW	Date: 01/2023

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (TW-1)		C-4595

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Devon Energy	575-748-1838

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6488 7 Rivers Hwy	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	15	16.73	N
	LONGITUDE	103	33	54.92	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SE SW SW Sec. 34 T23S R33E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
03/09/2022	03/09/2022	temporary well casing	±55	n/a

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): dry

DATE STATIC MEASURED: 03/9/22,3/15/22

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	55	±6.5	Boring	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

OSE DII APR 4 2022 PM2:05

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4595	POD NO. 1	TRN NO. 719171	
LOCATION 23S.33E.34433		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	4	4	Caliche, with medium to fine grained sand, white and Red	Y ✓ N	
4	24	20	Sand, medium/ fine grained, poorly graded, tan	Y ✓ N	
24	29	5	Sand, medium/ fine grained, poorly graded, Reddish Brown	Y ✓ N	
29	55	26	Sand, medium/ fine grained, poorly graded, with clay Reddish Brown	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Temporary well material removed and soil boring backfilled using drill cuttings from total depth to ten feet below ground surface(bgs), then hydrated bentonite chips ten feet bgs to surface.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge, Carmelo Trevino, Cameron Pruitt

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

OSE DII APR 4 2022 PM2:05

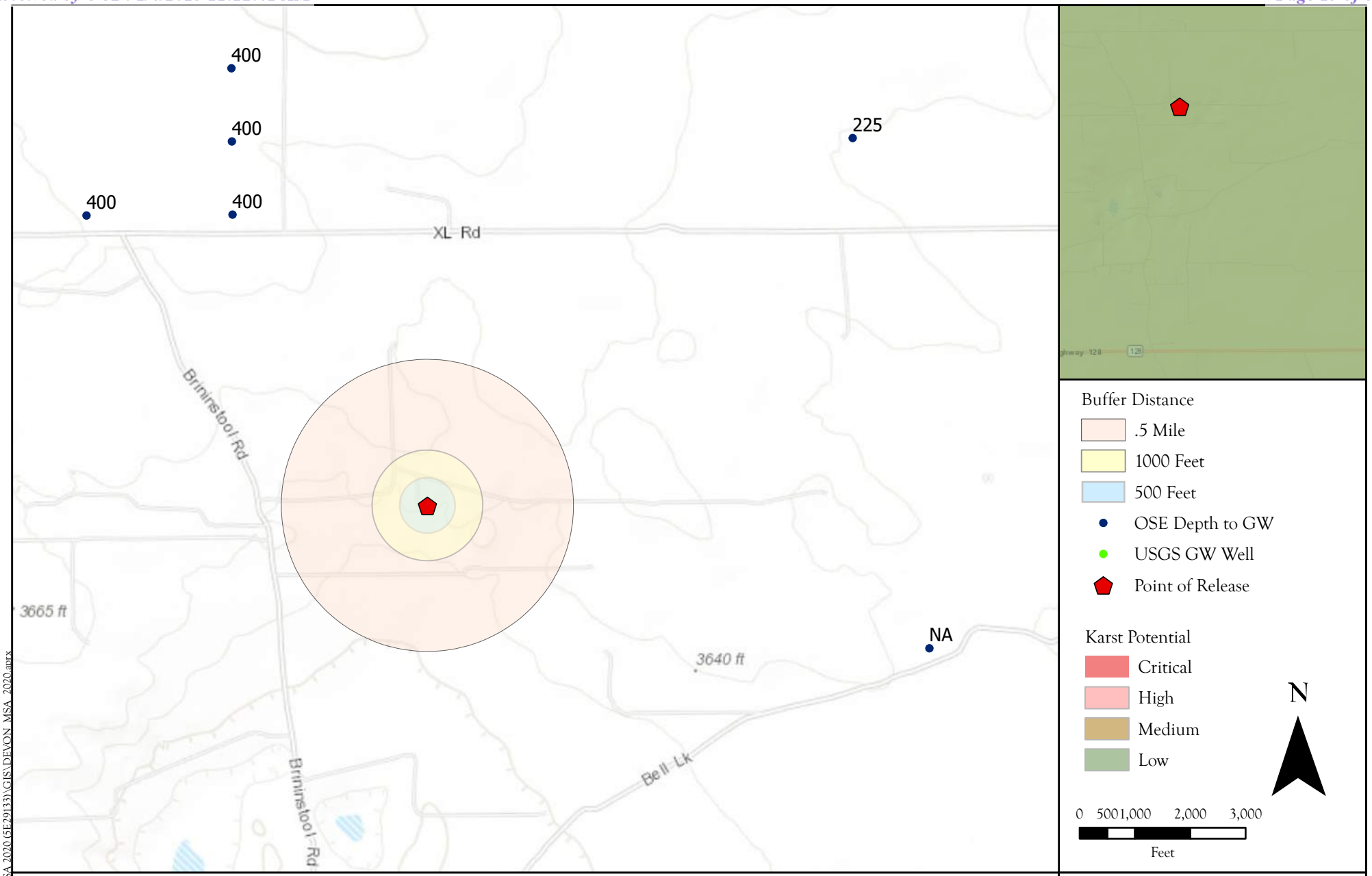
Jack Atkins — Jackie D. Atkins — 03/31/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4505	POD NO. 1	TRN NO. 719171	
LOCATION 23S.33E.34 43		WELL TAG ID NO. —	PAGE 2 OF 2

FIGURES



Site Map
Thistle Unit 47H - Devon Energy
UL: N S: 34 T: 23S R: 33E, Lea County, New Mexico

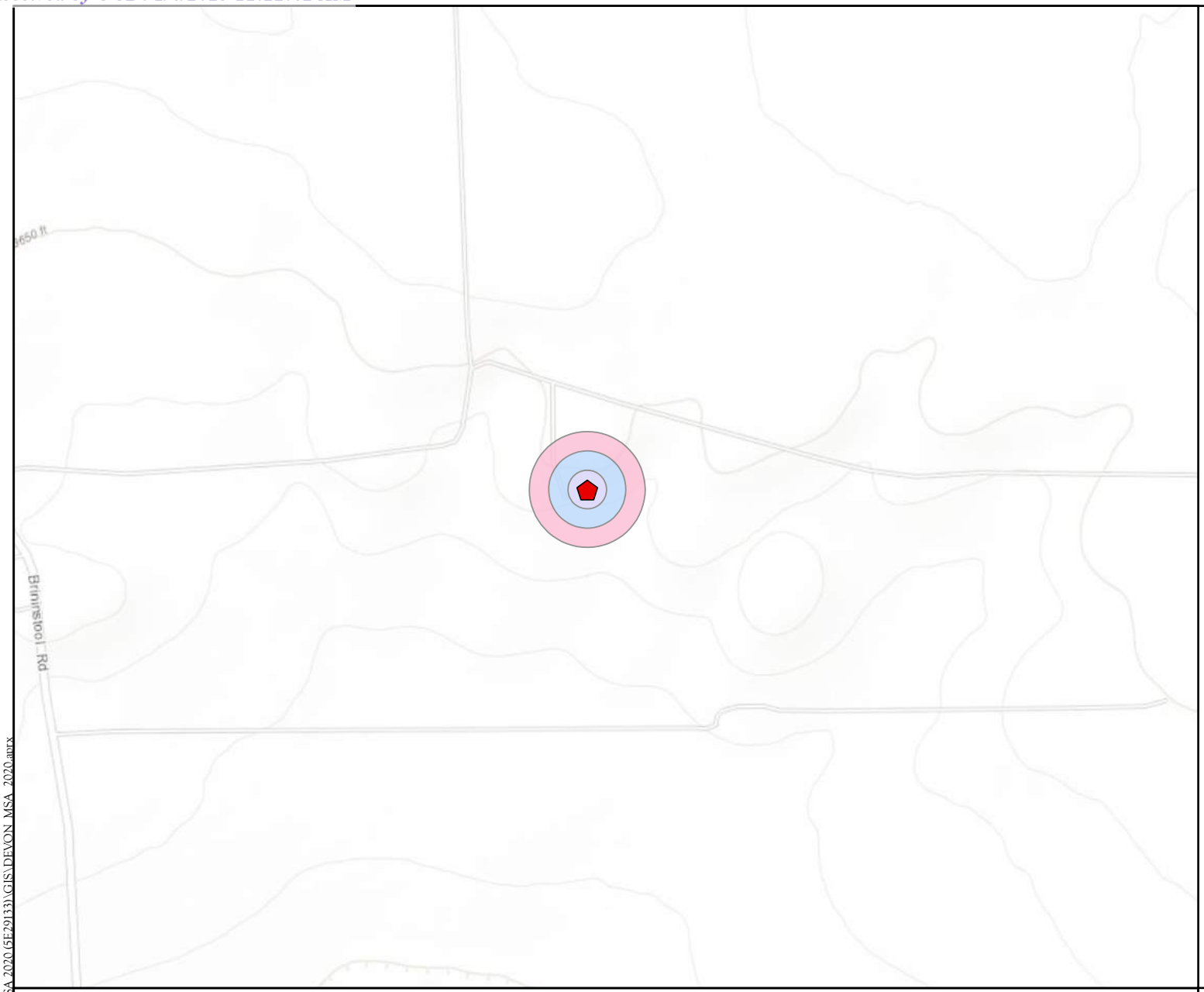
Figure 1

\\192.168.22.10\Projects\5-Devon MSA 2020\(5E29133)\GIS\DEVON_MSA_2020.aprx
Date Saved: 3/16/2020

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

Drawn Lynn A. Acosta
Date 3/17/2020
Checked
Approved

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



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

N

0 250 500 1,000 1,500

Feet

Surface Water Protection Map
Thistle Unit 47H- Devon Energy
UL: N S: 34 T: 23S R: 33E Lea County, New Mexico

Figure 2

\\192.168.22.10\Projects\5-Devon MSA 2020 (5E29133)\GIS\DEVON_MSA_2020.aprx
Date Saved: 3/16/2020

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

Drawn Lynn A. Acosta
Date 3/17/2020
Checked
Approved

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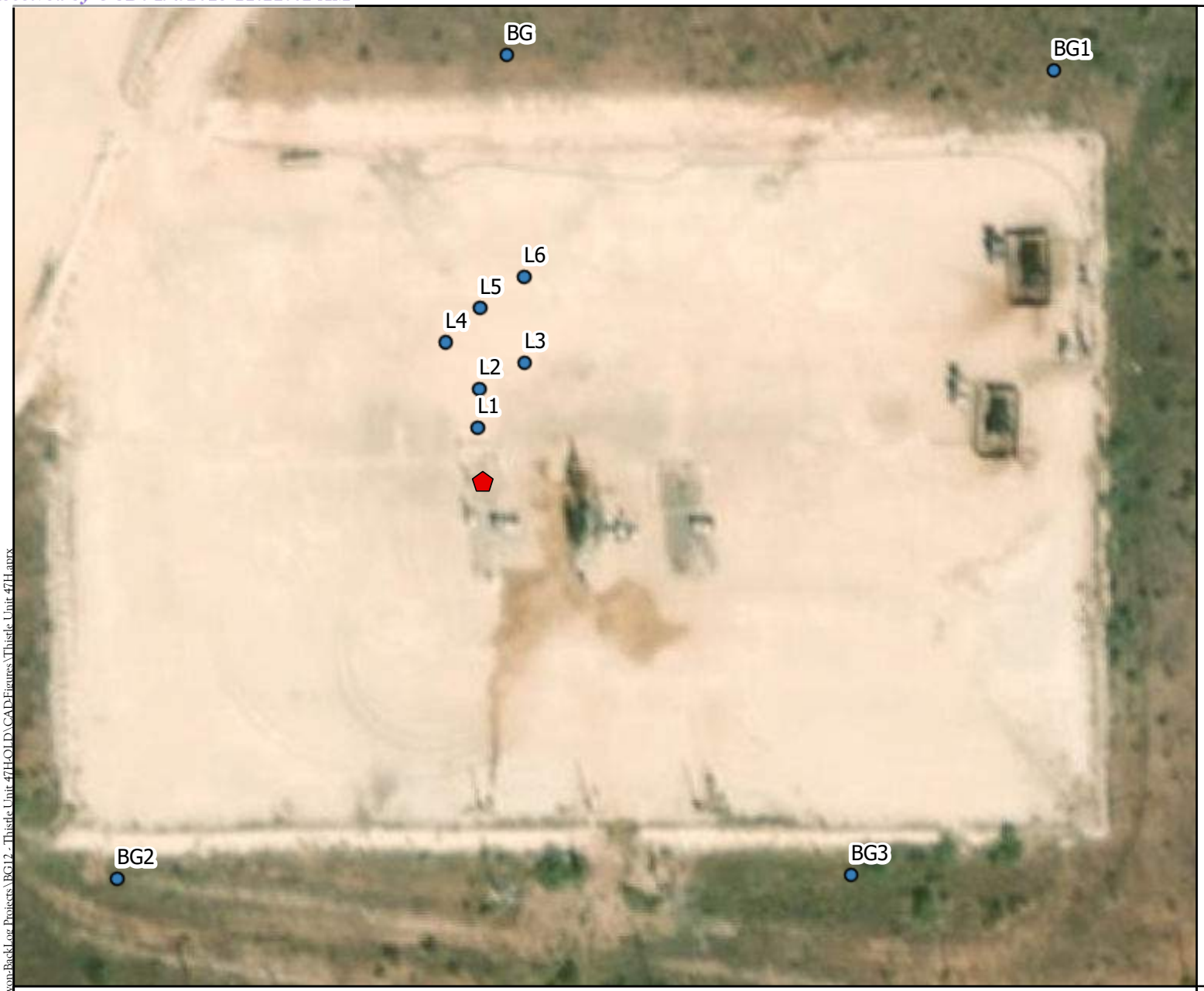

Legend

- Point of Release
- Initial Soil Samples

N

0 25 50 100 150

Feet

Site and Initial Sample Location Map
Thistle Unit 47H - Devon Energy Production Company
UL: N S: 34 T: 23S R: 33E Lea County, New Mexico

Figure 3A

P:\5-Devon MSA 2020 (5E29133)\Devon Backlog Projects\BG12 - Thistle Unit 47H\OLD\CAD\Figures\Thistle Unit 47H.aprx
Date Saved: 10/2/2020

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

Drawn Lynn A. Acosta
Date 10/4/2020
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
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Legend

- Point of Release
- 2.5' Excavation
- Base Soil Samples
- Sidewall Soil Samples

N

0 5 10 20 30

Feet

Excavation and Confirmation Sample Location Map
Thistle Unit 47H - Devon Energy Production Company
UL: N S: 34 T: 23S R: 33E Lea County, New Mexico

Figure 3B

P:\5-Devon MSA 2020 (5E29133)\Devon-Backlog Projects\BG12 - Thistle Unit 47H\OLD\CAD\Figures\Thistle Unit 47H.aprx
Date Saved: 10/2/2020

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

Drawn Lynn A. Acosta
Date 10/4/2020
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
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TABLES

Table 2:
NMOCD Closure Criteria

Devon Energy Production
Thistle Unit 47H (1RP3655)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	285	Based on four closest wells(NMOSE)
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	N/A	No wells within 1/2 mile. Five within 2500m.
Hortizontal Distance to Nearest Significant Watercourse (ft)	7,400	Bell Lake 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'		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 (Low.Karst)**					
within a 100-year floodplain?	**No**					

SMA #

Table 3:
Summary of Sample Results

Devon Energy Production
Thistle Unit 47H
(1RP-3655)

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action/ Action Taken	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	GRO + DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria				50	10					100	600
BG	3/19/2020	Surface	In-Situ	<0.217	<0.024	<4.8	<9.2	<14	<46	<60	690
BG 1	7/20/2020	Surface	-	-	-	-	-	-	-	-	520
BG 2		1	-	-	-	-	-	-	-	-	2700
L1	3/19/2020	Surface	Excavate	<0.207	<0.023	<4.6	120	120	190	310	2300
	7/1/2020	1	-	-	-	<10.0	35.6	35.6	16.8	52.4	2020
L2	3/19/2020	Surface	Excavate	<0.224	<0.025	<5.0	43	43	120	163	1300
	7/1/2020	1	-	-	-	<10.0	<10.0	<20	<10.0	<30.0	2440
L3	3/19/2020	Surface	In-Situ	<0.221	<0.025	<4.9	<9.8	<14.7	<49	<63.7	60
L4	3/19/2020	Surface	Excavate	>0.211	<0.023	<4.7	<9.6	<14.3	<48	<62.3	2200
	7/1/2020	1	Excavate	-	-	-	-	-	-	-	5600
L5	3/19/2020	Surface	In-Situ	<0.22	<0.024	<4.9	<9.6	<14.5	<48	<62.5	740
L6	3/19/2020	Surface	In-Situ	<0.215	<0.024	<4.8	<9.6	<14.4	<48	<62.4	870
Closure Samples											
CS1	8/25/2020	2.5	In-Situ	<0.300	<0.050	<10.0	<10.0	<20.0	<10	<30	1730
CS2		2.5	In-Situ	<0.300	<0.50	<10.0	<10.0	<20.0	<10	<30	2720
CS3		2.5	In-Situ	<0.300	<0.50	<10.0	<10.0	<20.0	<10	<30	2240
SW1		0-2.5	In-Situ	<0.300	<0.050	<10.0	<10.0	<20.0	<10.0	<30	1970
SW2		0-2.5	In-Situ	<0.300	<0.050	<10.0	27.9	27.9	<10.0	27.9	2200
SW3		0-2.5	In-Situ	<0.300	<0.050	<10.0	<10.0	<20.0	<10.0	<30.0	1010
SW4		0-2.5	In-Situ	<0.300	<0.050	<10.0	<10.0	<20.0	<10.0	<30.0	2440

SMA #

Table 4:
Potential Depth to Groundwater

Devon Energy
Thistle Unit 47H

Depth To Groundwater			Calculations	
Location Elevation (ft):	3644			
Well Name	**Well Elevation (ft)**	**Well Depth to GW**	**Groundwater Elevation**	**Depth to GW at Location**
C 02281	3691	400	3291	353
C02280	3683	400	3283	361
C 02308	3595	20	3575	69
C 02279	3687	400	3287	357
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
				3644
Total # of Wells	4			1140

Potential Depth to GW at Release:	**285**

APPENDIX A
FORM C141

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

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production	**Contact** Merle Lewis, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88220	**Telephone No.** 575-748-6304
Facility Name Thistle Unit 47H	**Facility Type** Oil

Surface Owner State	**Mineral Owner** State	**API No.** 30-025-41252

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	34	23S	33E	280	FSL	2511	FWL	Lea

Latitude: 32.2547924'N **Longitude:** 103.5606962'W

NATURE OF RELEASE

Type of Release Oil/Produced Water	**Volume of Release** 10bbls	**Volume Recovered** 8bbls
Source of Release Flow line at the wellhead	**Date and Hour of Occurrence** May 24, 2015 2:00 AM	**Date and Hour of Discovery** May 24, 2015 2:00 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** Tomas Oberding, OCD Jim Amos, BLM	
By Whom? Hub Perry, Production Foreman	**Date and Hour** OCD May 26, 2015 8:00 AM BLM May 26, 2015 8:05 AM	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse** N/A	

RECEIVED
By OCD District 1 at 8:21 am, Jun 01, 2015

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
On May 24, 2015 2:00 AM Truck Driver for Lobo Trucking called in a spill at the Thistle Unit 47H, upon arrival Devon Lease Operator found that the flow line parted at the threads on the well head and released 10bbls of oil and produced water. The ESP was immediately shut down and the tubing and casing valves were shut in. 8bbls were recovered and the day pumper was notified of remaining clean up needed.

Describe Area Affected and Cleanup Action Taken.*
The area is 150ft x 200ft area from wellhead to the North of location. All fluid was contained on location and 8bbls were recovered by vac truck. Enviroclean has been contacted for the cleanup.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: Sheila Fisher

Printed Name: **Sheila Fisher**

Title: **Field Admin Support**

E-mail Address: **Sheila.Fisher@dvn.com**

Date: 5/29/15 Phone: **575.748.1829**

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Kelly

Approval Date: 06/01/2015 Expiration Date: 09/01/2015

Conditions of Approval:
Site samples required. Delineate and remediate as per MNOCD guides. Geotag photographs of remediation required.

Attached ☐ 6137
1RP-3655

nKJ1515231550
pKJ1515232849

* Attach Additional Sheets If Necessary


34-23S-33E
SESW
10bbl Oil PW mix release
3-24S-33E
Lot 3
40.1 ac
3-24S-33E
Lot 2
40.08 ac
Devon GIS Mapping
Disclaimer This plat is for illustrative purposes only and is neither a legally recorded map nor a survey and is not intended to be used as one
Scale: 1:2,257
Date Printed: 5/28/2015 4:17:28 PM

State of New Mexico
Oil Conservation Division

Incident ID	nKJ1515231550
District RP	1RP-3655
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?	285 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ 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

Incident ID	nKJ1515231550
District RP	1RP-3655
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: Dale Woodall Title: EHS Consultant

Signature: Dale Woodall Date: 1/4/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nKJ1515231550
District RP	1RP-3655
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: Dale Woodall Title: EHS Consultant

Signature: Dale Woodall Date: 1/4/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

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: _____ Date: _____

Printed Name: _____ Title: _____

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	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02281		CUB	LE	3	4	4	28	23S	33E	634495	3571183*	1930	545	400	145
C 02280		CUB	LE	3	2	4	28	23S	33E	634489	3571586*	2277	650	400	250
C 02308		CUB	LE	1	3	1	10	24S	33E	634953	3567364*	2309	40	20	20
C 02279		CUB	LE	3	4	3	28	23S	33E	633691	3571173*	2466	650	400	250

Average Depth to Water: **305 feet**
Minimum Depth: **20 feet**
Maximum Depth: **400 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 635579.693 **Northing (Y):** 3569586.431 **Radius:** 2500

***UTM location was derived from PLSS - see Help**

3/13/20 11:11 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

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	Depth Well	Depth Water	Water Column
C 02281		CUB	LE	3	4	4	28	23S	33E	634495	3571183*	1930	545	400	145
C 02280		CUB	LE	3	2	4	28	23S	33E	634489	3571586*	2277	650	400	250

Average Depth to Water: **400 feet**

Minimum Depth: **400 feet**

Maximum Depth: **400 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 635579.693 **Northing (Y):** 3569586.431 **Radius:** 2300

***UTM location was derived from PLSS - see Help**

3/17/20 11:41 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

APPENDIX C
FIELD NOTES AND PHOTO LOG

W NW N
270 300 330 0

321°NW (T) 32.254764, -103.560649 ±1m 1087 m

25 Aug 2020, 08:41:28

NW
N
300
330
0
30
344°NW (T)
32.254782, -103.560652 ±1m
1086 m
310SK
DEERE
25 Aug 2020, 08:54:09

NW N NE

300 330 0 30

354°N (T) 32.254788, -103.560646 ±2m 1086 m

25 Aug 2020, 14:27:42

NW N
300 330 0 30
332°NW (T) 32.254806, -103.560624 ±2m 1086 m
25 Aug 2020, 14:27:50

E SE S

90 120 150 180

141°SE (T) 32.254967, -103.560746 ±1m 1085 m

25 Aug 2020, 14:28:17

E SE S
90 120 150 180

139°SE (T) 32.254961, -103.560759 ±1m 1085 m

25 Aug 2020, 14:28:20

APPENDIX D
SAMPLING PROTOCOL

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

Sampling Protocol

Representatives from SMA chose the Judgmental Sampling Method as described in EPA's Final Sampling Guidance for SW-846, 2002 to adequately quantify contaminant concentrations on Thistle Unit #47H Location. The utility of this particular method functions on the sufficient knowledge of the contaminant, which we possess. This design is also useful when identifying the composition of a release, which we have documented. In addition, this sampling design was chosen for this project because of the locations uniform soil type, and the several operational considerations (such as the liner within the battery and the construction of a new facility) that precluded the implementation of a different statistical design.

The soil samples were collected in laboratory supplied containers in accordance with this sampling protocol, immediately placed on ice and sent under standard chain-of-custody protocols to Cardinal Laboratories in Hobbs, New Mexico for analysis. A total of eight (7) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

Sampling Analysis Field Quality Assurance Procedures

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

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

APPENDIX E

LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

March 27, 2020

Ashley Maxwell

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

RE: Thistle 47H OrderNo.: 2003983

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 7 sample(s) on 3/21/2020 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 9:30:00 AM
Lab ID: 2003983-001 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2300	60		mg/Kg	20	3/26/2020 5:27:16 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/25/2020 12:46:19 AM	51265
Surr: BFB	99.6	70-130		%Rec	1	3/25/2020 12:46:19 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	120	9.9		mg/Kg	1	3/25/2020 1:39:55 PM	51268
Motor Oil Range Organics (MRO)	190	50		mg/Kg	1	3/25/2020 1:39:55 PM	51268
Surr: DNOP	89.7	55.1-146		%Rec	1	3/25/2020 1:39:55 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.023		mg/Kg	1	3/25/2020 12:46:19 AM	51265
Toluene	ND	0.046		mg/Kg	1	3/25/2020 12:46:19 AM	51265
Ethylbenzene	ND	0.046		mg/Kg	1	3/25/2020 12:46:19 AM	51265
Xylenes, Total	ND	0.092		mg/Kg	1	3/25/2020 12:46:19 AM	51265
Surr: 1,2-Dichloroethane-d4	83.2	70-130		%Rec	1	3/25/2020 12:46:19 AM	51265
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	3/25/2020 12:46:19 AM	51265
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	3/25/2020 12:46:19 AM	51265
Surr: Toluene-d8	102	70-130		%Rec	1	3/25/2020 12:46:19 AM	51265

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

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 Quanitative 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

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 11:16:00 AM
Lab ID: 2003983-002 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	1300	60		mg/Kg	20	3/26/2020 6:28:59 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/25/2020 1:14:59 AM	51265
Surr: BFB	98.4	70-130		%Rec	1	3/25/2020 1:14:59 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	43	9.5		mg/Kg	1	3/24/2020 7:15:22 PM	51268
Motor Oil Range Organics (MRO)	120	48		mg/Kg	1	3/24/2020 7:15:22 PM	51268
Surr: DNOP	81.5	55.1-146		%Rec	1	3/24/2020 7:15:22 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/25/2020 1:14:59 AM	51265
Toluene	ND	0.050		mg/Kg	1	3/25/2020 1:14:59 AM	51265
Ethylbenzene	ND	0.050		mg/Kg	1	3/25/2020 1:14:59 AM	51265
Xylenes, Total	ND	0.099		mg/Kg	1	3/25/2020 1:14:59 AM	51265
Surr: 1,2-Dichloroethane-d4	85.0	70-130		%Rec	1	3/25/2020 1:14:59 AM	51265
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	3/25/2020 1:14:59 AM	51265
Surr: Dibromofluoromethane	95.8	70-130		%Rec	1	3/25/2020 1:14:59 AM	51265
Surr: Toluene-d8	98.3	70-130		%Rec	1	3/25/2020 1:14:59 AM	51265

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 12:21:00 PM
Lab ID: 2003983-003 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/26/2020 6:41:20 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2020 1:43:40 AM	51265
Surr: BFB	99.2	70-130		%Rec	1	3/25/2020 1:43:40 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/24/2020 8:03:41 PM	51268
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/24/2020 8:03:41 PM	51268
Surr: DNOP	99.0	55.1-146		%Rec	1	3/24/2020 8:03:41 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/25/2020 1:43:40 AM	51265
Toluene	ND	0.049		mg/Kg	1	3/25/2020 1:43:40 AM	51265
Ethylbenzene	ND	0.049		mg/Kg	1	3/25/2020 1:43:40 AM	51265
Xylenes, Total	ND	0.098		mg/Kg	1	3/25/2020 1:43:40 AM	51265
Surr: 1,2-Dichloroethane-d4	77.9	70-130		%Rec	1	3/25/2020 1:43:40 AM	51265
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	3/25/2020 1:43:40 AM	51265
Surr: Dibromofluoromethane	97.1	70-130		%Rec	1	3/25/2020 1:43:40 AM	51265
Surr: Toluene-d8	98.0	70-130		%Rec	1	3/25/2020 1:43:40 AM	51265

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 1:35:00 PM
Lab ID: 2003983-004 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2200	60		mg/Kg	20	3/26/2020 6:53:41 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/25/2020 2:12:24 AM	51265
Surr: BFB	100	70-130		%Rec	1	3/25/2020 2:12:24 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/24/2020 8:27:52 PM	51268
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/24/2020 8:27:52 PM	51268
Surr: DNOP	87.5	55.1-146		%Rec	1	3/24/2020 8:27:52 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.023		mg/Kg	1	3/25/2020 2:12:24 AM	51265
Toluene	ND	0.047		mg/Kg	1	3/25/2020 2:12:24 AM	51265
Ethylbenzene	ND	0.047		mg/Kg	1	3/25/2020 2:12:24 AM	51265
Xylenes, Total	ND	0.094		mg/Kg	1	3/25/2020 2:12:24 AM	51265
Surr: 1,2-Dichloroethane-d4	77.3	70-130		%Rec	1	3/25/2020 2:12:24 AM	51265
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	3/25/2020 2:12:24 AM	51265
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	3/25/2020 2:12:24 AM	51265
Surr: Toluene-d8	99.7	70-130		%Rec	1	3/25/2020 2:12:24 AM	51265

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L5-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 2:30:00 PM
Lab ID: 2003983-005 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	740	60		mg/Kg	20	3/26/2020 7:06:02 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2020 2:41:07 AM	51265
Surr: BFB	101	70-130		%Rec	1	3/25/2020 2:41:07 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/24/2020 8:52:13 PM	51268
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/24/2020 8:52:13 PM	51268
Surr: DNOP	83.2	55.1-146		%Rec	1	3/24/2020 8:52:13 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	3/25/2020 2:41:07 AM	51265
Toluene	ND	0.049		mg/Kg	1	3/25/2020 2:41:07 AM	51265
Ethylbenzene	ND	0.049		mg/Kg	1	3/25/2020 2:41:07 AM	51265
Xylenes, Total	ND	0.098		mg/Kg	1	3/25/2020 2:41:07 AM	51265
Surr: 1,2-Dichloroethane-d4	79.2	70-130		%Rec	1	3/25/2020 2:41:07 AM	51265
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	3/25/2020 2:41:07 AM	51265
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	3/25/2020 2:41:07 AM	51265
Surr: Toluene-d8	98.5	70-130		%Rec	1	3/25/2020 2:41:07 AM	51265

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L6-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 3:10:00 PM
Lab ID: 2003983-006 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	870	60		mg/Kg	20	3/26/2020 7:18:23 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/25/2020 3:09:56 AM	51265
Surr: BFB	103	70-130		%Rec	1	3/25/2020 3:09:56 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/24/2020 9:16:37 PM	51268
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/24/2020 9:16:37 PM	51268
Surr: DNOP	67.8	55.1-146		%Rec	1	3/24/2020 9:16:37 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	3/25/2020 3:09:56 AM	51265
Toluene	ND	0.048		mg/Kg	1	3/25/2020 3:09:56 AM	51265
Ethylbenzene	ND	0.048		mg/Kg	1	3/25/2020 3:09:56 AM	51265
Xylenes, Total	ND	0.095		mg/Kg	1	3/25/2020 3:09:56 AM	51265
Surr: 1,2-Dichloroethane-d4	78.5	70-130		%Rec	1	3/25/2020 3:09:56 AM	51265
Surr: 4-Bromofluorobenzene	95.7	70-130		%Rec	1	3/25/2020 3:09:56 AM	51265
Surr: Dibromofluoromethane	100	70-130		%Rec	1	3/25/2020 3:09:56 AM	51265
Surr: Toluene-d8	98.0	70-130		%Rec	1	3/25/2020 3:09:56 AM	51265

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

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 Quanitative 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

Analytical Report
Lab Order **2003983**
Date Reported: **3/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-Surface
Project: Thistle 47H
Collection Date: 3/19/2020 3:45:00 PM
Lab ID: 2003983-007 **Matrix:** SOIL **Received Date:** 3/21/2020 8:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	690	60		mg/Kg	20	3/26/2020 7:30:43 PM	51353
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/25/2020 3:38:40 AM	51265
Surr: BFB	103	70-130		%Rec	1	3/25/2020 3:38:40 AM	51265
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	3/24/2020 9:40:58 PM	51268
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/24/2020 9:40:58 PM	51268
Surr: DNOP	71.0	55.1-146		%Rec	1	3/24/2020 9:40:58 PM	51268
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	3/25/2020 3:38:40 AM	51265
Toluene	ND	0.048		mg/Kg	1	3/25/2020 3:38:40 AM	51265
Ethylbenzene	ND	0.048		mg/Kg	1	3/25/2020 3:38:40 AM	51265
Xylenes, Total	ND	0.097		mg/Kg	1	3/25/2020 3:38:40 AM	51265
Surr: 1,2-Dichloroethane-d4	78.3	70-130		%Rec	1	3/25/2020 3:38:40 AM	51265
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	3/25/2020 3:38:40 AM	51265
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	3/25/2020 3:38:40 AM	51265
Surr: Toluene-d8	98.2	70-130		%Rec	1	3/25/2020 3:38:40 AM	51265

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

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 Quanitative 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#: **2003983**

27-Mar-20

Client: Souder, Miller & Associates

Project: Thistle 47H

Sample ID: **MB-51353**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **51353**	RunNo: **67593**							
Prep Date: **3/26/2020**	Analysis Date: **3/26/2020**	SeqNo: **2334151**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-51353**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **51353**	RunNo: **67593**							
Prep Date: **3/26/2020**	Analysis Date: **3/26/2020**	SeqNo: **2334152**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.7	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 Quanitative 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#: **2003983**

27-Mar-20

Client: Souder, Miller & Associates

Project: Thistle 47H

Sample ID: **LCS-51268**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **51268**	RunNo: **67509**
Prep Date: **3/23/2020**	Analysis Date: **3/24/2020**	SeqNo: **2331474** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.8	70	130			
Surr: DNOP	4.2		5.000		85.0	55.1	146			

Sample ID: **MB-51268**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **51268**	RunNo: **67509**
Prep Date: **3/23/2020**	Analysis Date: **3/24/2020**	SeqNo: **2331475** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		95.2	55.1	146			

Sample ID: **LCS-51299**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **51299**	RunNo: **67548**
Prep Date: **3/24/2020**	Analysis Date: **3/25/2020**	SeqNo: **2332705** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.3		5.000		105	55.1	146			

Sample ID: **MB-51299**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **51299**	RunNo: **67548**
Prep Date: **3/24/2020**	Analysis Date: **3/25/2020**	SeqNo: **2332706** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		113	55.1	146			

Sample ID: **LCS-51325**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **51325**	RunNo: **67586**
Prep Date: **3/25/2020**	Analysis Date: **3/26/2020**	SeqNo: **2333835** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.4	55.1	146			

Sample ID: **MB-51325**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **51325**	RunNo: **67586**
Prep Date: **3/25/2020**	Analysis Date: **3/26/2020**	SeqNo: **2333836** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		91.3	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 Quanitative 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#: **2003983**

27-Mar-20

Client: Souder, Miller & Associates

Project: Thistle 47H

Sample ID: **lcs-51265** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **LCSS** Batch ID: **51265** RunNo: **67530**

Prep Date: **3/23/2020** Analysis Date: **3/24/2020** SeqNo: **2331070** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.9	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Ethylbenzene	1.1	0.050	1.000	0	112	70	130			
Xylenes, Total	3.3	0.10	3.000	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.6	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.5	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		99.1	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Sample ID: **mb-51265** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **51265** RunNo: **67530**

Prep Date: **3/23/2020** Analysis Date: **3/24/2020** SeqNo: **2331071** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.44		0.5000		88.8	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.6	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.8	70	130			
Surr: Toluene-d8	0.49		0.5000		98.0	70	130			

Sample ID: **lcs-51277** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BatchQC** Batch ID: **51277** RunNo: **67556**

Prep Date: **3/23/2020** Analysis Date: **3/25/2020** SeqNo: **2332308** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.5	70	130			
Surr: Toluene-d8	0.47		0.5000		94.2	70	130			

Sample ID: **mb-51277** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **51277** RunNo: **67556**

Prep Date: **3/23/2020** Analysis Date: **3/25/2020** SeqNo: **2332310** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.9	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		95.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2003983**

27-Mar-20

Client: Souder, Miller & Associates

Project: Thistle 47H

Sample ID: **lcs-51265**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51265**	RunNo: **67530**
Prep Date: **3/23/2020**	Analysis Date: **3/24/2020**	SeqNo: **2331076** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.3	70	130			
Surr: BFB	510		500.0		102	70	130			

Sample ID: **mb-51265**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **51265**	RunNo: **67530**
Prep Date: **3/23/2020**	Analysis Date: **3/24/2020**	SeqNo: **2331077** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.5	70	130			

Sample ID: **lcs-51277**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51277**	RunNo: **67556**
Prep Date: **3/23/2020**	Analysis Date: **3/25/2020**	SeqNo: **2332351** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	500		500.0		99.8	70	130			

Sample ID: **mb-51277**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **51277**	RunNo: **67556**
Prep Date: **3/23/2020**	Analysis Date: **3/25/2020**	SeqNo: **2332359** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	500		500.0		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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

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: **2003983** RcptNo: **1**

Received By: **Yazmine Garduno** **3/21/2020 8:06:00 AM**

Completed By: **Yazmine Garduno** **3/21/2020 10:42:42 AM**

Reviewed By: JO 3/23/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: DAD 3/23/20

Special Handling (if applicable)

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

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

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good				
2	0.5	Good				

Chain-of-Custody Record

Client: SMA

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

Phone #: 575-689-8801

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

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☒ Standard ☐ Rush

Project Name: Thistle 47H

Project #: 20715689
WO # ~~20845003~~ BJ

Project Manager: Ashley Maxwell

Sampler: CAJ

On Ice: ☐ Yes ☐ No

# of Coolers: 2 0.3-0.2-0.1

Cooler Temp(including CF): 0.1-0.2=0.5 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2003483	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
3/19/20	9:30	soil	L1-surface	4oz	cool	-001	X	X					X			
	11:16		L2-surface			-002	X	X					X			
	12:21		L3-surface			-003	X	X					X			
	1:35		L4-surface			-004	X	X					X			
	2:30		L5-surface			-005	X	X					X			
	3:10		L6-surface			-006	X	X					X			
↓	3:45	↓	BG-surface	↓	↓	-007							X			

Date	Time	Relinquished by	Received by	Via	Date	Time
3/20	1200	Delaney Moyce				
3/20	1900				3/20	1400
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/20	1900		Courier		3/21/20	0806

Remarks: Direct bill to Devon

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 29, 2020

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

RE: Thistle 47 OrderNo.: 2007A06

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/21/2020 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2007A06**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1
Project: Thistle 47
Collection Date: 7/20/2020 9:30:00 AM
Lab ID: 2007A06-001 **Matrix:** SOIL **Received Date:** 7/21/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	520	60		mg/Kg	20	7/24/2020 10:44:10 PM	53940

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2007A06**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG3
Project: Thistle 47
Collection Date: 7/20/2020 9:35:00 AM
Lab ID: 2007A06-002 **Matrix:** SOIL **Received Date:** 7/21/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2700	150		mg/Kg	50	7/28/2020 2:02:09 PM	53944

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2007A06**

29-Jul-20

Client: Souder, Miller & Associates

Project: Thistle 47

Sample ID: **MB-53940** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **53940** RunNo: **70587**

Prep Date: **7/24/2020** Analysis Date: **7/24/2020** SeqNo: **2456116** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53940** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **53940** RunNo: **70587**

Prep Date: **7/24/2020** Analysis Date: **7/24/2020** SeqNo: **2456117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.2	90	110			

Sample ID: **MB-53944** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **53944** RunNo: **70587**

Prep Date: **7/24/2020** Analysis Date: **7/24/2020** SeqNo: **2456148** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53944** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **53944** RunNo: **70587**

Prep Date: **7/24/2020** Analysis Date: **7/24/2020** SeqNo: **2456149** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	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 Quanitative 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

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

Sample Log-In Check List

Client Name: Souder, Miller & Associates | Work Order Number: 2007A06 | RcptNo: 1

Received By: Cheyenne Cason 7/21/2020 9:30:00 AM

Completed By: Juan Rojas 7/21/2020 10:01:00 AM

Reviewed By: JR 7/21/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: SPA 7.21.20

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good				
2	1.7	Good				

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush 5 days

Project Name: Thistle 47

Project #:

Project Manager: Ashley Maxwell

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp (including CF): See below (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No 2007A06	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/20/20	09:30	Soil	BG1	4oz	Cool	-001							X			
1	9:35	1	BG3	1	1	-002							1			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/20/20	1330				7/20/20	1330
7/20/20	1900		Chase Cooke		7/21/20	0930

Remarks: Devon
5.6 + 0.2 = 5.8c
1.5 + 0.2 = 1.7c
WO# 20715689

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 29, 2020

duplicate

Ashley Maxwell

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

RE: Thistle 47 OrderNo.: 2007A06

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/21/2020 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2007A06**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1
Project: Thistle 47
Collection Date: 7/20/2020 9:30:00 AM
Lab ID: 2007A06-001 **Matrix:** SOIL **Received Date:** 7/21/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	520	60		mg/Kg	20	7/24/2020 10:44:10 PM	53940

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2007A06**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG2
Project: Thistle 47
Collection Date: 7/20/2020 9:35:00 AM
Lab ID: 2007A06-002 **Matrix:** SOIL **Received Date:** 7/21/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2700	150		mg/Kg	50	7/28/2020 2:02:09 PM	53944

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2007A06**

31-Jul-20

Client: Souder, Miller & Associates

Project: Thistle 47

Sample ID: **MB-53940**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **53940**	RunNo: **70587**							
Prep Date: **7/24/2020**	Analysis Date: **7/24/2020**	SeqNo: **2456116**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53940**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **53940**	RunNo: **70587**							
Prep Date: **7/24/2020**	Analysis Date: **7/24/2020**	SeqNo: **2456117**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.2	90	110			

Sample ID: **MB-53944**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **53944**	RunNo: **70587**							
Prep Date: **7/24/2020**	Analysis Date: **7/24/2020**	SeqNo: **2456148**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53944**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **53944**	RunNo: **70587**							
Prep Date: **7/24/2020**	Analysis Date: **7/24/2020**	SeqNo: **2456149**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	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 Quanitative 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

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

Sample Log-In Check List

Client Name: Souder, Miller & Associates | Work Order Number: 2007A06 | RcptNo: 1

Received By: **Cheyenne Cason** 7/21/2020 9:30:00 AM

Completed By: **Juan Rojas** 7/21/2020 10:01:00 AM

Reviewed By: JR 7/21/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: SPA 7.21.20

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good				
2	1.7	Good				

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush 5 days

Project Name: Thistle 47

Project #:

Project Manager: Ashley Maxwell

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): See below (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2007A06
7/20/20	09:30	Soil	BG1	4oz	Cool	-001
1	9:35	1	~~BG3~~ BG2	1	1	-002
			per Lynn			
			of 7/31/2020			

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
						X			
						X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/20/20	1330				7/20/20	1330
7/20/20	1900				7/21/20	0930

Remarks: Devon
5.6 + 0.2 = 5.8c
1.5 + 0.2 = 1.7c
WO# 20715689

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.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 07, 2020

ASHLEY MAXWELL

SOUDER MILLER AND ASSOCIATES

201 S. HALAGUENO

CARLSBAD, NM 88220

RE: THISTLE UNIT #47

Enclosed are the results of analyses for samples received by the laboratory on 07/02/20 8:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
ASHLEY MAXWELL
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	07/02/2020	Sampling Date:	07/01/2020
Reported:	07/07/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: L 1 (H001739-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2020**	16.0	07/06/2020	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2020	ND	207	103	200	2.16	
DRO >C10-C28*	**35.6**	10.0	07/03/2020	ND	224	112	200	0.916	
EXT DRO >C28-C36	**16.8**	10.0	07/03/2020	ND					

Surrogate: 1-Chlorooctane	*72.6 %*	*44.3-144*
Surrogate: 1-Chlorooctadecane	*78.8 %*	*42.2-156*

Sample ID: L 2 (H001739-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2440**	16.0	07/06/2020	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2020	ND	207	103	200	2.16	
DRO >C10-C28*	<10.0	10.0	07/03/2020	ND	224	112	200	0.916	
EXT DRO >C28-C36	<10.0	10.0	07/03/2020	ND					

Surrogate: 1-Chlorooctane	*91.6 %*	*44.3-144*
Surrogate: 1-Chlorooctadecane	*96.4 %*	*42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
ASHLEY MAXWELL
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	07/02/2020	Sampling Date:	07/01/2020
Reported:	07/07/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: L 4 (H001739-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5600**	16.0	07/06/2020	ND	416	104	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Souder Miller & Associates	**BILL TO**
Project Manager: Ashley Maxwell	P.O. #: 207156 84
Address: 201 S. Halagueno St	Company: Devon Energy
City: Carlsbad State: NM Zip: 88220	Attn: Lupe Carrasco
Phone #: (505)516-7469 Fax #:	Address: 7-Rivers Hwy
Project #: Project Owner: Devon Energy	City: Artesia
Project Name: Trickle Unit #47	State: NM Zip: 88210
Project Location: Jal, NM	Phone #:
Sampler Name: LA	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV.		SAMPLING		ANALYSIS REQUEST											
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH (8015)	Cl-										
H001739																										
1	L1	G	1			X					X		7/1/20	810	X	X										
2	L2		1			1					1		1	815	X	X										
3	L4		1			1					1		1	820		X										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 7/1/20	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 0845	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS:
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 12.9c #113

Sample Condition: Cool ☐ Yes ☐ No; Intact ☐ Yes ☐ No

CHECKED BY: (Initials)

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 27, 2020

LYNN A ACOSTA

SOUDER MILLER AND ASSOCIATES

201 S. HALAGUENO

CARLSBAD, NM 88220

RE: THISTLE UNIT #47 H

Enclosed are the results of analyses for samples received by the laboratory on 08/26/20 11:04.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: CS 1 (H002249-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1730**	16.0	08/27/2020	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *95.1 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *97.5 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: CS 2 (H002249-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.9 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2720**	16.0	08/27/2020	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *105 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *108 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: CS 3 (H002249-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.2 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2240**	16.0	08/27/2020	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *96.8 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *99.1 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: SW 1 (H002249-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1970**	16.0	08/27/2020	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *100 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *102 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: SW 2 (H002249-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.8 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2200**	16.0	08/27/2020	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	**27.9**	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *103 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *107 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: SW 3 (H002249-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/26/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/26/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/26/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.8 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1010**	16.0	08/27/2020	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *89.0 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *91.0 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

SOUDER MILLER AND ASSOCIATES
LYNN A ACOSTA
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	08/26/2020	Sampling Date:	08/25/2020
Reported:	08/27/2020	Sampling Type:	Soil
Project Name:	THISTLE UNIT #47 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	DEVON ENERGY - JAL, NM		

Sample ID: SW 4 (H002249-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2020	ND	2.12	106	2.00	1.44	
Toluene*	<0.050	0.050	08/27/2020	ND	2.12	106	2.00	1.76	
Ethylbenzene*	<0.050	0.050	08/27/2020	ND	2.09	105	2.00	1.18	
Total Xylenes*	<0.150	0.150	08/27/2020	ND	6.07	101	6.00	1.51	
Total BTEX	<0.300	0.300	08/27/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.5 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2440**	16.0	08/27/2020	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/27/2020	ND	210	105	200	4.91	
DRO >C10-C28*	<10.0	10.0	08/27/2020	ND	224	112	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	08/27/2020	ND					

Surrogate: 1-Chlorooctane *88.2 %* *44.3-144*

Surrogate: 1-Chlorooctadecane *89.7 %* *42.2-156*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

		BILL TO	
Company Name:	Sovereign Miller and Associates	P.O. #:	
Project Manager:	Lynn Acosta	Company:	
Address:		Attn:	
City:	Carlsbad	State: NM Zip: 88220	Address:
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	Thistle 47H	Phone #:	
Project Location:		Fax #:	
Sampler Name:	Phil Smith		

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX (8021)	TPH: 8015D	Cl
H002249																	
1	CS1	G	1			X							8/25	10:00			
2	CS2	G	1			X								10:05			
3	CS3	G	1			X								10:10			
4	Sw1	G	1			X								10:15			
5	Sw2	G	1			X								10:20			
6	Sw3	G	1			X								10:25			
7	Sw4	G	1			X								10:30			

Relinquished By: Phil Smith	Date: 8/25/20 Time: 4:00pm	Received By:	Verbal Result: ☐ Yes ☐ No Add'l Phone #: All Results are emailed. Please provide Email address:
Relinquished By:	Date: 8-26-20 Time: 1104	Received By: Tamara Oldaker	REMARKS:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 5.5 Corrected Temp. °C	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TO
Turnaround Time: Standard ☑ Rush ☐ Thermometer ID #113 Correction Factor None	Bacteria (only) Sample Condition Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No	Observed Temp. °C Corrected Temp. °C	

FORM-006 R 3.1 08/04/20

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

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

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

CONDITIONS

Action 172342

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 172342
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	Site will need to meet the reclamation standards at time of plugging and abandonment per 19.15.29.13 NMAC.	1/4/2023