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

September 1, 2020

#5E29133-BG51

NMOCD District 2
Mike Bratcher
811 S. First St.
Artesia, New Mexico 88210

SUBJECT: Remediation Closure Report for the Thistle Unit #20H Release, Lea County, New Mexico

Dear Mr. Bratcher:

On behalf of Devon Energy Production Company, 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 #20H site. The site is in Unit D, Section 27, 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 20H	Company	Devon Energy LLC
API Number	30-025-40015	Location	32.2825584, -103.5682526
Incident Number	nOY1732439307		
Estimated Date of Release	11/10/2017	Date Reported to NMOCD	11/10/2017
Land Owner	State	Reported To	OCD
Source of Release	Flare scrubber swamped out due to low psi causing a fire at the flare stack.		
Released Volume	0 bbls	Released Material	0 bbls
Recovered Volume	0 bbls	Net Release	0 bbls
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	8/5/2020		

1.0 Background

On November 10, 2017, a release was discovered at the Thistle Unit #20H site due to a fire caused by low pressure in the line at the flare scrubber. Initial response activities were conducted by Devon personnel , and included source elimination, site security and fire extinguishing activities. No fluids were reported to have been released. 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 #20H is located approximately 25 miles to the north west of Jal, New Mexico on State land at an elevation of approximately 3706 feet above mean sea level (amsl).

Based upon water well data (Appendix B), depth to groundwater in the area is estimated to be 400 feet below grade surface (bgs). There is one known water source within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 8/19/2020. The nearest significant watercourse is an unnamed canal/stream near Antelope Ridge, located approximately 8,446 feet to the northeast. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of greater than 100 feet bgs.

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

3.0 Release Characterization Activities and Findings

On August 5, 2020, SMA personnel arrived on site in response to the release associated with Thistle Unit #20H. SMA performed site delineation activities by collecting soil samples around the release site. 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 (6) sample locations (S1- S6) were investigated using a shovel and rock-bar at. One surface sample was collected at each sampling location and field-screened using the methods above. A total of six (6) 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. Locations for all samples are depicted on Figure 3.

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).

As summarized in Table 3, results indicated that the areas surrounding the releases meet NMOCD closure criteria, as well as reclamation requirements, and no further action is required.

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 Manager

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Surface Water Radius Map
Figure 3: Site and Sample Location Map

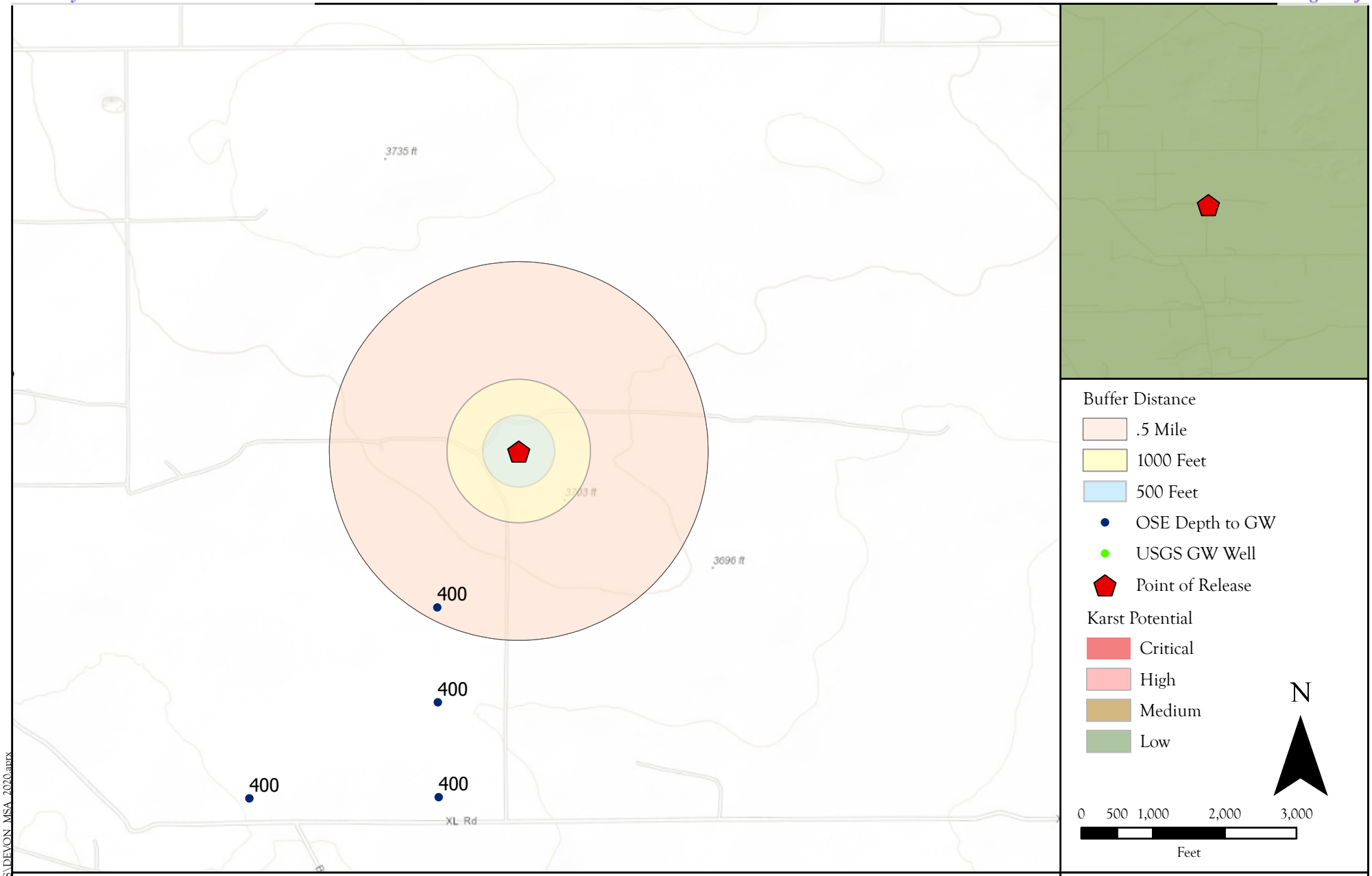
Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

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

FIGURES



Site Map

Thistle Unit 20H- Devon Energy Production Company

32.2825584, -103.5682526 Lea County, New Mexico

Figure 1

P:\5-Devon MSA 2020 (5E29133)\GIS\DEVON_MSA_2020.aprx
Date Saved: 7/22/2020

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

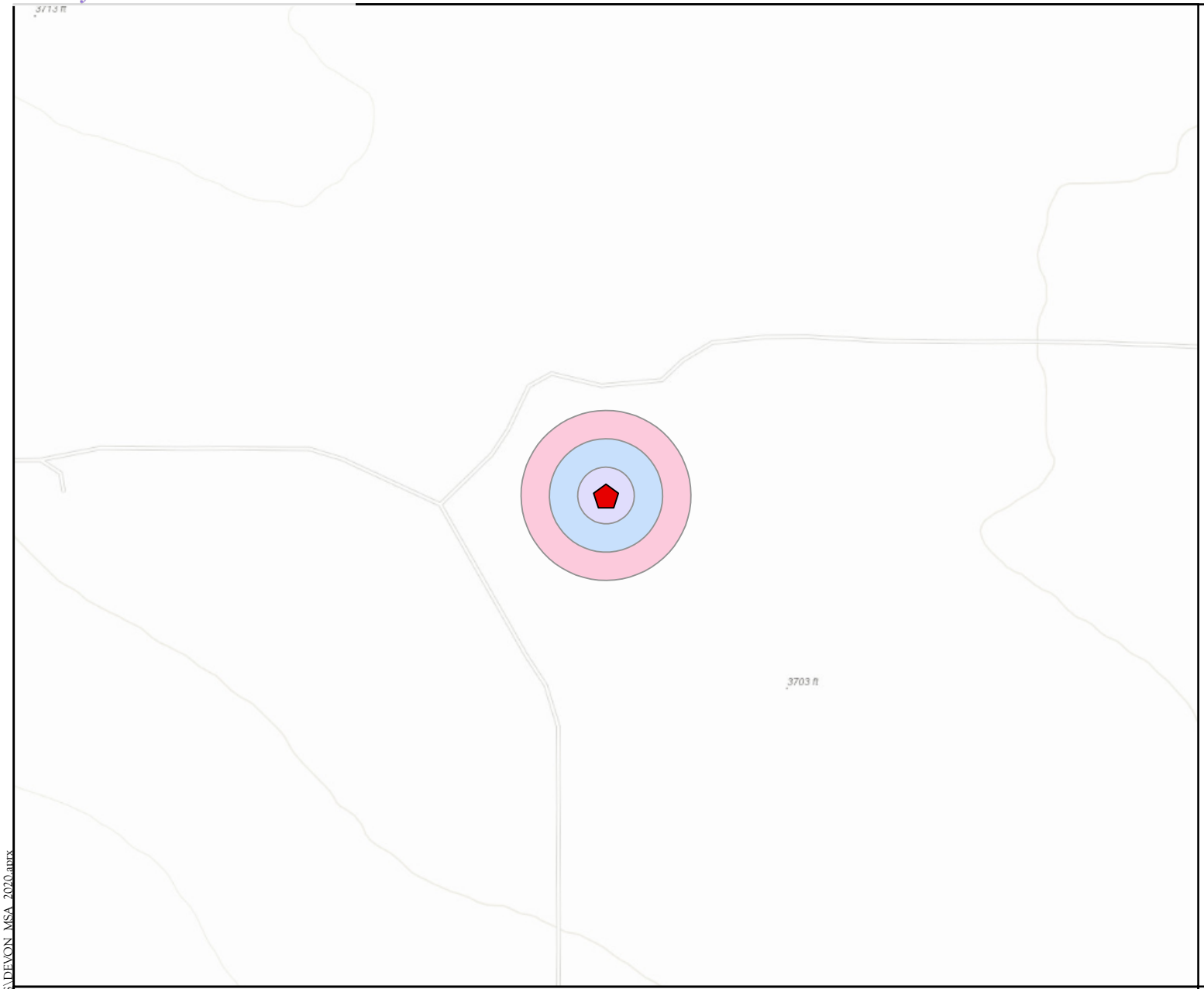
Drawn Sebastian Orozco

Date 7/27/2020

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
- Flowlines SENM
- NM Wetlands
- Lakes & Playas
- FEMA Flood Zones 2011
- Point of Release

N

0 170 340 680 1,020

Feet

Surface Water Protection Map
Thistle Unit 20H- Devon Energy
32.2825584, -103.5682526 Lea County, New Mexico

Figure 2

P:\5-Devon MSA 2020 (5E29133)\GIS\DEVON_MSA_2020.aprx
Date Saved: 7/22/2020

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

Drawn Sebastian Orozco
Date 7/27/2020
Checked
Approved

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

Legend

- Pipelines
- Equipment
- Initial Soil Samples
- Point of Release

N

0 10 20 40 60

Feet

Site and Sample Location Map
Thistle Unit #20H - Devon Energy Production Company
32.2825584,-103.5682526, Lea County, New Mexico

Figure 3

\\CRO10\Projects\5-Devon MSA 2020 (5E29133)\GIS\DEVON_MSA_2020.mxrx
Date Saved: 8/19/2020

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

Drawn Phil Smith
Date 8/19/2020
Checked
Approved

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

TABLES

Table 2:
NMOCD Closure Criteria

Devon Energy Production Company
Thistle Unit #20 H (nOY1732439307)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	400	New Mexico Office of the State Engineer
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	2,456	United States Geological Survey Topo Map
Hortizontal Distance to Nearest Significant Watercourse (ft)	8,446	Intermitten Streams Northwest of Thistle Unit #20H

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

SMA #

Table 3:
Sample Results

Devon Energy
Thistle Unit #020H (nOY1732439307)

Sample ID	Sample Date	Depth of Sample (feet bgs)	Action Taken	Method 8021B		Method 8015D				Method 300.0
				BTEX	Benzene	GRO	DRO	MRO	Total TPH	Cl-
				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
NMOCD Reclamation Requirement (0-4 ft)				50	10	--	--	--	100	600
NMOCD Closure Criteria (>4 ft)				50	10				2,500	20,000
S1	8/5/2020	Surface	In-Situ	<0.219	<0.024	<4.9	<9.3	<47	<61.2	64
S2		Surface	In-Situ	<0.216	<0.024	<4.8	<9.1	<46	<59.9	<60
S3		Surface	In-Situ	<0.217	<0.024	<4.8	<9.1	<46	<59.9	<60
S4		Surface	In-Situ	<0.224	<0.025	<5.0	<9.5	<47	<61.5	<60
S5		Surface	In-Situ	<0.211	<0.023	<47	<9.2	<46	<59.9	<60
S6		Surface	In-Situ	<0.216	<0.024	<4.8	<9.8	<49	<63.6	220

"--" = Not Analyzed
BG: Background sample

SMA #

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 April 3, 2017

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 Company	Contact Hub Perry, Production Foreman
Address 6488 Seven Rivers Hwy, Artesia NM 88210	Telephone No. 575-513-9637
Facility Name Thistle Unit 20H	Facility Type Oil

Surface Owner State	Mineral Owner State	API No. 30-025-40015

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	27	23S	33E	150	North	150	West	Lea

Latitude__32.2825584_____ **Longitude**__-103.5682526_____ NAD83

NATURE OF RELEASE

Type of Release None	Volume of Release 0bbls	Volume Recovered 0bbls
Source of Release N/A	Date and Hour of Occurrence 11/10/2017 @ 2:30AM MST	Date and Hour of Discovery 11/10/2017 @ 2:30AM MST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom? Mike Shoemaker, EHS Professional	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
By Olivia Yu at 10:53 am, Nov 20, 2017

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

Describe Cause of Problem and Remedial Action Taken.*
The flare scrubber swamped out due to low psi causing a fire at the flare stack. Closed valves to flare scrubber and pilot supply gas. No fluids released. Fire extinguisher used.

Type text here

Describe Area Affected and Cleanup Action Taken.*
There was no damage to the tanks. There was no release of any fluids. This report is for information only due to the fire on location.

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: Dana DeLaRosa	OIL CONSERVATION DIVISION
Printed Name: Dana DeLaRosa	Approved by Environmental Specialist:
Title: Field Admin Support	Approval Date: 11/20/2017 Expiration Date:
E-mail Address: dana.delarosa@dvn.com	Conditions of Approval: Attached ☐
Date: 11/17/2017 Phone: 575.746.5594	

* Attach Additional Sheets If Necessary

nOY1732439307

State of New Mexico
Oil Conservation Division

Incident ID	nOY1732439307
District RP	
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?	400 (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	nOY1732439307
District RP	
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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 9/1/2020

email: tom.bynum@dvn.com Telephone: 575-748-2663

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nOY1732439307
District RP	
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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 9/1/2020

email: tom.bynum@dvn.com Telephone: 575-748-2663

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Brittany Hall Date: 9/20/2022

Printed Name: Brittany Hall Title: Environmental Specialist

Thistle Unit 20H

Fire_11.10.2017

devon

This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: Dana DeLaRosa
Map is current as of: 15-Nov-2017

N

Miles
0 0.00 0.01 0.02 1: 889

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 02278		CUB	LE	3	4	2	28	23S	33E	634484	3571989*	749	650	400	250

Average Depth to Water: **400 feet**

Minimum Depth: **400 feet**

Maximum Depth: **400 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 634825.85 **Northing (Y):** 3572655.65 **Radius:** 805

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

8/28/20 12:39 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

APPENDIX C
SAMPLING PROTOCOL

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

Sampling Protocol

The soil samples were collected in laboratory supplied containers in accordance with this sampling protocol, immediately placed on ice and sent under standard chain-of-custody protocols to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis. A total of six (6) 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.

ype text here

APPENDIX D

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: clients.hallenvironmental.com

August 14, 2020

Ashley Maxwell

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

RE: Thistle 20H OrderNo.: 2008371

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/7/2020 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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S1- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:05:00 PM
Lab ID: 2008371-001 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	64	60		mg/Kg	20	8/13/2020 7:00:50 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/12/2020 4:12:20 PM	54339
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/12/2020 4:12:20 PM	54339
Surr: DNOP	75.9	30.4-154		%Rec	1	8/12/2020 4:12:20 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/12/2020 1:09:33 PM	54303
Surr: BFB	104	75.3-105		%Rec	1	8/12/2020 1:09:33 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	8/12/2020 1:09:33 PM	54303
Toluene	ND	0.049		mg/Kg	1	8/12/2020 1:09:33 PM	54303
Ethylbenzene	ND	0.049		mg/Kg	1	8/12/2020 1:09:33 PM	54303
Xylenes, Total	ND	0.097		mg/Kg	1	8/12/2020 1:09:33 PM	54303
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	8/12/2020 1:09:33 PM	54303

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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S2- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:10:00 PM
Lab ID: 2008371-002 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	8/13/2020 7:37:51 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/12/2020 4:42:23 PM	54339
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/12/2020 4:42:23 PM	54339
Surr: DNOP	75.1	30.4-154		%Rec	1	8/12/2020 4:42:23 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2020 1:33:04 PM	54303
Surr: BFB	102	75.3-105		%Rec	1	8/12/2020 1:33:04 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	8/12/2020 1:33:04 PM	54303
Toluene	ND	0.048		mg/Kg	1	8/12/2020 1:33:04 PM	54303
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2020 1:33:04 PM	54303
Xylenes, Total	ND	0.096		mg/Kg	1	8/12/2020 1:33:04 PM	54303
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	8/12/2020 1:33:04 PM	54303

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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S3- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:17:00 PM
Lab ID: 2008371-003 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	8/13/2020 7:50:12 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/12/2020 4:52:21 PM	54339
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/12/2020 4:52:21 PM	54339
Surr: DNOP	68.2	30.4-154		%Rec	1	8/12/2020 4:52:21 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2020 1:56:51 PM	54303
Surr: BFB	107	75.3-105	S	%Rec	1	8/12/2020 1:56:51 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	8/12/2020 1:56:51 PM	54303
Toluene	ND	0.048		mg/Kg	1	8/12/2020 1:56:51 PM	54303
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2020 1:56:51 PM	54303
Xylenes, Total	ND	0.097		mg/Kg	1	8/12/2020 1:56:51 PM	54303
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	8/12/2020 1:56:51 PM	54303

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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S4- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:22:00 PM
Lab ID: 2008371-004 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	8/13/2020 8:02:34 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/12/2020 5:02:18 PM	54339
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/12/2020 5:02:18 PM	54339
Surr: DNOP	63.9	30.4-154		%Rec	1	8/12/2020 5:02:18 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/12/2020 2:20:39 PM	54303
Surr: BFB	101	75.3-105		%Rec	1	8/12/2020 2:20:39 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	8/12/2020 2:20:39 PM	54303
Toluene	ND	0.050		mg/Kg	1	8/12/2020 2:20:39 PM	54303
Ethylbenzene	ND	0.050		mg/Kg	1	8/12/2020 2:20:39 PM	54303
Xylenes, Total	ND	0.099		mg/Kg	1	8/12/2020 2:20:39 PM	54303
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	8/12/2020 2:20:39 PM	54303

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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S5- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:30:00 PM
Lab ID: 2008371-005 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	8/13/2020 8:14:56 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/12/2020 5:12:19 PM	54339
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/12/2020 5:12:19 PM	54339
Surr: DNOP	88.8	30.4-154		%Rec	1	8/12/2020 5:12:19 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2020 2:44:17 PM	54303
Surr: BFB	105	75.3-105	S	%Rec	1	8/12/2020 2:44:17 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	8/12/2020 2:44:17 PM	54303
Toluene	ND	0.047		mg/Kg	1	8/12/2020 2:44:17 PM	54303
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2020 2:44:17 PM	54303
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2020 2:44:17 PM	54303
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	1	8/12/2020 2:44:17 PM	54303

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 **2008371**
Date Reported: **8/14/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S6- Surface
Project: Thistle 20H
Collection Date: 8/5/2020 12:35:00 PM
Lab ID: 2008371-006 **Matrix:** SOIL **Received Date:** 8/7/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	220	60		mg/Kg	20	8/13/2020 8:27:16 PM	54391
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/12/2020 5:22:28 PM	54339
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/12/2020 5:22:28 PM	54339
Surr: DNOP	58.1	30.4-154		%Rec	1	8/12/2020 5:22:28 PM	54339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2020 3:55:23 PM	54303
Surr: BFB	104	75.3-105		%Rec	1	8/12/2020 3:55:23 PM	54303
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	8/12/2020 3:55:23 PM	54303
Toluene	ND	0.048		mg/Kg	1	8/12/2020 3:55:23 PM	54303
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2020 3:55:23 PM	54303
Xylenes, Total	ND	0.096		mg/Kg	1	8/12/2020 3:55:23 PM	54303
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	8/12/2020 3:55:23 PM	54303

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#: **2008371**
14-Aug-20

Client: Souder, Miller & Associates
Project: Thistle 20H

Sample ID: **MB-54391**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **54391**	RunNo: **71071**							
Prep Date: **8/13/2020**	Analysis Date: **8/13/2020**	SeqNo: **2476918**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-54391**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **54391**	RunNo: **71071**							
Prep Date: **8/13/2020**	Analysis Date: **8/13/2020**	SeqNo: **2476919**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2008371**
14-Aug-20

Client: Souder, Miller & Associates
Project: Thistle 20H

Sample ID: **2008371-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **S1- Surface** Batch ID: **54339** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474886** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.7	48.31	0	95.2	47.4	136			
Surr: DNOP	3.1		4.831		64.3	30.4	154			

Sample ID: **2008371-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **S1- Surface** Batch ID: **54339** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474887** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	36	9.9	49.50	0	72.8	47.4	136	24.3	43.4	
Surr: DNOP	2.0		4.950		41.4	30.4	154	0	0	

Sample ID: **LCS-54339** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54339** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474930** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	10	50.00	0	120	70	130			
Surr: DNOP	4.5		5.000		90.9	30.4	154			

Sample ID: **LCS-54341** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54341** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474931** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.6		5.000		113	30.4	154			

Sample ID: **MB-54339** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54339** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474932** 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	9.8		10.00		98.3	30.4	154			

Sample ID: **MB-54341** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54341** RunNo: **71030**
Prep Date: **8/11/2020** Analysis Date: **8/12/2020** SeqNo: **2474933** Units: **%Rec**

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2008371**
14-Aug-20

Client: Souder, Miller & Associates
Project: Thistle 20H

Sample ID: **MB-54341**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **54341**	RunNo: **71030**
Prep Date: **8/11/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474933** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		129	30.4	154			

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#: **2008371**

14-Aug-20

Client: Souder, Miller & Associates

Project: Thistle 20H

Sample ID: **mb-54303**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **54303**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474593** 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	1000		1000		101	75.3	105			

Sample ID: **lcs-54303**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **54303**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.2	72.5	106			
Surr: BFB	1100		1000		109	75.3	105			S

Sample ID: **mb-54306**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **54306**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474617** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		105	75.3	105			S

Sample ID: **lcs-54306**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **54306**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474618** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1200		1000		116	75.3	105			S

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#: **2008371**

14-Aug-20

Client: Souder, Miller & Associates

Project: Thistle 20H

Sample ID: **mb-54303**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **54303**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474639** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID: **LCS-54303**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **54303**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.2	80	120			
Toluene	0.95	0.050	1.000	0	95.1	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.5	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.4	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID: **mb-54306**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **54306**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474663** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Sample ID: **LCS-54306**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **54306**	RunNo: **71021**
Prep Date: **8/10/2020**	Analysis Date: **8/12/2020**	SeqNo: **2474664** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: **2008371** RcptNo: 1

Received By: **Cheyenne Cason** **8/7/2020 8:00:00 AM**

Completed By: **Leah Baca** **8/7/2020 10:12:35 AM** Leah SBaca

Reviewed By: SPA 8.7.20 11:25

Chain of Custody

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

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: CMC 8/7/20

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	4.1	Good				
2	5.8	Good				
3	5.9	Good				
4	0.3	Good				

Chain-of-Custody Record

Client: SMA

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

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Days
☑ Standard ☐ Rush

Project Name: Thistle 20H

Project #:

Project Manager: Ashley Maxwell

Sampler: SO/PS/ALL

On Ice: ☒ Yes ☐ No

# of Coolers: 3

Cooler Temp(including CF): See Remarks (°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. 200371	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)
8/5/20	12:05	Soil	S1 - Surface	4oz	Cool	-001	X	X					X			
	12:10		S2 - Surface			-002										
	12:17		S3 - Surface			-003										
	12:22		S4 - Surface			-004										
	12:30		S5 - Surface			-005										
	12:35		S6 - Surface			-006										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/6/20	915	Chelsea Chavez			8/6/20	915
8/6/20	1900			Courier	8/7/20	0800

Remarks: Bill Devon

4.1±0 = 4.1$_c$
5.8±0 = 5.8$_c$
5.9±0 = 5.9$_c$
0.3±0 = 0.3

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.

APPENDIX E
PHOTO LOG

North East Elevation

236°SW (T) 32.282423, -103.568441 ±3m 1100 m

31 Aug 2020, 15:21:07

North Elevation

212°S (T) 32.282423, -103.568441 ±3m 1100 m

31 Aug 2020, 15:21:10

South East Elevation

326°NW (T) 32.282212, -103.568531 ±1m ▲ 1105 m

31 Aug 2020, 15:21:37

South East Elevation

South Elevation

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 9960

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 9960
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	Closure must be approved by NMSLO.	9/20/2022