Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	NRM2006340822
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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/25/2022

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Robert Hamlet Date: 8/1/2022

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: Robert Hamlet Date: 8/1/2022

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

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

May 25, 2020

#5E28980-BG4

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

SUBJECT: Remediation Closure Report for the Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB Release (NRM2006340822) in Lea County, New Mexico

To Whom it May Concern:

On behalf of Marathon Oil Permian LLC, 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 Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB site. The site is in Unit A, Section 26, Township 24S Range 34E, Lea County, New Mexico, on Private 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	Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB	Company	Marathon Oil Permian LLC
API Number	N/A	Location	32.19502018 -103.43590735
Incident Number	NRM2006340822		
Estimated Date of Release	February 27, 2020	Date Reported to NMOCD	February 27, 2020
Landowner	Private	Reported To	NMOCD
Source of Release	Gasket failure on heater treater		
Released Volume	91.58 bbls	Released Material	Crude Oil
Recovered Volume	85	Net Release	6.58
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	4/27-5/1/2020		

1.0 Background

On February 27, 2020, a release was discovered at the Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB site due to a gasket failure on the heater treater. Initial response activities were conducted by Wescom, and included the scraping of 2-3 inches of material off of the impacted pad and pasture, recovery of approximately 85 barrels of fluid. 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 Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB is located approximately 15 miles northwest of Jal, New Mexico on privately-owned land at an elevation of approximately 3447 feet above mean sea level (amsl).

Based upon New Mexico Office of the State Engineer and United States Geological Survey (Appendix B), depth to groundwater in the area is estimated to be 345 feet below grade surface (bgs). There are no known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 5/23/2020). There are six water wells with depth to groundwater (CP-00839, C-03943, C-02401, 321039103243401, 320934103253901, 321025103263601) data within 2.8 miles of the release. Water well CP-00839 is located southeast at 1.81 miles from the release with a depth to groundwater recorded at 155 feet, water well C-03943 is located northwest at 1.94 miles from the release with a depth to groundwater at 431 feet, water well C-02401 is located south at 2.13 miles from the release with a depth to groundwater recorded at 260 feet, USGS water well 321039103243401 is located southeast at 1.94 miles from the release with a depth to groundwater recorded at 140 feet, USGS water well 320934103253901 is located south at 2.49 miles from the release with a depth to groundwater recorded at 224 feet, USGS water well 321025103263601is located southwest at 1.17 miles from the release with a depth to groundwater recorded at 218 feet. Based on this data, the potential depth to groundwater at the site is estimated to be 285.16 feet bgs (see Table 4 for calculation). The nearest significant watercourse is an unnamed channel that feeds into Antelope Draw , located approximately 4,373 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. 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 February 27, 2020, Wescom personnel arrived on site in response to the release associated with Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB. Wescom performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. A total of eight (8) sample locations (SP01-SP07, BG01) were investigated using a hand-auger, to depths up to one foot bgs. A minimum of two samples were collected at each sampling location. A total of seventeen (17) 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 (Table 3a).

Between April 27 and May 1, 2020, SMA guided the excavation of contaminated soil, as determined by the initial delineation results. SMA further 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 2000 photoionization detector (PID) equipped with a 10.6 eV lamp. The walls and base were excavated until field screening results indicated that the NMOCD Closure Criteria would be met. NMOCD was notified on April 26, 2020 that closure samples were expected to be collected in two (2) business days.

On May 1, 2020, SMA conducted confirmation sampling of the walls and base of the excavation. The area around sample point (SP07) was excavated to a depth of one-half-foot bgs, the area surrounding sample points (SP06-SP04) was excavated to a depth of one foot bgs, and the area around sample points (SP03, SP 02, and SP 01) were excavated to one-half-foot bgs.

The confirmation samples were collected from within the excavated areas in accordance with a systematic sampling approach, as defined by SW846 using Gilbert, 1987 equation 5.2.3 for Stratified Random Sampling (Appendix C). This systematic method meets the EPAs data quality assessment standards (DQA) for composite sampling. Confirmation samples were compromised of five-point composites of the base (CS1- CS9) and walls (SW1-SW14). A photo log of the open excavation can be found in Appendix C.

A total of twenty-three (23) 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).

Figure 3 shows the extent of the excavation and confirmation sample locations. Laboratory results from this event are summarized in Table 3b. Laboratory reports are included in Appendix D.

SMA recommends no further action for the referenced release, and requests closure of incident NRM2006340822.

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

4.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization; regulatory liaison; remediation; and preparing this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Ashley Maxwell at 505-320-8975 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Ashley Maxwell
Project Scientist

Reviewed by:

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

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

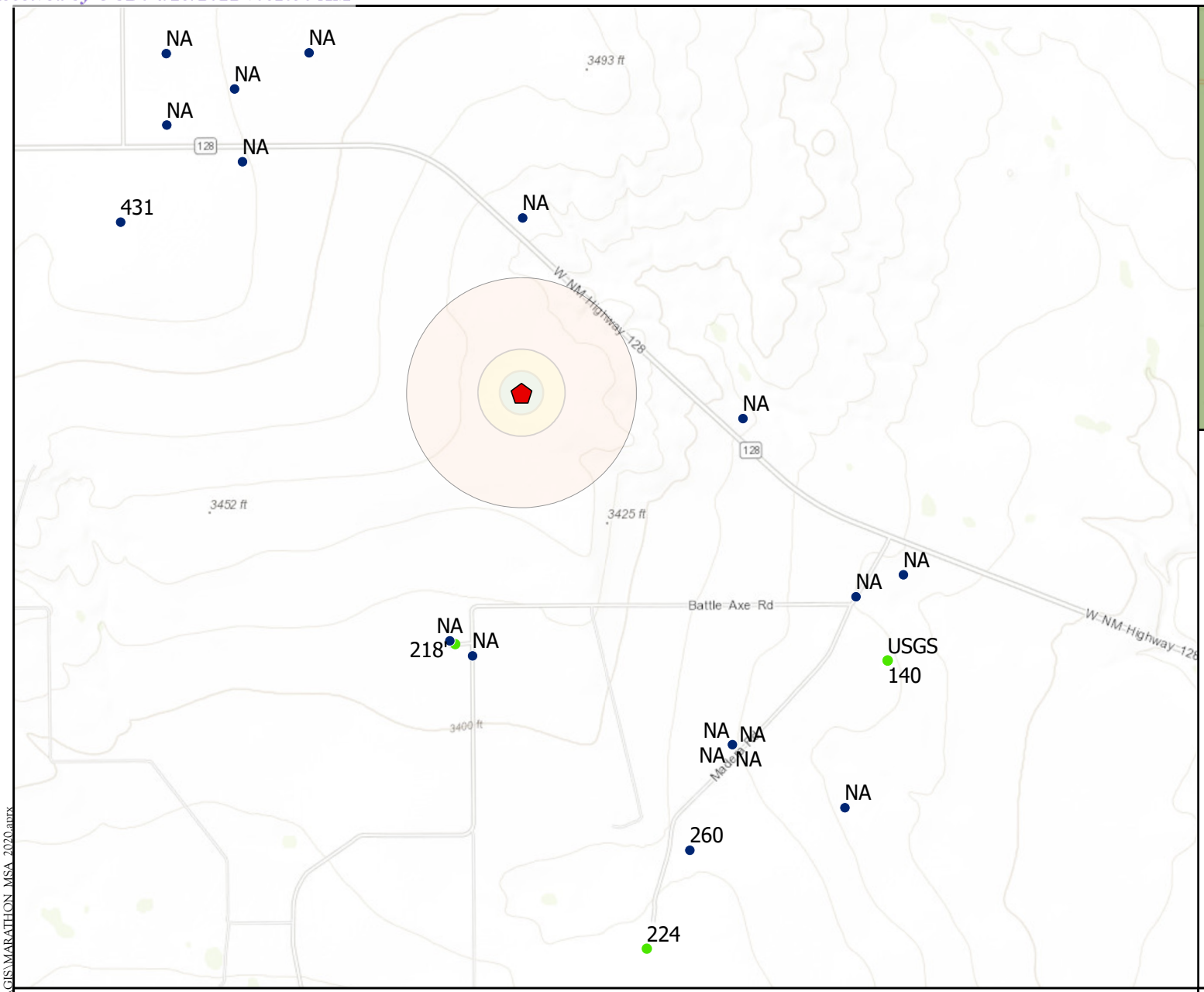
Tables:

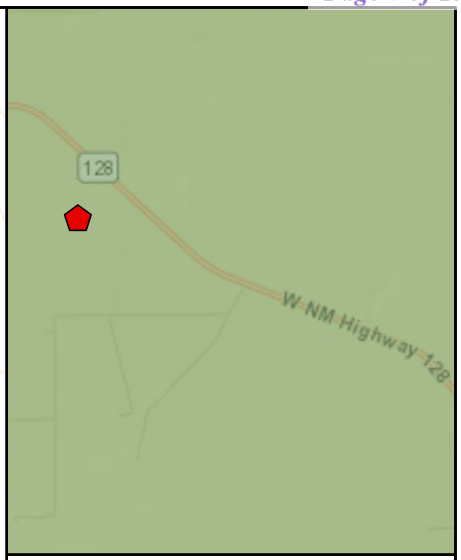
Table 2: NMOCD Closure Criteria Justification
Table 3a: Summary of Initial Sample Results
Table 3b: Summary of Confirmation Sampling
Table 4: Depth to Groundwater Calculation

Appendices:

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

FIGURES





.5 Mile
1000 Feet
500 Feet
Point of Release
USGS GW Well
OSE Depth to GW

Karst Potential
Critical
High
Medium
Low

N

0 1,000 2,000 4,000 6,000
Feet

Site Map
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB- Marathon Oil
UL: A S: 26 T: 24S R: 34E, Lea County, New Mexico

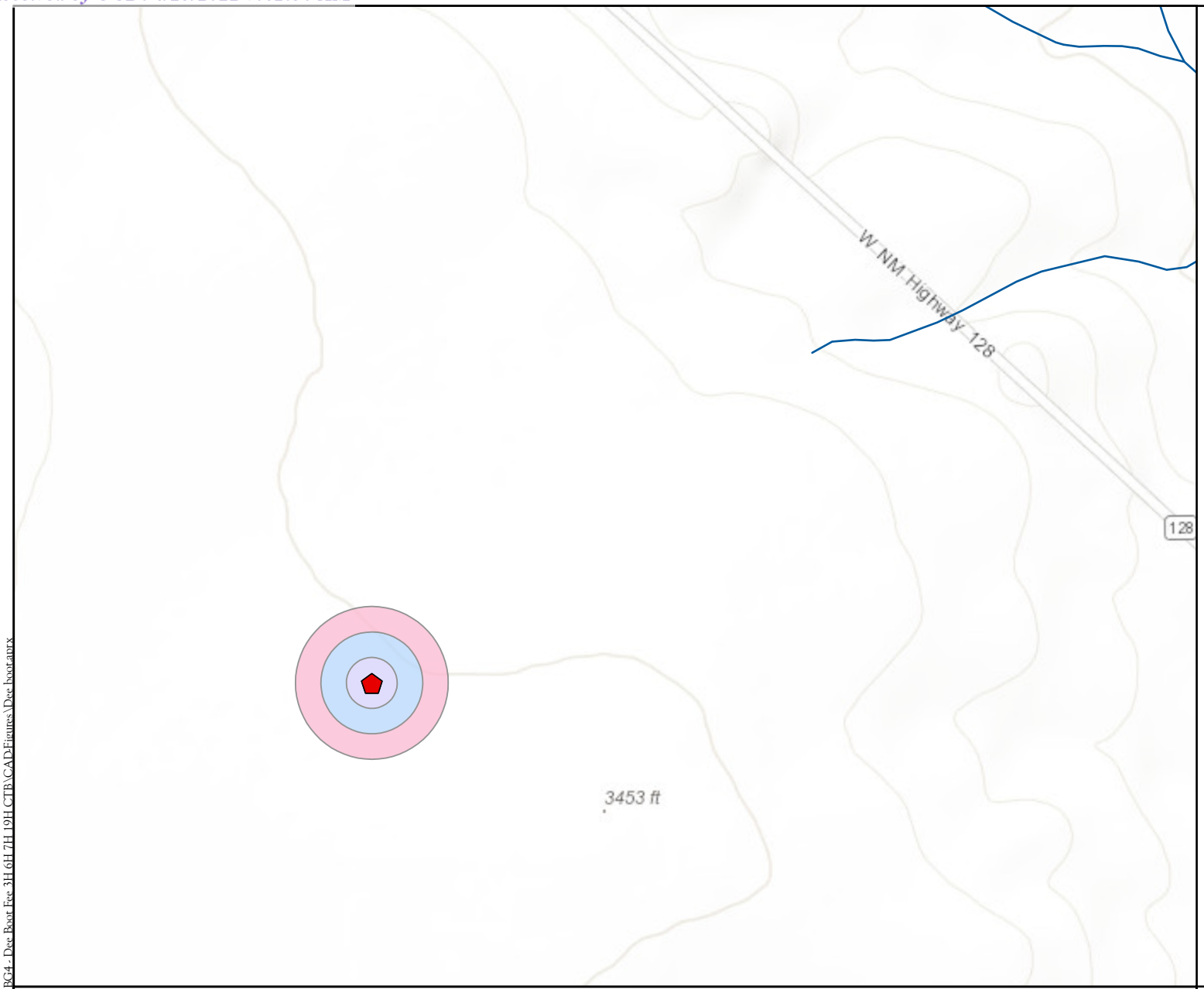
Figure 1

P:\5-Marathon MSA 2020 (5E28980)\GIS\MARATHON_MSA_2020.aprx
Date Saved: 4/21/2020

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

Drawn Lynn A. Acosta
Date 5/23/2020
Checked
Approved

SMA
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

0 190 380 760 1,140

Feet

Surface Water Protection Map
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB- Marathon Oil Permian LLC
UL: A S: 26 T: 24S R: 34E , Lea County, New Mexico

Figure 2

P:\5-Marathon MSA 2020 (5F28980)\BG4 - Dee Boot Fee 3H 6H 7H 19H CTB\CAD\Figures\Dee boot.aprx
Date Saved: 5/23/2020

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

Drawn Lynn A. Acosta
Date 5/23/2020
Checked _____
Approved _____

SMA
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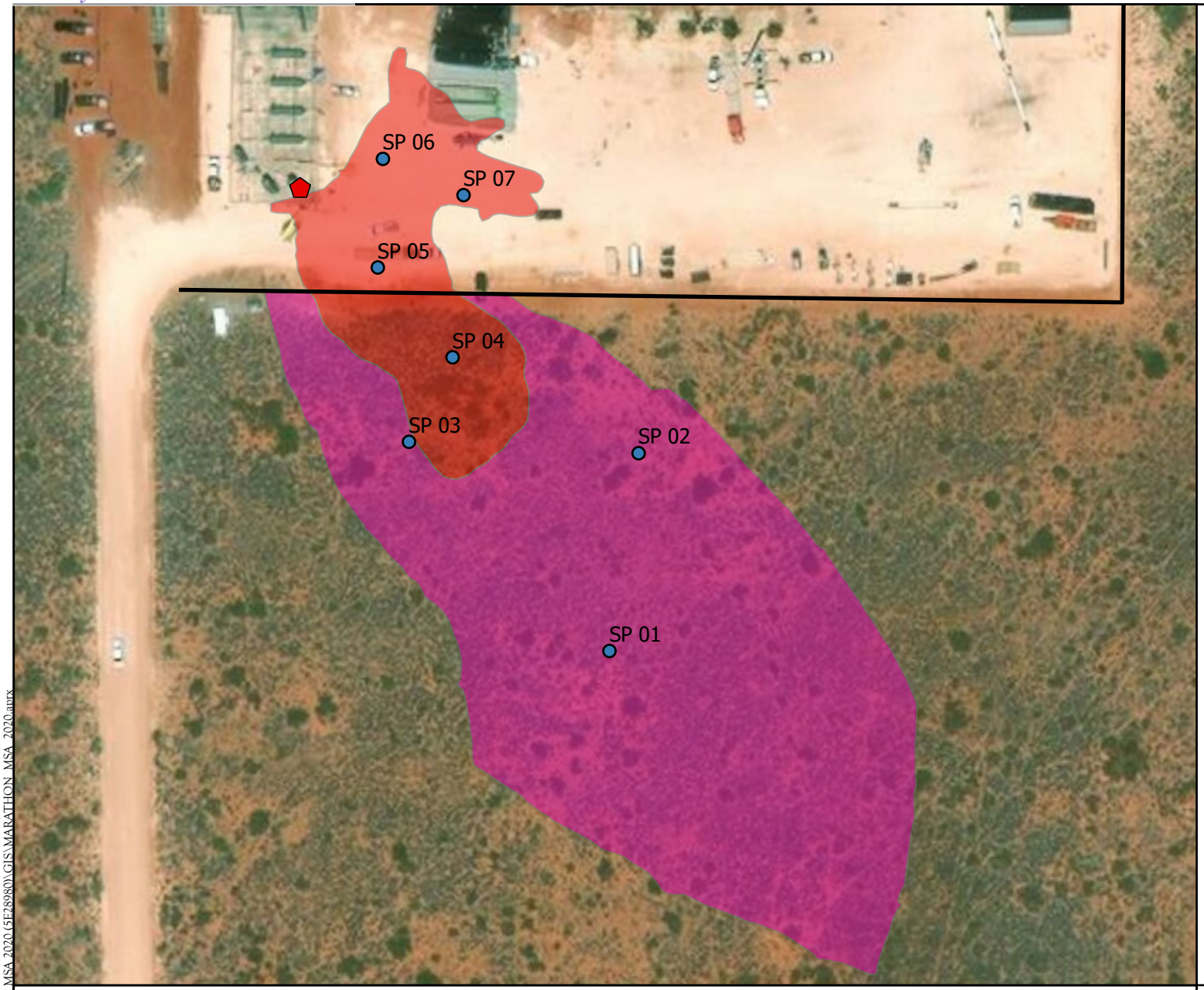

Legend

- Point of Release
- Soil Sample
- Lease Bounday
- Overspray
- Release Area

N

0 30 60 120 180

Feet

Site and Sample Location Map
Dee Boot 3H 6H 7H 19H CTB - Marathon Oil
UL: A S: 26 T: 24S R: 34E Lea County, New Mexico

Figure 3

\\192.168.22.10\Projects\5Marathon_MSA 2020\(5F28980)\GIS\MARATHON_MSA_2020.aprx
Date Saved: 3/18/2020

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

Drawn Lynn A. Acosta
Date 3/19/2020
Checked
Approved

SMA

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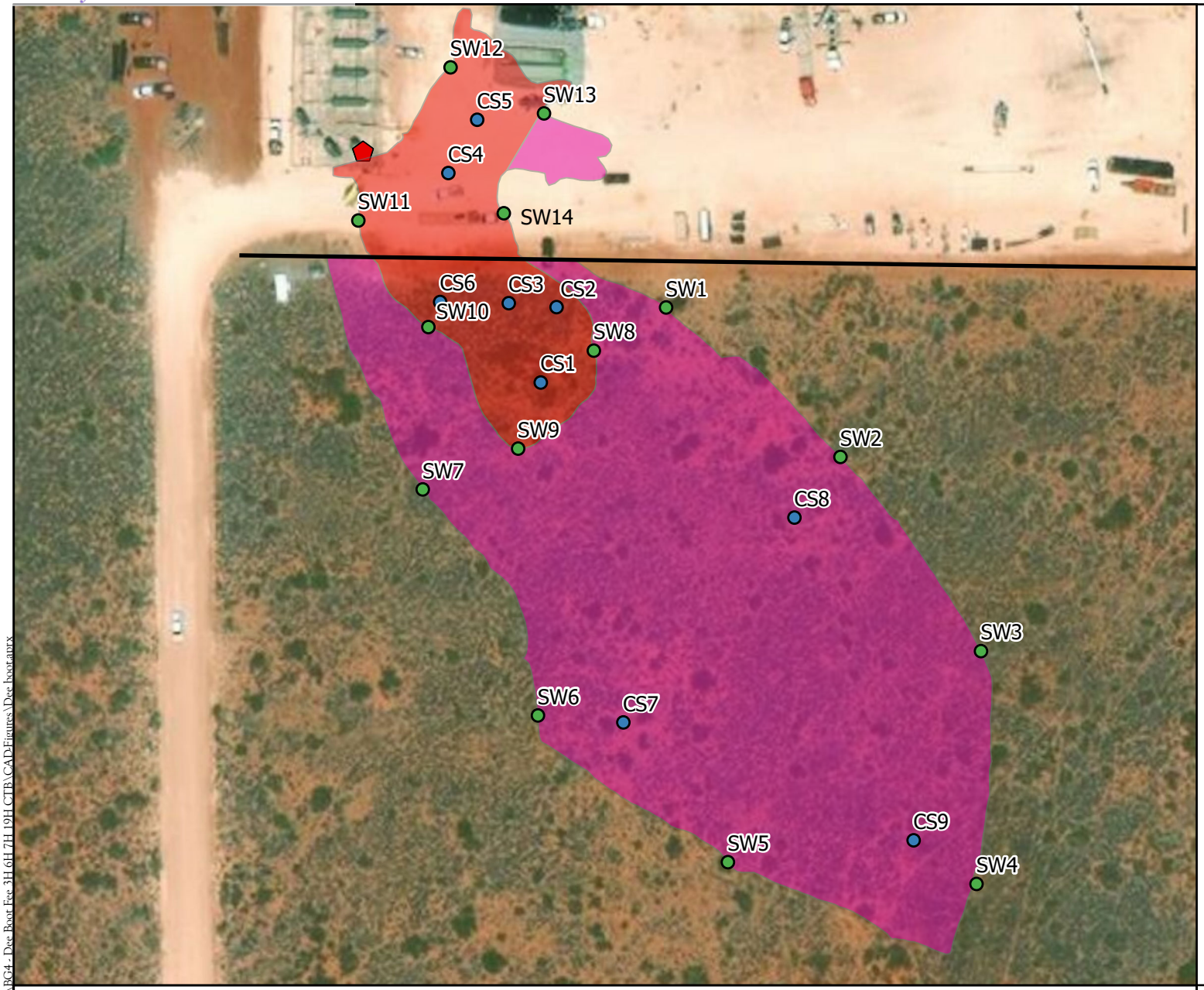

Legend

- Point of Release
- Lease Boundary
- 0.5' Excavation
- 1' Excavation
- Sidewall Sample
- Soil Sample

N

0 30 60 120 180

Feet

Confirmation Sample Location Map
Dee Boot 3H 6H 7H 19H CTB - Marathon Oil
UL: A S: 26 T: 24S R: 34E Lea County, New Mexico

Figure 3A

P:\5-Marathon MSA 2020 (5F289800)\BG4 - Dee Boot Fee 3H 6H 7H 19H CTB\CAD\Figures\Dee boot.aprx
Date Saved: 5/23/2020

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

Drawn Lynn A. Acosta
Date 5/23/2020
Checked
Approved

SMA
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TABLES

Table 2:
NMOCD Closure Criteria

Marathon Oil Permian LLC
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB
NRM2006340822

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	345	New Mexico Office of the State Engineer
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	NA	United States Geological Survey Topo Map
Hortizontal Distance to Nearest Significant Watercourse (ft)	4,373	United States Geological Survey Topo Map

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

SMA #

Table 3a:
Summary of Sample Results

Marathon Oil Permian LLC
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB
NRM2006340822

Table 1. Laboratory Analysis Results: Initial Spill Characterization							
Dee Boot Fee 3H 6H 7H 19H CTB - Heater 1 Spill							
Sample Description				Petroleum Hydrocarbons			Inorganic
				Volatile		Extractable	
Sample ID	Depth (ft.)	Area	Date	Benzene (mg/kg)	BTEX (total) (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
Closure Criteria				**10**	**50**	**2500**	**20000**
Lab Order:2003176 Hall Environmental Analysis Laboratory							
SP01	0	Overspray	2/27/2020	ND	ND	52	ND
	0.5	Overspray	2/27/2020	ND	ND	175	ND
SP02	0	Overspray	2/27/2020	ND	ND	17	ND
	0.5	Overspray	2/27/2020	ND	ND	ND	ND
SP03	0	Overspray	2/27/2020	ND	ND	ND	ND
	0.5	Overspray	2/27/2020	ND	ND	ND	ND
SP04	0	Spill - off lease	2/27/2020	ND	2.38	**8860**	ND
	0.5	Spill - off lease	2/27/2020	ND	0.32	466	ND
SP05	0	Spill - on-lease	2/27/2020	2.3	**242**	**55600**	370
	1	Spill - on-lease	2/27/2020	ND	11	1770	ND
SP06	0	Spill - on-lease	2/27/2020	**41**	**751**	**51000**	920
	1	Spill - on-lease	2/27/2020	0.05	2.12	883	ND
SP07	0	Spill - on-lease	2/27/2020	7	**288**	**48600**	120
	0.5	Spill - on-lease	2/27/2020	0.23	16.53	850	ND
BG01	0	Background	2/27/2020	ND	ND	ND	ND
	0.5	Background	2/27/2020	ND	ND	ND	ND
	1	Background	2/27/2020	ND	ND	ND	ND

Table 3b:
Summary of Sample Results

Marathon Oil Permian LLC
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB
NRM2006340822

Sample ID	Sample Date	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		50	10			1000		2500	20000
Well Pad Release									
CS4	5/1/2020	<0.225	<0.025	<5.0	470	470	250	720	<60
CS5		<0.221	<0.025	<4.9	<9.5	<14.4	<48	<62.4	<59
SW11		<0.222	<0.025	<4.9	24	24	<48	24	<60
SW12		<0.224	<0.025	<5.0	36	36	<48	36	<60
SW13		<0.225	<0.025	<5.0	25	25	<46	25	<60
SW14		<0.225	<0.025	<5.0	22	22	<50	22	<60
Pasture Release*									
CS1	5/1/2020	<0.225	<0.025	<5.0	<9.3	<14.3	<46	<60.3	<60
CS2		<0.225	<0.025	<5.0	20	20	<49	20	70
CS3		<0.221	<0.025	<4.9	73	73	<47	73	<60
CS6		<0.220	<0.024	<4.9	<9.7	<14.6	<49	<63.6	<60
SW8		<0.225	<0.025	<5.0	17	17	<48	17	<60
SW9		<0.222	<0.025	<4.9	24	24	<47	24	<60
SW10		<0.224	<0.025	<5.0	23	23	<48	23	<60
Overspray*									
CS7	5/1/2020	<0.221	<0.025	<4.9	16	16	<48	16	<60
CS8		<0.225	<0.025	<5.0	14	14	<48	14	<60
CS9		<0.224	<0.025	<5.0	12	12	<44	12	<60
SW1		<0.224	<0.025	<5.0	<9.6	<14.6	<48	<62.6	<60
SW2		<0.225	<0.025	<5.0	<9.9	<14.9	<49	<63.9	<60
SW3		<0.220	<0.024	<4.9	<9.4	<14.3	<47	<61.3	<60
SW4		<0.225	<0.025	<5.0	12	12	<47	12	<60
SW5		<0.225	<0.025	<5.0	17	17	<46	17	<60
SW6		<0.225	<0.025	<5.0	20	20	<48	20	<59
SW7		<0.225	<0.025	<5.0	18	18	<49	18	<60

"--" = Not Analyzed
* = per Reclamation Standard (19.15.29.13.D(1) NMAC)

Table 4:
Potential Depth to Groundwater

Marathon Oil Permian LLC
Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB

Depth To Groundwater			Calculations	
Location Elevation (ft):	3447			
Well Name	**Well Elevation (ft)**	**Well Depth to GW**	**Groundwater Elevation**	**Depth to GW at Location**
CP 00839 POD 1	3330	155	3175	272
C 03932 POD 13	3515	Dry		
C 03943 POD 1	3541	431	3110	337
C 02401	3381	260	3121	326
321039103243401	3348	140	3208	239
320934103253901	3386	224	3162	285
321025103263601	3413	218	3195	252
				3447
Total # of Wells	6			1711

Potential Depth to GW at Release:	**285.166666666667**

Sanjari, Melodie (MRO)

From: Sanjari, Melodie (MRO)
Sent: Monday, July 13, 2020 11:09 AM
To: Venegas, Victoria, EMNRD; Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; Eads, Cristina, EMNRD
Cc: Ashley Maxwell
Subject: RE: NRM2006340822 DEE BOOT FEE 24 34 26 #3 #6 #7 #19 CTB @ A-26-24S-34E 0N 0E
Attachments: Closure Approval - Marathon - Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB - (Incident # NCE2003739249).pdf; Closure Approval - Marathon - Dee Boot Fee 24 34 26 #3 #6 #7 # 19 CTB - (Incident #NCE2003738053).pdf

Ms. Venegas,

The incident in question, NRM2006340822 is from a release that took place on 2/26/2020 at the Dee Boot 3H 6H 7H 19H CTB location. Marathon had two other incidents (NCE2003739249 & NCE2003738053) on the same Dee Boot location on 1/15/2020. The closure requests for NCE2003739249 & NCE2003738053 were approved on 4/8/2020 using the depth to groundwater criteria of greater than 100 ft. to groundwater. Both reports reference USGS 321039103243401, USGS 321025103263601 and NM OSE C03943 POD1 amongst other nearby wells in their determinations. Although these wells are not within the 0.5 mile guidance that you detail below, USGS 321025103263601 and NM OSE C03943 POD1 are well within your 25 year guidance (2013 and 2016, respectively) and we believe they continue to be an accurate representation of the depth to groundwater of the area in question.

Thank you for your time and response to this incident.

Melodie Sanjari
Environmental Professional
Marathon Oil Company – Permian Asset
Cell - (575) 988-8753
4111 S. Tidwell Road
Carlsbad, NM 88220

Marathon Oil

From: Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Sent: Friday, July 10, 2020 9:35 AM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Cc: Ashley Maxwell <ashley.maxwell@soudermiller.com>
Subject: [External] NRM2006340822 DEE BOOT FEE 24 34 26 #3 #6 #7 #19 CTB @ A-26-24S-34E 0N 0E

Beware of links/attachments.

NRM2006340822 DEE BOOT FEE 24 34 26 #3 #6 #7 #19 CTB @ A-26-24S-34E 0N 0E

Ms. Sanjari,
The OCD has denied the submitted Closure Report C-141 for incident # NRM2006340822 DEE BOOT FEE 24 34 26 #3 #6 #7 #19 CTB @ A-26-24S-34E 0N 0E for the following reasons:

- The Depth to groundwater has been inadequately assessed. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided. If Marathon believes that groundwater is > 100', a borehole will need to be drilled onsite and a copy of the driller's log must be provided.
- If Marathon chooses not to drill a borehole to confirm the depth to groundwater, the site must be remediated to meet the Closure Criteria in Table 1 for groundwater at a depth of 50 feet or less. This will require additional excavation @sample points SP04, SP05, SP07 and CS4.

The Denied C-141 can be found in the online image file. Please review and make the required correction prior to resubmitting through the fee portal.
Thank you,

Victoria Venegas
State of New Mexico
Energy, Minerals, and Natural Resources
Oil Conservation Division
811 S. First St., Artesia NM 88210
(575) 748-1283
Victoria.Venegas@state.nm.us

APPENDIX A
FORM C141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NRM2006340822
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-8753
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.19502018 Longitude -103.43590735
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB	Site Type Central Tank Battery
Date Release Discovered 2/26/2020	API# *(if applicable)* N/A

Unit Letter	Section	Township	Range	County
A	26	24S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 91.58	Volume Recovered (bbls) 85
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A gasket failure caused the release of approximately 91.58 bbls crude oil from the heater treater on the edge of containment, onto the engineered pad, across the entrance to the facility and an overspray to the pasture to the south. Initial response included source isolation and elimination, the recovery of approx. 85 bbls and the surficial scrape of the release area.

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? >25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes by Melodie Sanjari (MOC) on 2/27/2020 via email to District II	

Initial Response

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

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 3/2/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Ramona Marcus Date: 3/3/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2006340822
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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?	>100 (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	NRM2006340822
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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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 5/26/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NRM2006340822
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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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/25/2022

email: msanjari@marathonoil.com Telephone: 575-988-8753

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: _____

Spill Calculation Tool

Marathon Oil

Standing Liquid Inputs:

	Length (ft.)	Width (ft.)	Avg. Liquid Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1	125	50	0.5		46.38	46.38	0.00
Rectangle Area #2					0.00	0.00	0.00
Rectangle Area #3					0.00	0.00	0.00
Rectangle Area #4					0.00	0.00	0.00
Rectangle Area #5					0.00	0.00	0.00
Rectangle Area #6					0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Liquid Volume:	**46.38**	**46.38**	**0.00**

Saturated Soil Inputs: Soil Type: **Gravel Loam**

		Area (ft.)	Avg. Saturated Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1		18750	0.5	0%	19.48	19.48	0.00
Rectangle Area #2		17000	0.125	0%	4.42	4.42	0.00
Rectangle Area #3		102500	0.1	0%	21.30	21.30	0.00
Rectangle Area #4				0%	0.00	0.00	0.00
Rectangle Area #5				0%	0.00	0.00	0.00
Rectangle Area #6				0%	0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Saturated Volume	**45.19**	**45.19**	**0.00**

Volume Recovered *and not included in Standing Liquid Inputs* :

% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)

	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Total Spill Volume (bbls):	**91.58**	**91.58**	**0.00**

NRM2006340822

NOVA SERVICES
THE NOVA DIFFERENCE

NOVA TRUCKING, LLC
5800 NOVA DRIVE • HOBBS, NM 88240
OFFICE: (575) 393-8786
FAX: (575) 397-0042

INVOICE # 65832

COMPANY Cara Cara Oil DATE 2-26-20

LEASE Dr. Boot Fed. 243426 #XY 5H REP/PO# 30-025 41415

START TIME 11:00 AM ☑ PM ☐

STOP TIME _____ AM ☐ PM ☐ TOP GAUGE _____

TOTAL HOURS _____ BOTTOM GAUGE _____

LOADING TANK # V-8 BBLS LOADED 95

SWD COMPANY NM SWD/LOCATION _____

SWD TICKET # 6557 TRANSFER 2-26-20

TRUCK NUMBER 153

DRIVER (PRINT) Cesar Armijo

DRIVER (SIGNATURE) Cesar Armijo

OMPANY REPRESENTATIVE (PRINT) _____

MPANY REPRESENTATIVE (SIGNATURE) _____

Oil D-

OIL BASE MUD ☐ FRESH WATER ☐ PRODUCED WATER ☐ ACID ☐

R BASE MUD ☐ BRINE WATER ☐ WASH OUT ☐ LIQUID KCL ☐

NTS Took Off location Jumped Off of Trailer Battery and Ground. Fell Down to water tank. Battery.

ME ON LOCATION REASON

E AT SWD REASON

APPENDIX B
NMOSE WELLS REPORT

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00839 POD1		CP	LE		4	3	30	24S	35E	650017	3561833*	2890	175		
C 03932 POD13		CUB	LE	4	2	3	15	24S	34E	645314	3565203	2966	90		
C 03943 POD1		CUB	LE	2	4	2	21	24S	34E	644523	3564266	3124	610	431	179
C 02401		CUB	LE	2	2	1	01	25S	34E	648534	3559896*	3411	275	260	15

Average Depth to Water: **345 feet**

Minimum Depth: **260 feet**

Maximum Depth: **431 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 647431.33 **Northing (Y):** 3563124.88 **Radius:** 4500

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

5/23/20 9:58 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

MISC 582 PAGE 679

51277

Revised May 1993

IMPORTANT — READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM.

Declaration of Owner of Underground Water Right

Capitan Water Basin
BASIN NAME

94 MAR 28 AM 10 35

Declaration No. CP-839 Date received March 21, 1994

STATEMENT

1. Name of Declarant Rubert Madera

Mailing Address Box 1224, Jal, N.M. 88252

County of Lea, State of New Mexico

2. Source of water supply shallow water aquifer
(artesian or shallow water aquifer)

3. Describe well location under one of the following subheadings:

a. ____ ¼ SE ¼ SW ¼ of Sec. 30 Twp. 24 S Rge. ~~34~~ 35 E N.M.P.M., in PZL

b. Tract No. ____ of Map No. ____ of the ____.

c. X = ____ fee, Y = ____ feet, N.M. Coordinate System ____ Zone

in the ____ Grant.

On land owned by Rubert Madera

4. Description of well: date drilled 1963 driller Otis Fruit depth 175 feet.

outside diameter of casing 6 inches; original capacity 9 gal. per min.; present capacity 9

gal. per min.; pumping lift 165 feet; static water level 155 feet (above) (below) land surface;

make and type of pump Electric under water pump

make, type, horsepower, etc., of power plant one third horsepower electric

Fractional or percentage interest claimed in well all

5. Quantity of water appropriated and beneficially used ____ (acre feet per acre) 3 (acre feet per annum)

for two houses and livestock watering purposes.

6. Acreage actually irrigated na acres, located and described as follows (describe only lands actually irrigated):

Subdivision	Sec.	Twp.	Range	Acres Irrigated	Owner

(Note: location of well and acreage actually irrigated must be shown on plat on reverse side.)

Water was first applied to beneficial use May (month) ____ (day) 1963 (year) and since that time has been used fully and continuously on all of the above described lands or for the above described purposes except as follows: ____

8. Additional statements or explanations The Cox place well is known as the Cox well

I, Rubert Madera being first duly sworn upon my oath, depose and say that the above is a full and complete statement prepared in accordance with the instructions on the reverse side of this form and submitted in evidence of ownership of a valid underground water right, that I have carefully read each and all of the items contained therein and that the same are true to the best of my knowledge and belief.

Rubert Madera, declarant.

by: ____

Subscribed and sworn to before me this 22nd day of February, A.D. 19 94

My commission expires 7/25/94 Cruzita Aceves Notary Public

Cruzita Aceves

FILED

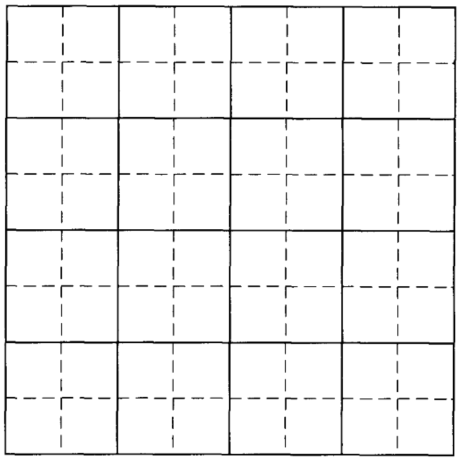
UNDER NEW MEXICO LAW A DECLARATION IS ONLY A STATEMENT OF DECLARANT'S CLAIM. ACCEPTANCE FOR FILING DOES NOT CONSTITUTE APPROVAL OR REJECTION OF THE CLAIM.

SJ 0681

POD Renumbered From: CP-839 To: CP-839-POD1

Locate well and areas actually irrigated as accurately as possible and following plat:

Section(s) _____ , Township _____ , Range_____ N.M.P.M.



INSTRUCTIONS

Declaration shall be executed (preferably typewritten) in triplicate and must be accompanied by a $1.00 filing fee. Each of triplicate copies must be properly signed and attested.

A separate declaration must be filed for each well in use.

All blanks shall be filled out fully. Required information which cannot be sworn to by declarant shall be supplied by affidavit of person or persons familiar with the facts and shall be submitted herewith.

Secs. 1-3. Complete all blanks.

Sec. 4. Fill out all blanks applicable as fully as possible.

Sec. 5. Irrigation use shall be stated in acre feet of water per acre per year applied on the land. If used for domestic, municipal, or other purposes, state total quantity in acre feet used annually.

Sec. 6. Describe only the acreage actually irrigated. When necessary to clearly define irrigated acreages, describe to nearest 2½ acre subdivision. If located on unsurveyed lands, describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily-located natural object.

Sec. 7. Explain and give dates as nearly as possible of any years when all or part of acreage claimed was not irrigated.

Sec. 8. If well irrigates or supplies supplemental water to any other land than that described above, or if land is also irrigated from any other source, explain under this section. Give any other data necessary to fully describe water right.

If additional space is necessary, use a separate sheet or sheets and attach securely hereto.

51277

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

FEB 22 1994

at 10:30 o'clock A M
and recorded in Book 582
Page 679
Pat Chappelle, Lea County Clerk
By _____ Deputy

'94 MAR 28 AM 10 35

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

ELUID MARTINEZ
STATE ENGINEER

ROSWELL

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

March 24, 1994

FILE: CP-839

Rubert Madera
Box 1224
Jal, NM 88252

Dear Mr. Madera:

Enclosed is your copy of Declaration of Owner of Underground Water Right as numbered above, which has been filed for record in the office of the State Engineer.

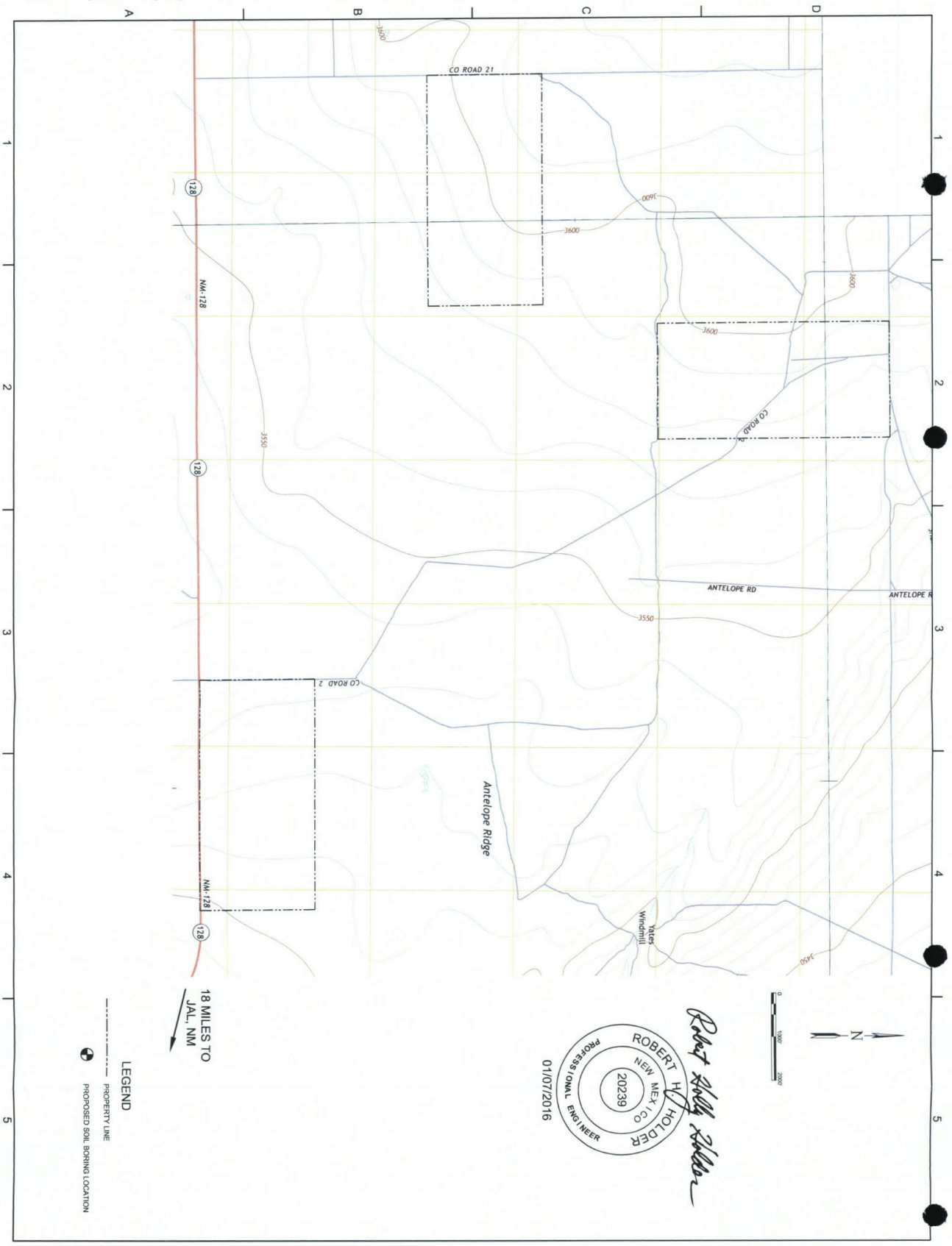
Please refer to the number in all future correspondence concerning the declaration.

The filing of the declaration does not indicate affirmation or rejection of the statements contained therein.

Yours truly,

Johnny R. Hernandez
Basin Supervisor

JRH/rpa
encl.
cc: Santa Fe ✓



PARKHILL SMITH & COOPER

PSC

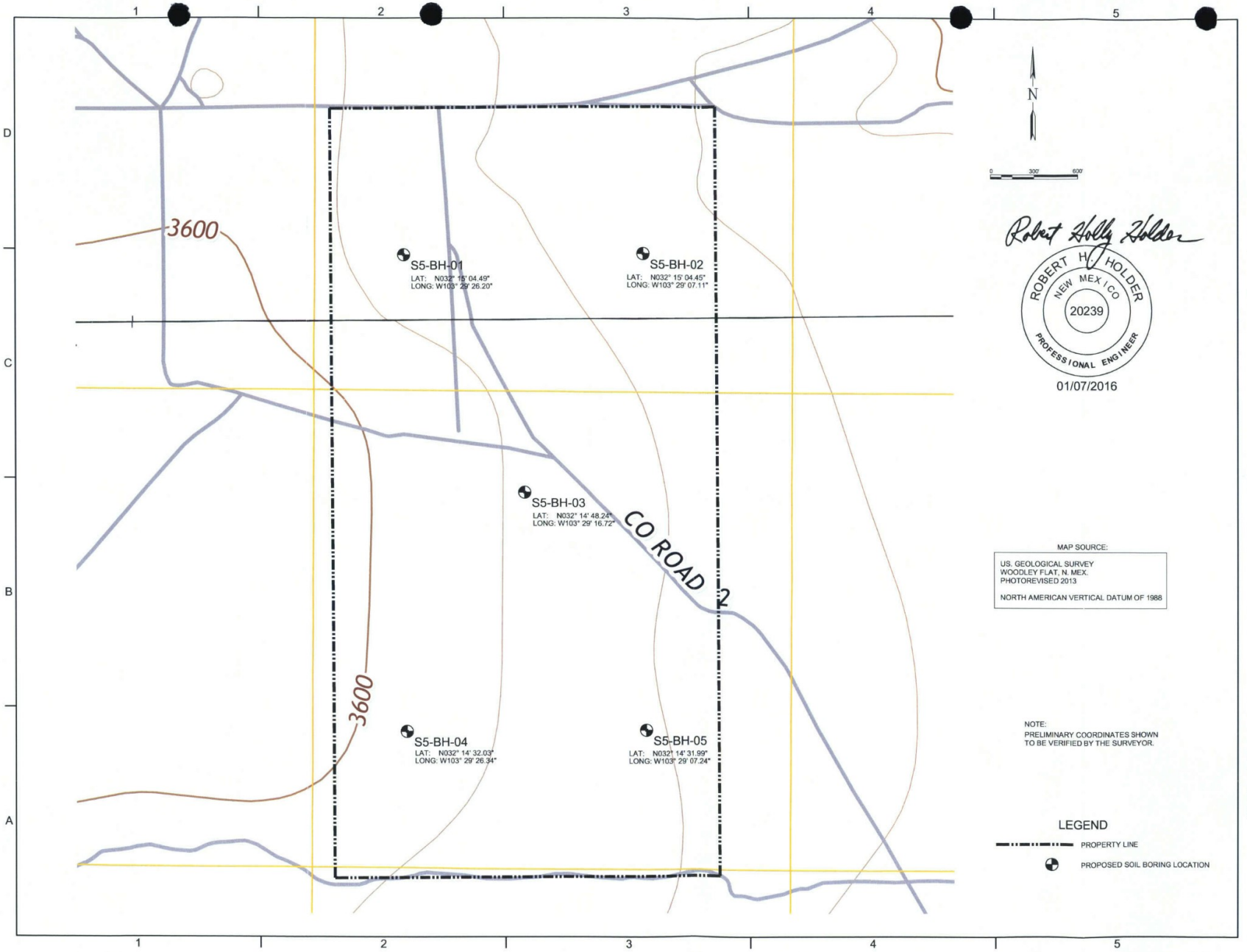
PROPOSED
DELAWARE BASIN SITE
SECTION 8

SOIL BORING PLAN

SECTION 8

NO	DATE	DESCRIPTION
		ISSUING OFFICE: LUBBOCK PROJECT NO: 40660.00

KEY PLAN



FILE NAME: \\Data1\Projects\2015\0085.15\BIM_CAD\01_CIVIL\BORING PLAN3.dwg LAYOUT NAME: C-102 PRINTED: Thursday, January 07, 2016 - 9:57am USER: TKooger

Robert Holly Holder

ROBERT H. HOLDER
NEW MEXICO
20239
PROFESSIONAL ENGINEER

01/07/2016

MAP SOURCE:

US. GEOLOGICAL SURVEY
WOODLEY FLAT, N. MEX.
PHOTOREVISED 2013

NORTH AMERICAN VERTICAL DATUM OF 1988

NOTE:
PRELIMINARY COORDINATES SHOWN TO BE VERIFIED BY THE SURVEYOR.

LEGEND

PROPERTY LINE

PROPOSED SOIL BORING LOCATION

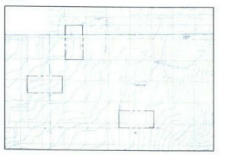
PSC
PARKHILL SMITH & COOPER

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2016 JAN -8 AM 11:53

PROPOSED
DELAWARE BASIN SITE

SECTION 5

KEY PLAN

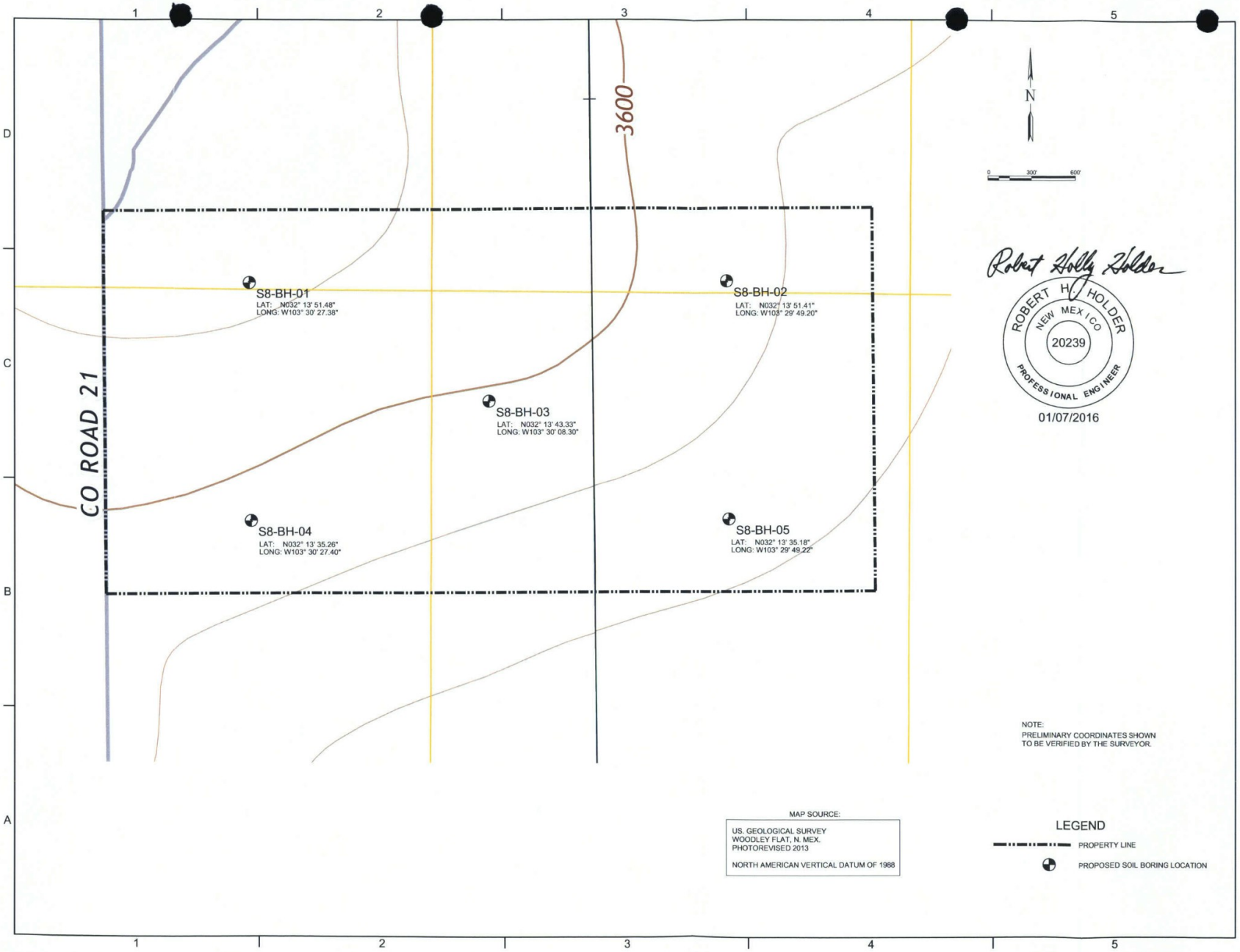


NO.	DATE	DESCRIPTION

ISSUING OFFICE: LUBBOCK PROJECT NO: 0000.00

SECTION 5

SOIL BORING PLAN



Robert Holly Holder

ROBERT H. HOLDER
NEW MEXICO
20239
PROFESSIONAL ENGINEER

01/07/2016

NOTE:
PRELIMINARY COORDINATES SHOWN TO BE VERIFIED BY THE SURVEYOR.

MAP SOURCE:

US. GEOLOGICAL SURVEY
WOODLEY FLAT, N. MEX.
PHOTOREVISED 2013

NORTH AMERICAN VERTICAL DATUM OF 1988

LEGEND

PROPERTY LINE

PROPOSED SOIL BORING LOCATION

FILE NAME: \\Data1\Projects\2015\0585.15\BIM_CAD\01_CIVIL\BORING-PLAN3.dwg LAYOUT NAME: C-101 PRINTED: Thursday, January 07, 2016 - 9:48am USER: TKrueger

PSC
PARKHILL SMITH & COOPER

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2016 JAN -8 AM 11:52

PROPOSED
DELAWARE BASIN SITE

SECTION 8

KEY PLAN

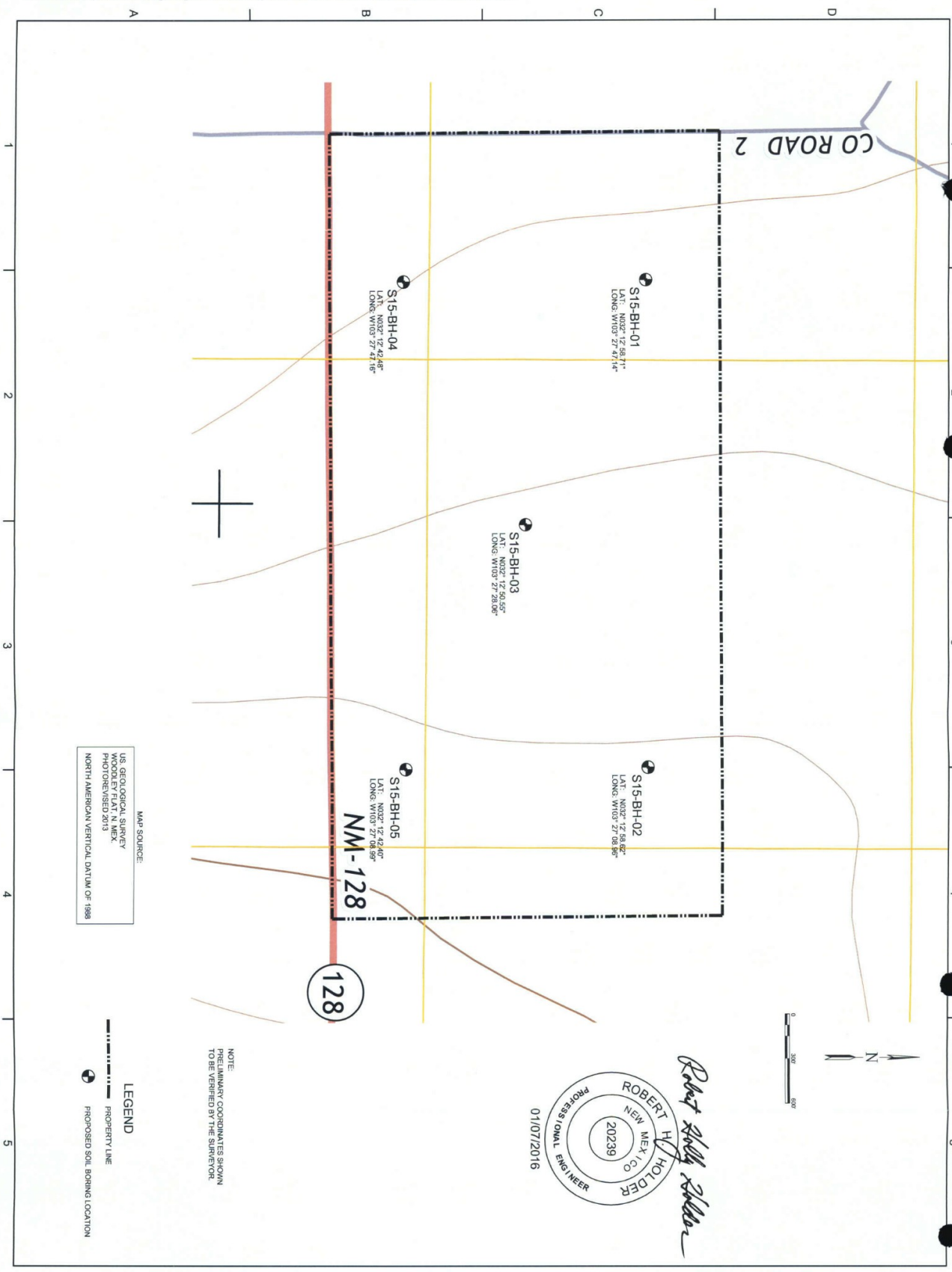
NO	DATE	DESCRIPTION

ISSUING OFFICE: LUBBOCK PROJECT NO: 0000.00

SECTION 8

SOIL BORING PLAN

FILE NAME: \\Data1\Projects\2015\0585.15\BIM_CAD\01_CIVIL\BORING-PLAN3.dwg LAYOUT NAME: C-103 PRINTED: Thursday, January 07, 2016 - 9:51am USER: TKrueger



MAP SOURCE:
US GEOLOGICAL SURVEY
WOODLEY FLAT, N MEX.
PHOTOREVISED 2013
NORTH AMERICAN VERTICAL DATUM OF 1988

NOTE:
PRELIMINARY COORDINATES SHOWN TO BE VERIFIED BY THE SURVEYOR.

LEGEND
PROPERTY LINE
PROPOSED SOIL BORING LOCATION

ROBERT HOLDER
NEW MEXICO
20239
PROFESSIONAL ENGINEER
01/07/2016

PARKHILL SMITH & COOPER

PROPOSED
DELAWARE BASIN SITE

SECTION 15

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2016 JAN -8 AM 11: 52

KEY PLAN

NO.	DATE	DESCRIPTION

ISSUED/PRINTED: LUBBOCK PROJECT NO: 90000.00

SECTION 15

SOIL BORING PLAN

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S5-BH-03	C 03932
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
4222 85th Street	Lubbock TX 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	14	48.24	N
	LONGITUDE	103	29	16.72	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 1/2 of SE 1/4 of SW 1/4 of NE 1/2 of Section 05, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/09/16	02/10/16		100'	

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT)

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

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

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4			EXPL	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	3	3	Reddish Brown Silty Sand	Y ✓ N	
3	5	2	Light Reddish Brown Sand	Y ✓ N	
5	7	2	Tan to White Caliche with Sand	Y ✓ N	
7	25	18	Tan-White Caliche, Light Reddish Brown Sand	Y ✓ N	
25	30	5	Light Reddish Brown Sand	Y ✓ N	
30	50	20	Light Reddish Brown Fine Sand with Caliche Pebbles	Y ✓ N	
50	58	8	Light Reddish Brown Sand	Y ✓ N	
58	94	36	Light Reddish Brown Sand with Sandstone Pebbles	Y ✓ N	
94	95	1	Reddish Brown Sandy Gravel	Y ✓ N	
95	96	1	Green to Gray Shaley Claystone	Y ✓ N	
96	99	1	Dark Reddish Brown Silty Sand	Y ✓ N	
99	100	1	Green to Gray Clayey Shale	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: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4		EXPL		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD3

Mar. 28, 2016

ROBERT H HOLDER
BRYCE KRAGER
4222 85TH ST
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/10/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

D Dunaway

Deborah Dunaway
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S5-BH-03	C 03932
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
4222 85th Street	Lubbock TX 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	14	48.24	N
	LONGITUDE	103	29	16.72	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 1/2 of SE 1/4 of SW 1/4 of NE 1/2 of Section 05, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/09/16	02/10/16		100'	

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT)

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

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

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4			EXPL	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	3	3	Reddish Brown Silty Sand	Y ✓ N	
3	5	2	Light Reddish Brown Sand	Y ✓ N	
5	7	2	Tan to White Caliche with Sand	Y ✓ N	
7	25	18	Tan-White Caliche, Light Reddish Brown Sand	Y ✓ N	
25	30	5	Light Reddish Brown Sand	Y ✓ N	
30	50	20	Light Reddish Brown Fine Sand with Caliche Pebbles	Y ✓ N	
50	58	8	Light Reddish Brown Sand	Y ✓ N	
58	94	36	Light Reddish Brown Sand with Sandstone Pebbles	Y ✓ N	
94	95	1	Reddish Brown Sandy Gravel	Y ✓ N	
95	96	1	Green to Gray Shaley Claystone	Y ✓ N	
96	99	1	Dark Reddish Brown Silty Sand	Y ✓ N	
99	100	1	Green to Gray Clayey Shale	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: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4		EXPL		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD3

Apr. 12, 2016

ROBERT H. HOLDER
BRYCE KARGER
4222 85TH ST.
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/10/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

Deborah Dunaway
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER): S8-BH-03	OSE FILE NUMBER(S): C 03932
WELL OWNER NAME(S): Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	PHONE (OPTIONAL):
WELL OWNER MAILING ADDRESS: 4222 85th Street	CITY: Lubbock STATE: Texas ZIP: 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	13	43.3	N
	LONGITUDE	103	30	8.3	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

SW 1/4 of SE 1/4 of NE 1/4 of SE 1/4 of Section 15, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/08/16	02/09/16		72'	

STATIC WATER LEVEL IN COMPLETED WELL (FT):

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

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

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

FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER C-3932	POD NUMBER 8	TRN NUMBER 581433
LOCATION	EXPL	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	7	7	Light Reddish Brown Fine Sand	Y ✓ N	
7	17	10	Tannish White to Light Reddish Brown Caliche With Fine Sand	Y ✓ N	
17	25	8	Tan-White Caliche	Y ✓ N	
25	30	5	Light Reddish Brown Sand	Y ✓ N	
30	32	2	Light Reddish Brown Sand	Y ✓ N	
32	40	8	Light Tan to White Sand	Y ✓ N	
40	45	5	Light Reddish Brown Sand with Sandstone Pebbels	Y ✓ N	
45	48	3	Light Reddish Brown Sand with Caliche	Y ✓ N	
48	50	2	Light Reddish Brown Sand	Y ✓ N	
50	54	4	Light Reddish Brown Sand with Caliche	Y ✓ N	
54	60	6	Red Sand	Y ✓ N	
60	61	1	Light Reddish Brown Sandy Gravel	Y ✓ N	
61	75	14	Dark Reddish brown Silty Clayey Sand	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: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD8

Mar. 09, 2016

ROBERT H HOLDER
BRYCE KRAGER
4222 85TH ST
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/09/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

Deborah Dunaway
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S15-BH-03	C 03932
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
4222 85th Street	Lubbock / Texas / 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	12	50.55	N
	LONGITUDE	103	27	28.96	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

SW 1/4 of SW 1/4 of NW 1/4 of SE 1/4 of Section 15, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/10/16	02/11/16		90'	

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT)

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

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

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	13	TRN NUMBER	581433
LOCATION	24S.34E.15.4.2.3		EXPL		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	6	6	Light Reddish Brown Fine Sand	Y ✓ N	
6	13	7	Light Reddish Brown Sand with Caliche	Y ✓ N	
13	19	6	Light Reddish Brown Fine Sand	Y ✓ N	
19	29	10	Tan-White Caliche with Light Reddish Brown Sand	Y ✓ N	
29	39	10	Light Reddish Brown Sand	Y ✓ N	
39	45	6	Gray to Dark Gray Sand	Y ✓ N	
45	54	9	Gray-Dark Gray Sand with Sandstone Pebbles	Y ✓ N	
54	55	1	Dark Reddish Brown to Light Reddish Brown Silty Claystone	Y ✓ N	
55	58	3	Green to Gray Shale	Y ✓ N	
58	62	4	Dark Reddish Brown Silty Claystone	Y ✓ N	
62	74	12	Dark Reddish Brown Claystone	Y ✓ N	
74	75	1	Light Brown to Gray Silty Clay	Y ✓ N	
75	77	2	Dark Reddish Brown Claystone	Y ✓ N	
77	79	2	Light Brown to Gray Silty Clay	Y ✓ N	
79	80	1	Dark Reddish Brown Claystone	Y ✓ N	
80	82	2	Light Brown to Gray Sandy Silt	Y ✓ N	
82	87	5	Dark Reddish Brown Clayey Silt	Y ✓ N	
87	90	3	Light Brown to Gray Silty Sand	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: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Lee Patterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	13	TRN NUMBER	581433
LOCATION	24S.34E.13.4.2.3	EXPL			PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD13

Mar. 28, 2016

ROBERT H HOLDER
BRYCE KRAGER
4222 85TH ST
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/11/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

Deborah Dunaway
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S15-BH-03	C 03932
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
4222 85th Street	Lubbock, Texas 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	12	50.55	N
	LONGITUDE	103	27	28.96	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

SW 1/4 of SW 1/4 of NW 1/4 of SE 1/4 of Section 15, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/10/16	02/11/16		90'	

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT)

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

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

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	13	TRN NUMBER	581433
LOCATION	24S.34E.15.3.2.4			EXPL	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	6	6	Light Reddish Brown Fine Sand	Y ✓ N	
6	13	7	Light Reddish Brown Sand with Caliche	Y ✓ N	
13	19	6	Light Reddish Brown Fine Sand	Y ✓ N	
19	29	10	Tan-White Caliche with Light Reddish Brown Sand	Y ✓ N	
29	39	10	Light Reddish Brown Sand	Y ✓ N	
39	45	6	Gray to Dark Gray Sand	Y ✓ N	
45	54	9	Gray-Dark Gray Sand with Sandstone Pebbles	Y ✓ N	
54	55	1	Dark Reddish Brown to Light Reddish Brown Silty Claystone	Y ✓ N	
55	58	3	Green to Gray Shale	Y ✓ N	
58	62	4	Dark Reddish Brown Silty Claystone	Y ✓ N	
62	74	12	Dark Reddish Brown Claystone	Y ✓ N	
74	75	1	Light Brown to Gray Silty Clay	Y ✓ N	
75	77	2	Dark Reddish Brown Claystone	Y ✓ N	
77	79	2	Light Brown to Gray Silty Clay	Y ✓ N	
79	80	1	Dark Reddish Brown Claystone	Y ✓ N	
80	82	2	Light Brown to Gray Sandy Silt	Y ✓ N	
82	87	5	Dark Reddish Brown Clayey Silt	Y ✓ N	
87	90	3	Light Brown to Gray Silty Sand	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: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	13	TRN NUMBER	581433
LOCATION	24S.34E.13.3.2.4		EXPL		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD13

Apr. 12, 2016

ROBERT H. HOLDER
BRYCE KARGER
4222 85TH ST.
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/11/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

Deborah Dunaway
(575)622-6521

drywell

National Water Information System: Web Interface

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- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 320934103253901

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

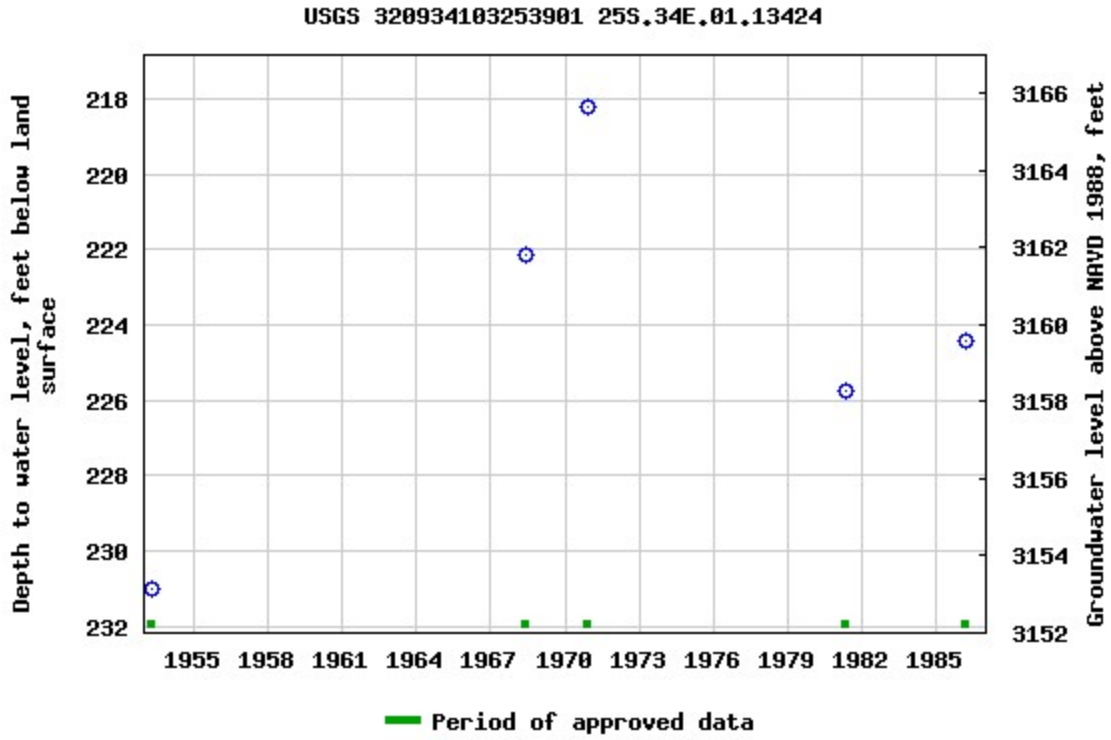
USGS 320934103253901 25S.34E.01.13424

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°09'34", Longitude 103°25'39" NAD27
Land-surface elevation 3,384 feet above NAVD88
The depth of the well is 300 feet below land surface.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
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Questions about sites/data?
Feedback on this web site
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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-05-23 14:08:33 EDT
0.7 0.59 nadww01

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Search Results -- 1 sites found

site_no list =

- 321025103263601

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

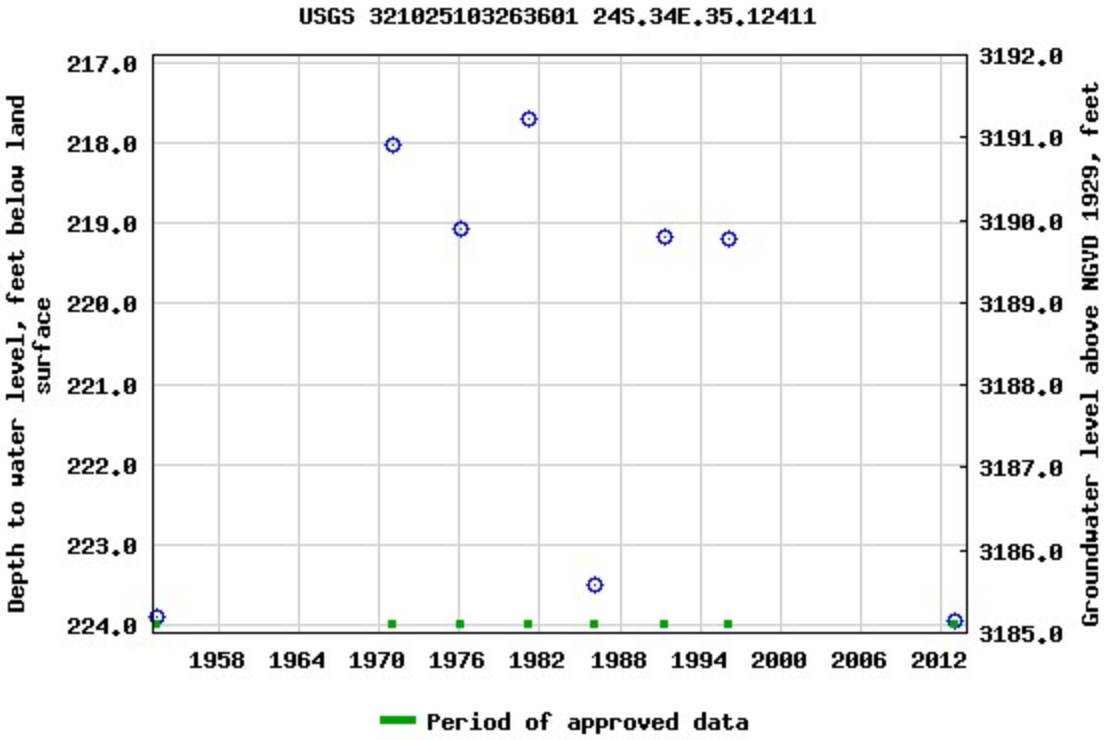
USGS 321025103263601 24S.34E.35.12411

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°10'44.0", Longitude 103°26'31.2" NAD83
Land-surface elevation 3,409.00 feet above NGVD29
The depth of the well is 257 feet below land surface.
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
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Automated retrievals
Help
Data Tips
Explanation of terms
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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-05-23 14:10:15 EDT
0.56 0.5 nadww01

National Water Information System: Web Interface

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- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321039103243401

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

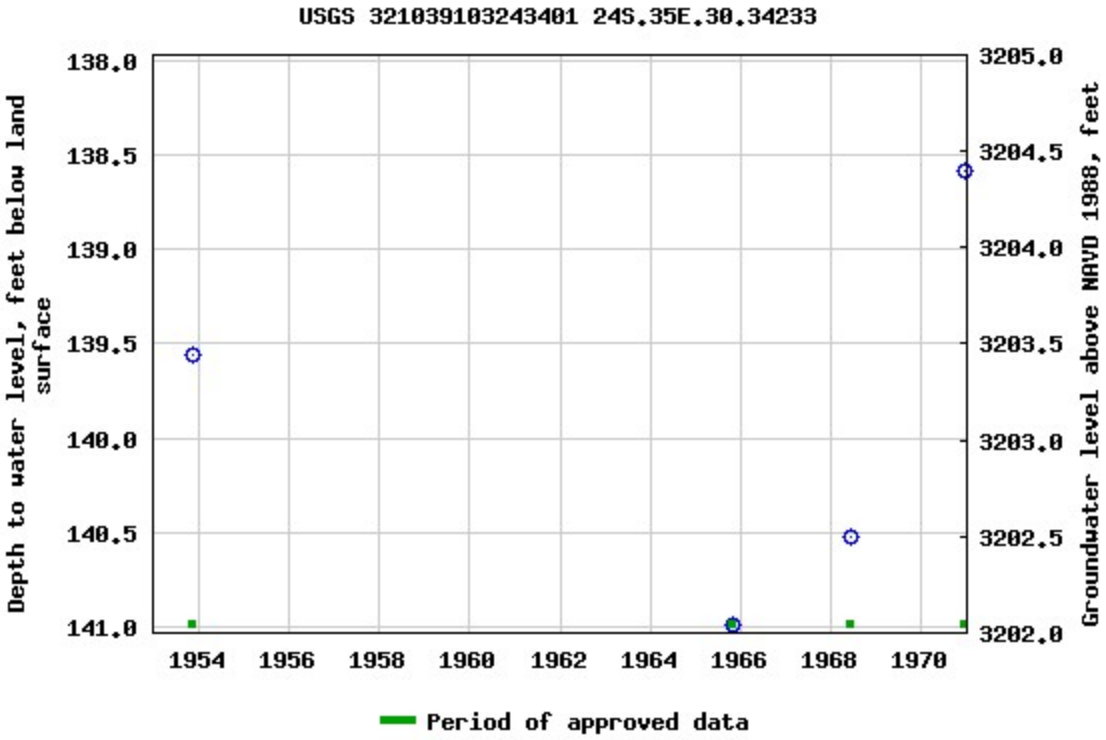
USGS 321039103243401 24S.35E.30.34233

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°10'39", Longitude 103°24'34" NAD27
Land-surface elevation 3,343 feet above NAVD88
The depth of the well is 176 feet below land surface.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
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News

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U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-05-23 14:09:26 EDT
0.74 0.6 nadww01

APPENDIX C SAMPLING PROTOCOL, PHOTO LOG & FIELD NOTES

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Proportion

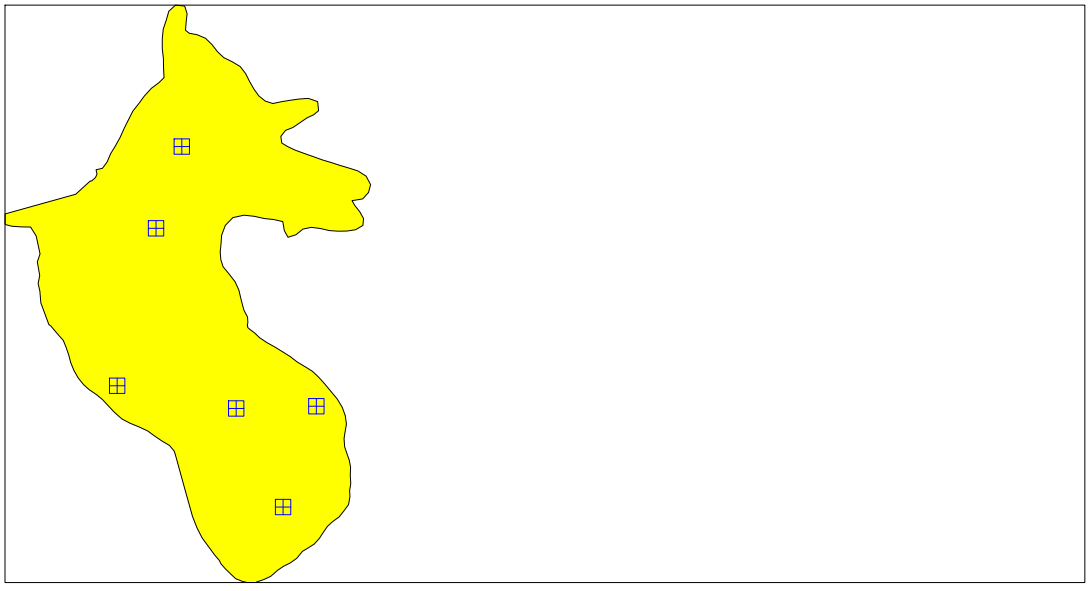
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the proportion stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population proportion of all strata combined
Criteria for Determining Total Number of Samples	Predetermined Number
Sample Placement (Location) in the Field	Random sampling within grids within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	6
Stratum 1	6
Total area of all strata	27104.24 ft^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1

X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
818754.3622	435565.4302			Random in Grid		
818667.4914	435628.9439			Random in Grid		
818729.8313	435617.0103			Random in Grid		
818771.8610	435618.2121			Random in Grid		
818687.8873	435711.3739			Random in Grid		
818701.3545	435754.2003			Random in Grid		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the proportion for the entire site, i.e., for all strata combined, such that the estimated proportion has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
The total number of samples, *n*, has been provided by the user. *It is left to the professional judgment of the user to know if this number is adequate for the intended goal of the sampling design.*

Parameter	Input Value
n	6

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum *h*,
L is the number of strata,
N_h is the total number of units in stratum *h*,
P_h is the proportion in stratum *h*,
c_h is the cost per population unit in stratum *h*.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	6
Total Samples	6

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using random sampling within grids in each stratum.

Locating the sample points using a random sampling within grids method combines appealing aspects of both the random

and the systematic grid methods. It provides data that are separated by many distances, providing information about the spatial structure of the potential contamination. It also ensures good coverage of the entire site, although not as completely as if systematic grid sampling were performed.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum proportions, P_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption, although not strictly valid for strata where systematic grid sampling was used rather than simple random sampling, is not expected to significantly affect conclusions of the study because (1) the gridded sample locations were selected based on a random start and (2) any patterns of contamination in the field that may exist are not expected to coincide with the regularity of the grid sampling pattern.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $4,000.00, which averages out to a per sample cost of $666.67. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION				
Stratum	**Samples**	**Collection Cost Per Sample**	**Analytic Cost Per Sample**	**Total Cost**
1	6			
Total Samples:	**6**		**Subtotal:**	
			Fixed Startup Cost:	
			Grand Total:	

Recommended Data Analysis Activities
Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the proportion of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Proportion

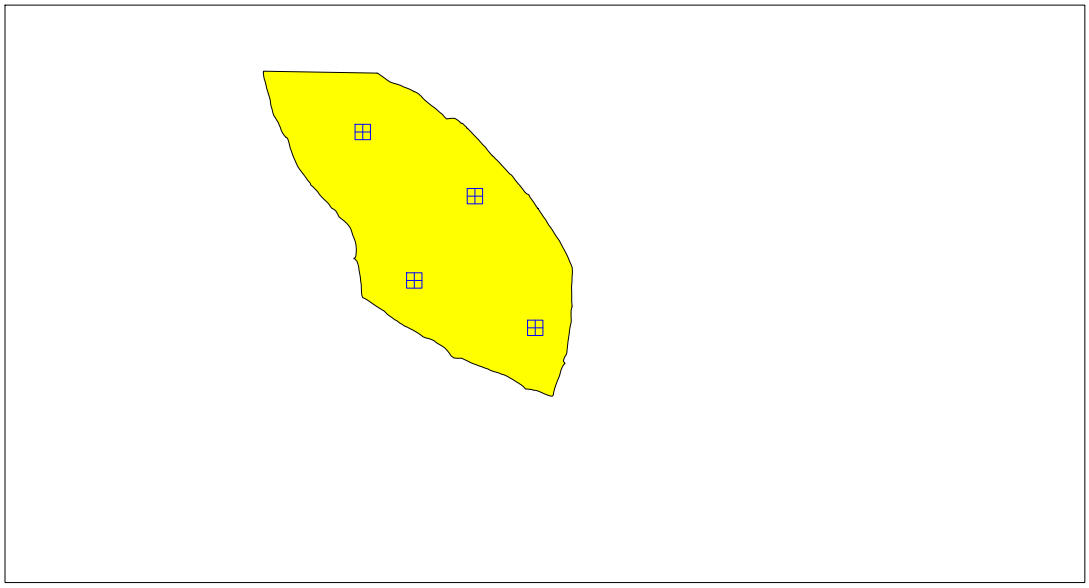
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the proportion stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population proportion of all strata combined
Criteria for Determining Total Number of Samples	Predetermined Number
Sample Placement (Location) in the Field	Random sampling within grids within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	4
Stratum 1	4
Total area of all strata	120191.06 m^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1

X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
818827.8374	435349.7110			Random in Grid		
819006.7662	435279.6857			Random in Grid		
818917.5743	435474.3785			Random in Grid		
818751.8486	435569.1123			Random in Grid		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the proportion for the entire site, i.e., for all strata combined, such that the estimated proportion has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
The total number of samples, *n*, has been provided by the user. *It is left to the professional judgment of the user to know if this number is adequate for the intended goal of the sampling design.*

Parameter	Input Value
n	4

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum *h*,
L is the number of strata,
N_h is the total number of units in stratum *h*,
P_h is the proportion in stratum *h*,
c_h is the cost per population unit in stratum *h*.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	4
Total Samples	4

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using random sampling within grids in each stratum.

Locating the sample points using a random sampling within grids method combines appealing aspects of both the random and the systematic grid methods. It provides data that are separated by many distances, providing information about the spatial structure of the potential contamination. It also ensures good coverage of the entire site, although not as

completely as if systematic grid sampling were performed.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum proportions, P_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption, although not strictly valid for strata where systematic grid sampling was used rather than simple random sampling, is not expected to significantly affect conclusions of the study because (1) the gridded sample locations were selected based on a random start and (2) any patterns of contamination in the field that may exist are not expected to coincide with the regularity of the grid sampling pattern.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $3,000.00, which averages out to a per sample cost of $750.00. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION				
Stratum	**Samples**	**Collection Cost Per Sample**	**Analytic Cost Per Sample**	**Total Cost**
1	4			
Total Samples:	**4**		**Subtotal:**	
			Fixed Startup Cost:	
			Grand Total:	

Recommended Data Analysis Activities
Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the proportion of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.


SW
W
NW
210
240
270
300
330
266°W (T)
32°11'41"N, 103°26'11"W ±16ft
3455ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:04:17


S
SW
W
NW
80
210
240
270
300
250°W (T)
32°11'41"N, 103°26'11"W ±16ft
3451ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:04:30


SW
W
NW
240
270
300
330
287°W (T)
32°11'40"N, 103°26'10"W ±16ft
3453ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:04:45


N
NE
E
0
30
60
90
120
55°NE (T) 32°11'40"N, 103°26'12"W ±16ft 3447ft
SLOW
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:03:23


SE
S
SW
W
150
180
210
240
270
205°SW (T)
32°11'41"N, 103°26'11"W ±16ft
3447ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:05:28


S
SW
W
150
180
210
240
270
218°SW (T)
32°11'41"N, 103°26'11"W ±16ft
3447ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:05:17


NE
E
SE
S
60
90
120
150
180
114°SE (T)
32°11'39"N, 103°26'14"W ±679ft
3441ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:06:59


N
NE
E
0
30
60
90
120
56°NE (T)
32°11'39"N, 103°26'12"W ±16ft
3435ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:07:22


SE
S
SW
120
150
180
210
161°S (T)
32°11'40"N, 103°26'11"W ±423ft
3450ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:06:06


SW
W
NW
210
240
270
300
330
263°W (T)
32°11'40"N, 103°26'11"W ±16ft
3433ft
Dee Boot
Lynn A. Acosta
Marathon Oil
01 May 2020, 13:07:46

Field Screening

Location Name: Dee Boot

Date: 5-1-2020

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
CS1	930	0.06	25.2		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	No HC odor
CS2	932	0.13	25.4		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
CS3	933	0.07	25.5		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
CS4	935	0.10	26.2		Light Dark; ~~Tan~~ ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
CS5	937	0.07 ~~0.07~~ 0.12	25.9		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
CS6	1312	0.03	24.1		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
SW1	1200	0.11	25.4		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
SW2	1202	0.13	26.1		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"
SW3	1204	0.10	26.3		~~Light~~ Dark; Tan ~~Brown~~; Gray Olive; Yellow Red	Gravel Rock; ~~Sand~~ Silt; Clay	~~Dry~~ Moist Wet	"

Field Screening

Location Name: Dee Boot

Date: 5-1-2020

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
SW 4	1207	0.12	26.3		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 5	1223	0.04	27.5		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 6	1227	0.05	27.5		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 7	1229	0.04	27.5		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 8	1232	0.05	27.6		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 9	1234	0.04	27.7		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 10	1237	0.03	27.7		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 11	1240	0.06	27.8		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "
SW 12	1243	0.05	27.9		Light / Dark; Tan / Brown / Olive; Gray / Red; Yellow	Gravel / Rock; Sand / Silt; Clay	Dry / Moist / Wet	" "

Field Screening

Location Name: Dee Bout

Date: 5-1-2020

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
SW 13	12:46	0.04	27.8		Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	" "
SW 14	12:49	0.04	27.9		Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	" "
CS7	12:57	0.03	28.2		Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	" "
CS8	13:02	0.07	28.2		Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	" "
CS9	13:05	0.04	28.3		Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	" "
					Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	
					Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	
					Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	
					Light Dark; Tan Brown; Gray Olive; Yellow Red	Gravel Rock; Sand Silt; Clay	Dry Moist Wet	

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: www.hallenvironmental.com

March 13, 2020

Shar Harvester
Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Dee Boot Fee CTB OrderNo.: 2003176

Dear Shar Harvester:

Hall Environmental Analysis Laboratory received 24 sample(s) on 3/4/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP01 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 10:30:00 AM
Lab ID: 2003176-001 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	ND	60		mg/Kg	20	3/9/2020 9:40:11 PM	50978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	52	9.4		mg/Kg	1	3/8/2020 7:56:53 PM	50944
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/8/2020 7:56:53 PM	50944
Surr: DNOP	98.1	55.1-146		%Rec	1	3/8/2020 7:56:53 PM	50944
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2020 4:45:40 AM	50914
Surr: BFB	83.5	66.6-105		%Rec	1	3/8/2020 4:45:40 AM	50914
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	3/8/2020 4:45:40 AM	50914
Toluene	ND	0.048		mg/Kg	1	3/8/2020 4:45:40 AM	50914
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2020 4:45:40 AM	50914
Xylenes, Total	ND	0.097		mg/Kg	1	3/8/2020 4:45:40 AM	50914
Surr: 4-Bromofluorobenzene	89.4	80-120		%Rec	1	3/8/2020 4:45:40 AM	50914

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP01 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 10:35:00 AM
Lab ID: 2003176-002 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	61		mg/Kg	20	3/9/2020 10:17:13 PM	50978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	110	9.6		mg/Kg	1	3/8/2020 8:20:47 PM	50944
Motor Oil Range Organics (MRO)	65	48		mg/Kg	1	3/8/2020 8:20:47 PM	50944
Surr: DNOP	115	55.1-146		%Rec	1	3/8/2020 8:20:47 PM	50944
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/8/2020 5:09:31 AM	50914
Surr: BFB	84.8	66.6-105		%Rec	1	3/8/2020 5:09:31 AM	50914
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	3/8/2020 5:09:31 AM	50914
Toluene	ND	0.050		mg/Kg	1	3/8/2020 5:09:31 AM	50914
Ethylbenzene	ND	0.050		mg/Kg	1	3/8/2020 5:09:31 AM	50914
Xylenes, Total	ND	0.099		mg/Kg	1	3/8/2020 5:09:31 AM	50914
Surr: 4-Bromofluorobenzene	91.9	80-120		%Rec	1	3/8/2020 5:09:31 AM	50914

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP02 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 11:20:00 AM
Lab ID: 2003176-004 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	ND	60		mg/Kg	20	3/9/2020 10:29:33 PM	50978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	17	9.9		mg/Kg	1	3/8/2020 8:44:46 PM	50944
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/8/2020 8:44:46 PM	50944
Surr: DNOP	100	55.1-146		%Rec	1	3/8/2020 8:44:46 PM	50944
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2020 5:33:23 AM	50914
Surr: BFB	81.5	66.6-105		%Rec	1	3/8/2020 5:33:23 AM	50914
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	3/8/2020 5:33:23 AM	50914
Toluene	ND	0.049		mg/Kg	1	3/8/2020 5:33:23 AM	50914
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2020 5:33:23 AM	50914
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2020 5:33:23 AM	50914
Surr: 4-Bromofluorobenzene	87.4	80-120		%Rec	1	3/8/2020 5:33:23 AM	50914

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP02 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 11:25:00 AM
Lab ID: 2003176-005 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	3/9/2020 10:41:55 PM	50978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	3/8/2020 9:08:42 PM	50944
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/8/2020 9:08:42 PM	50944
Surr: DNOP	104	55.1-146		%Rec	1	3/8/2020 9:08:42 PM	50944
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2020 5:57:03 AM	50914
Surr: BFB	83.2	66.6-105		%Rec	1	3/8/2020 5:57:03 AM	50914
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	3/8/2020 5:57:03 AM	50914
Toluene	ND	0.049		mg/Kg	1	3/8/2020 5:57:03 AM	50914
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2020 5:57:03 AM	50914
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2020 5:57:03 AM	50914
Surr: 4-Bromofluorobenzene	88.7	80-120		%Rec	1	3/8/2020 5:57:03 AM	50914

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP03 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 11:45:00 AM
Lab ID: 2003176-007 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	ND	60		mg/Kg	20	3/9/2020 11:18:55 PM	50978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/8/2020 9:32:41 PM	50944
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/8/2020 9:32:41 PM	50944
Surr: DNOP	97.3	55.1-146		%Rec	1	3/8/2020 9:32:41 PM	50944
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2020 6:20:20 AM	50914
Surr: BFB	84.5	66.6-105		%Rec	1	3/8/2020 6:20:20 AM	50914
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	3/8/2020 6:20:20 AM	50914
Toluene	ND	0.049		mg/Kg	1	3/8/2020 6:20:20 AM	50914
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2020 6:20:20 AM	50914
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2020 6:20:20 AM	50914
Surr: 4-Bromofluorobenzene	91.1	80-120		%Rec	1	3/8/2020 6:20:20 AM	50914

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP03 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 11:50:00 AM
Lab ID: 2003176-008 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	61		mg/Kg	20	3/9/2020 11:31:16 PM	50978
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/10/2020 5:56:48 PM	50921
Surr: BFB	96.2	70-130		%Rec	1	3/10/2020 5:56:48 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/9/2020 11:38:29 PM	50931
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/9/2020 11:38:29 PM	50931
Surr: DNOP	95.4	55.1-146		%Rec	1	3/9/2020 11:38:29 PM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/10/2020 5:56:48 PM	50921
Toluene	ND	0.050		mg/Kg	1	3/10/2020 5:56:48 PM	50921
Ethylbenzene	ND	0.050		mg/Kg	1	3/10/2020 5:56:48 PM	50921
Xylenes, Total	ND	0.099		mg/Kg	1	3/10/2020 5:56:48 PM	50921
Surr: 1,2-Dichloroethane-d4	90.6	70-130		%Rec	1	3/10/2020 5:56:48 PM	50921
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	3/10/2020 5:56:48 PM	50921
Surr: Dibromofluoromethane	94.9	70-130		%Rec	1	3/10/2020 5:56:48 PM	50921
Surr: Toluene-d8	100	70-130		%Rec	1	3/10/2020 5:56:48 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP04 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:00:00 PM
Lab ID: 2003176-010 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	3/9/2020 11:43:35 PM	50978
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	160	4.9		mg/Kg	1	3/10/2020 7:22:07 PM	50921
Surr: BFB	111	70-130		%Rec	1	3/10/2020 7:22:07 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	6300	95		mg/Kg	10	3/10/2020 12:50:50 AM	50931
Motor Oil Range Organics (MRO)	2400	470		mg/Kg	10	3/10/2020 12:50:50 AM	50931
Surr: DNOP	0	55.1-146	S	%Rec	10	3/10/2020 12:50:50 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/10/2020 7:22:07 PM	50921
Toluene	0.053	0.049		mg/Kg	1	3/10/2020 7:22:07 PM	50921
Ethylbenzene	0.23	0.049		mg/Kg	1	3/10/2020 7:22:07 PM	50921
Xylenes, Total	2.1	0.099		mg/Kg	1	3/10/2020 7:22:07 PM	50921
Surr: 1,2-Dichloroethane-d4	93.3	70-130		%Rec	1	3/10/2020 7:22:07 PM	50921
Surr: 4-Bromofluorobenzene	51.8	70-130	S	%Rec	1	3/10/2020 7:22:07 PM	50921
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	3/10/2020 7:22:07 PM	50921
Surr: Toluene-d8	98.9	70-130		%Rec	1	3/10/2020 7:22:07 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP04 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:05:00 PM
Lab ID: 2003176-011 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	3/9/2020 11:55:57 PM	50978
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	46	5.0		mg/Kg	1	3/11/2020 12:57:24 PM	50921
Surr: BFB	104	70-130		%Rec	1	3/11/2020 12:57:24 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	300	9.1		mg/Kg	1	3/10/2020 1:14:57 AM	50931
Motor Oil Range Organics (MRO)	120	46		mg/Kg	1	3/10/2020 1:14:57 AM	50931
Surr: DNOP	107	55.1-146		%Rec	1	3/10/2020 1:14:57 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/10/2020 8:47:34 PM	50921
Toluene	ND	0.050		mg/Kg	1	3/10/2020 8:47:34 PM	50921
Ethylbenzene	ND	0.050		mg/Kg	1	3/10/2020 8:47:34 PM	50921
Xylenes, Total	0.32	0.10		mg/Kg	1	3/10/2020 8:47:34 PM	50921
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%Rec	1	3/10/2020 8:47:34 PM	50921
Surr: 4-Bromofluorobenzene	68.4	70-130	S	%Rec	1	3/10/2020 8:47:34 PM	50921
Surr: Dibromofluoromethane	96.6	70-130		%Rec	1	3/10/2020 8:47:34 PM	50921
Surr: Toluene-d8	103	70-130		%Rec	1	3/10/2020 8:47:34 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP05 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:20:00 PM
Lab ID: 2003176-013 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	370	60		mg/Kg	20	3/10/2020 12:08:18 AM	50978
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	4600	240		mg/Kg	50	3/11/2020 2:22:48 PM	50921
Surr: BFB	102	70-130		%Rec	50	3/11/2020 2:22:48 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	37000	940		mg/Kg	100	3/10/2020 1:38:52 AM	50931
Motor Oil Range Organics (MRO)	14000	4700		mg/Kg	100	3/10/2020 1:38:52 AM	50931
Surr: DNOP	0	55.1-146	S	%Rec	100	3/10/2020 1:38:52 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	2.3	0.12		mg/Kg	5	3/10/2020 9:15:58 PM	50921
Toluene	49	2.4		mg/Kg	50	3/11/2020 2:22:48 PM	50921
Ethylbenzene	31	2.4		mg/Kg	50	3/11/2020 2:22:48 PM	50921
Xylenes, Total	160	4.8		mg/Kg	50	3/11/2020 2:22:48 PM	50921
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	5	3/10/2020 9:15:58 PM	50921
Surr: 4-Bromofluorobenzene	63.1	70-130	S	%Rec	5	3/10/2020 9:15:58 PM	50921
Surr: Dibromofluoromethane	99.1	70-130		%Rec	5	3/10/2020 9:15:58 PM	50921
Surr: Toluene-d8	103	70-130		%Rec	5	3/10/2020 9:15:58 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP05 1.0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:30:00 PM
Lab ID: 2003176-015 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	61		mg/Kg	20	3/10/2020 12:20:37 AM	50978
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	290	4.9		mg/Kg	1	3/10/2020 9:44:18 PM	50921
Surr: BFB	122	70-130		%Rec	1	3/10/2020 9:44:18 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	1100	47		mg/Kg	5	3/10/2020 9:33:43 AM	50931
Motor Oil Range Organics (MRO)	380	230		mg/Kg	5	3/10/2020 9:33:43 AM	50931
Surr: DNOP	103	55.1-146		%Rec	5	3/10/2020 9:33:43 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	3/10/2020 9:44:18 PM	50921
Toluene	1.1	0.049		mg/Kg	1	3/10/2020 9:44:18 PM	50921
Ethylbenzene	1.5	0.049		mg/Kg	1	3/10/2020 9:44:18 PM	50921
Xylenes, Total	8.4	0.098		mg/Kg	1	3/10/2020 9:44:18 PM	50921
Surr: 1,2-Dichloroethane-d4	96.2	70-130		%Rec	1	3/10/2020 9:44:18 PM	50921
Surr: 4-Bromofluorobenzene	55.7	70-130	S	%Rec	1	3/10/2020 9:44:18 PM	50921
Surr: Dibromofluoromethane	96.4	70-130		%Rec	1	3/10/2020 9:44:18 PM	50921
Surr: Toluene-d8	103	70-130		%Rec	1	3/10/2020 9:44:18 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP06 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:40:00 PM
Lab ID: 2003176-016 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	920	60		mg/Kg	20	3/10/2020 4:54:51 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	10000	480		mg/Kg	100	3/11/2020 2:51:18 PM	50921
Surr: BFB	101	70-130		%Rec	100	3/11/2020 2:51:18 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	29000	930		mg/Kg	100	3/10/2020 2:26:54 AM	50931
Motor Oil Range Organics (MRO)	12000	4700		mg/Kg	100	3/10/2020 2:26:54 AM	50931
Surr: DNOP	0	55.1-146	S	%Rec	100	3/10/2020 2:26:54 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	41	2.4		mg/Kg	100	3/11/2020 2:51:18 PM	50921
Toluene	250	4.8		mg/Kg	100	3/11/2020 2:51:18 PM	50921
Ethylbenzene	80	4.8		mg/Kg	100	3/11/2020 2:51:18 PM	50921
Xylenes, Total	380	9.6		mg/Kg	100	3/11/2020 2:51:18 PM	50921
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	100	3/11/2020 2:51:18 PM	50921
Surr: 4-Bromofluorobenzene	80.0	70-130		%Rec	100	3/11/2020 2:51:18 PM	50921
Surr: Dibromofluoromethane	102	70-130		%Rec	100	3/11/2020 2:51:18 PM	50921
Surr: Toluene-d8	99.2	70-130		%Rec	100	3/11/2020 2:51:18 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP06 1.0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 1:50:00 PM
Lab ID: 2003176-018 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/10/2020 5:31:55 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	53	4.7		mg/Kg	1	3/11/2020 1:25:49 PM	50921
Surr: BFB	105	70-130		%Rec	1	3/11/2020 1:25:49 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	590	9.3		mg/Kg	1	3/10/2020 2:50:59 AM	50931
Motor Oil Range Organics (MRO)	240	46		mg/Kg	1	3/10/2020 2:50:59 AM	50931
Surr: DNOP	97.7	55.1-146		%Rec	1	3/10/2020 2:50:59 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	0.047	0.023		mg/Kg	1	3/11/2020 1:25:49 PM	50921
Toluene	0.52	0.047		mg/Kg	1	3/11/2020 1:25:49 PM	50921
Ethylbenzene	0.25	0.047		mg/Kg	1	3/11/2020 1:25:49 PM	50921
Xylenes, Total	1.3	0.093		mg/Kg	1	3/11/2020 1:25:49 PM	50921
Surr: 1,2-Dichloroethane-d4	91.0	70-130		%Rec	1	3/11/2020 1:25:49 PM	50921
Surr: 4-Bromofluorobenzene	77.4	70-130		%Rec	1	3/11/2020 1:25:49 PM	50921
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	3/11/2020 1:25:49 PM	50921
Surr: Toluene-d8	103	70-130		%Rec	1	3/11/2020 1:25:49 PM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP07 0'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 2:30:00 PM
Lab ID: 2003176-019 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	120	60		mg/Kg	20	3/10/2020 5:44:16 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	4600	240		mg/Kg	50	3/11/2020 3:19:43 PM	50921
Surr: BFB	106	70-130		%Rec	50	3/11/2020 3:19:43 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	32000	920		mg/Kg	100	3/10/2020 4:02:46 AM	50931
Motor Oil Range Organics (MRO)	12000	4600		mg/Kg	100	3/10/2020 4:02:46 AM	50931
Surr: DNOP	0	55.1-146	S	%Rec	100	3/10/2020 4:02:46 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	7.0	0.12		mg/Kg	5	3/11/2020 1:32:52 AM	50921
Toluene	77	2.4		mg/Kg	50	3/11/2020 3:19:43 PM	50921
Ethylbenzene	34	2.4		mg/Kg	50	3/11/2020 3:19:43 PM	50921
Xylenes, Total	170	4.7		mg/Kg	50	3/11/2020 3:19:43 PM	50921
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	5	3/11/2020 1:32:52 AM	50921
Surr: 4-Bromofluorobenzene	64.7	70-130	S	%Rec	5	3/11/2020 1:32:52 AM	50921
Surr: Dibromofluoromethane	97.7	70-130		%Rec	5	3/11/2020 1:32:52 AM	50921
Surr: Toluene-d8	103	70-130		%Rec	5	3/11/2020 1:32:52 AM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SP07 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/27/2020 2:35:00 PM
Lab ID: 2003176-020 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/10/2020 5:56:37 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	250	4.7		mg/Kg	1	3/11/2020 1:54:22 PM	50921
Surr: BFB	114	70-130		%Rec	1	3/11/2020 1:54:22 PM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	450	8.9		mg/Kg	1	3/10/2020 4:26:47 AM	50931
Motor Oil Range Organics (MRO)	150	45		mg/Kg	1	3/10/2020 4:26:47 AM	50931
Surr: DNOP	90.5	55.1-146		%Rec	1	3/10/2020 4:26:47 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	0.23	0.024		mg/Kg	1	3/11/2020 2:01:30 AM	50921
Toluene	4.4	0.047		mg/Kg	1	3/11/2020 2:01:30 AM	50921
Ethylbenzene	2.0	0.047		mg/Kg	1	3/11/2020 2:01:30 AM	50921
Xylenes, Total	9.9	0.094		mg/Kg	1	3/11/2020 2:01:30 AM	50921
Surr: 1,2-Dichloroethane-d4	92.2	70-130		%Rec	1	3/11/2020 2:01:30 AM	50921
Surr: 4-Bromofluorobenzene	60.5	70-130	S	%Rec	1	3/11/2020 2:01:30 AM	50921
Surr: Dibromofluoromethane	94.6	70-130		%Rec	1	3/11/2020 2:01:30 AM	50921
Surr: Toluene-d8	108	70-130		%Rec	1	3/11/2020 2:01:30 AM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BG01 0'
Project: Dee Boot Fee CTB
Collection Date: 2/28/2020 5:29:00 PM
Lab ID: 2003176-022 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/10/2020 6:08:58 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2020 2:30:09 AM	50921
Surr: BFB	99.1	70-130		%Rec	1	3/11/2020 2:30:09 AM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	3/10/2020 4:50:37 AM	50931
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/10/2020 4:50:37 AM	50931
Surr: DNOP	86.7	55.1-146		%Rec	1	3/10/2020 4:50:37 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/11/2020 2:30:09 AM	50921
Toluene	ND	0.050		mg/Kg	1	3/11/2020 2:30:09 AM	50921
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2020 2:30:09 AM	50921
Xylenes, Total	ND	0.10		mg/Kg	1	3/11/2020 2:30:09 AM	50921
Surr: 1,2-Dichloroethane-d4	90.9	70-130		%Rec	1	3/11/2020 2:30:09 AM	50921
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	3/11/2020 2:30:09 AM	50921
Surr: Dibromofluoromethane	99.8	70-130		%Rec	1	3/11/2020 2:30:09 AM	50921
Surr: Toluene-d8	107	70-130		%Rec	1	3/11/2020 2:30:09 AM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BG01 0.5'
Project: Dee Boot Fee CTB
Collection Date: 2/28/2020 5:35:00 PM
Lab ID: 2003176-023 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/10/2020 6:21:19 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2020 2:58:45 AM	50921
Surr: BFB	98.0	70-130		%Rec	1	3/11/2020 2:58:45 AM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/10/2020 5:14:31 AM	50931
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/10/2020 5:14:31 AM	50931
Surr: DNOP	85.0	55.1-146		%Rec	1	3/10/2020 5:14:31 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.023		mg/Kg	1	3/11/2020 2:58:45 AM	50921
Toluene	ND	0.047		mg/Kg	1	3/11/2020 2:58:45 AM	50921
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2020 2:58:45 AM	50921
Xylenes, Total	ND	0.093		mg/Kg	1	3/11/2020 2:58:45 AM	50921
Surr: 1,2-Dichloroethane-d4	90.2	70-130		%Rec	1	3/11/2020 2:58:45 AM	50921
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	3/11/2020 2:58:45 AM	50921
Surr: Dibromofluoromethane	95.8	70-130		%Rec	1	3/11/2020 2:58:45 AM	50921
Surr: Toluene-d8	103	70-130		%Rec	1	3/11/2020 2:58:45 AM	50921

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 **2003176**
Date Reported: **3/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BG01 1.0'
Project: Dee Boot Fee CTB
Collection Date: 2/28/2020 5:40:00 PM
Lab ID: 2003176-024 **Matrix:** SOIL **Received Date:** 3/4/2020 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	3/10/2020 6:33:39 PM	50988
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2020 3:27:27 AM	50921
Surr: BFB	94.7	70-130		%Rec	1	3/11/2020 3:27:27 AM	50921
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/10/2020 5:38:23 AM	50931
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/10/2020 5:38:23 AM	50931
Surr: DNOP	85.5	55.1-146		%Rec	1	3/10/2020 5:38:23 AM	50931
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	3/11/2020 3:27:27 AM	50921
Toluene	ND	0.050		mg/Kg	1	3/11/2020 3:27:27 AM	50921
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2020 3:27:27 AM	50921
Xylenes, Total	ND	0.10		mg/Kg	1	3/11/2020 3:27:27 AM	50921
Surr: 1,2-Dichloroethane-d4	85.9	70-130		%Rec	1	3/11/2020 3:27:27 AM	50921
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	1	3/11/2020 3:27:27 AM	50921
Surr: Dibromofluoromethane	97.6	70-130		%Rec	1	3/11/2020 3:27:27 AM	50921
Surr: Toluene-d8	101	70-130		%Rec	1	3/11/2020 3:27:27 AM	50921

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#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **MB-50978**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **50978**	RunNo: **67121**							
Prep Date: **3/9/2020**	Analysis Date: **3/9/2020**	SeqNo: **2312564**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50978**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **50978**	RunNo: **67121**							
Prep Date: **3/9/2020**	Analysis Date: **3/9/2020**	SeqNo: **2312565**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Sample ID: **MB-50988**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **50988**	RunNo: **67156**							
Prep Date: **3/10/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313818**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50988**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **50988**	RunNo: **67156**							
Prep Date: **3/10/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313819**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2003176**

13-Mar-20

Client: Marathon Oil Company

Project: Dee Boot Fee CTB

Sample ID: **LCS-50944** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50944** RunNo: **67097**
Prep Date: **3/6/2020** Analysis Date: **3/8/2020** SeqNo: **2310267** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	115	70	130			
Surr: DNOP	5.5		5.000		111	55.1	146			

Sample ID: **MB-50944** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50944** RunNo: **67097**
Prep Date: **3/6/2020** Analysis Date: **3/8/2020** SeqNo: **2310268** 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	11		10.00		109	55.1	146			

Sample ID: **2003176-008AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SP03 0.5'** Batch ID: **50931** RunNo: **67107**
Prep Date: **3/6/2020** Analysis Date: **3/10/2020** SeqNo: **2312071** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.4	46.99	2.411	97.0	47.4	136			
Surr: DNOP	3.8		4.699		81.4	55.1	146			

Sample ID: **2003176-008AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SP03 0.5'** Batch ID: **50931** RunNo: **67107**
Prep Date: **3/6/2020** Analysis Date: **3/10/2020** SeqNo: **2312072** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.2	46.04	2.411	97.6	47.4	136	1.28	43.4	
Surr: DNOP	3.5		4.604		77.0	55.1	146	0	0	

Sample ID: **LCS-50931** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50931** RunNo: **67107**
Prep Date: **3/6/2020** Analysis Date: **3/9/2020** SeqNo: **2312091** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.8	70	130			
Surr: DNOP	4.3		5.000		85.8	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#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **MB-50931**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50931**	RunNo: **67107**
Prep Date: **3/6/2020**	Analysis Date: **3/9/2020**	SeqNo: **2312093** 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	9.1		10.00		91.5	55.1	146			

Sample ID: **LCS-50974**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50974**	RunNo: **67107**
Prep Date: **3/9/2020**	Analysis Date: **3/10/2020**	SeqNo: **2314296** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.1		5.000		81.6	55.1	146			

Sample ID: **MB-50974**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50974**	RunNo: **67107**
Prep Date: **3/9/2020**	Analysis Date: **3/10/2020**	SeqNo: **2314297** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		100	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#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **mb-50914**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50914**	RunNo: **67094**
Prep Date: **3/5/2020**	Analysis Date: **3/7/2020**	SeqNo: **2310114** 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	830		1000		82.9	66.6	105			

Sample ID: **lcs-50914**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50914**	RunNo: **67094**
Prep Date: **3/5/2020**	Analysis Date: **3/7/2020**	SeqNo: **2310115** 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	88.3	80	120			
Surr: BFB	910		1000		91.3	66.6	105			

Sample ID: **MB-50932**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50932**	RunNo: **67094**
Prep Date: **3/6/2020**	Analysis Date: **3/8/2020**	SeqNo: **2310138** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	860		1000		85.8	66.6	105			

Sample ID: **LCS-50932**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50932**	RunNo: **67094**
Prep Date: **3/6/2020**	Analysis Date: **3/8/2020**	SeqNo: **2310139** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		92.1	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **mb-50914** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **50914** RunNo: **67094**
Prep Date: **3/5/2020** Analysis Date: **3/7/2020** SeqNo: **2310229** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	80	120			

Sample ID: **LCS-50914** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **50914** RunNo: **67094**
Prep Date: **3/5/2020** Analysis Date: **3/7/2020** SeqNo: **2310230** 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	91.6	80	120			
Toluene	0.97	0.050	1.000	0	96.7	80	120			
Ethylbenzene	0.99	0.050	1.000	0	99.1	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.5	80	120			

Sample ID: **MB-50932** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **50932** RunNo: **67094**
Prep Date: **3/6/2020** Analysis Date: **3/8/2020** SeqNo: **2310287** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		1.000		92.7	80	120			

Sample ID: **LCS-50932** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **50932** RunNo: **67094**
Prep Date: **3/6/2020** Analysis Date: **3/8/2020** SeqNo: **2310288** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.92		1.000		91.6	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **2003176-010ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SP04 0'** Batch ID: **50921** RunNo: **67169**
Prep Date: **3/5/2020** Analysis Date: **3/10/2020** SeqNo: **2313913** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	0.9990	0.009133	95.4	70	130			
Toluene	1.0	0.050	0.9990	0.05259	95.8	70	130			
Ethylbenzene	1.3	0.050	0.9990	0.2290	105	70	130			
Xylenes, Total	5.8	0.10	2.997	2.126	123	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.4995		94.6	70	130			
Surr: 4-Bromofluorobenzene	0.25		0.4995		51.0	70	130			S
Surr: Dibromofluoromethane	0.51		0.4995		102	70	130			
Surr: Toluene-d8	0.50		0.4995		99.6	70	130			

Sample ID: **2003176-010amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SP04 0'** Batch ID: **50921** RunNo: **67169**
Prep Date: **3/5/2020** Analysis Date: **3/10/2020** SeqNo: **2313914** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9407	0.009133	91.2	70	130	10.4	20	
Toluene	0.99	0.047	0.9407	0.05259	99.2	70	130	2.37	20	
Ethylbenzene	1.3	0.047	0.9407	0.2290	113	70	130	1.42	0	
Xylenes, Total	6.2	0.094	2.822	2.126	145	70	130	6.62	0	S
Surr: 1,2-Dichloroethane-d4	0.44		0.4704		93.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.23		0.4704		49.7	70	130	0	0	S
Surr: Dibromofluoromethane	0.46		0.4704		97.2	70	130	0	0	
Surr: Toluene-d8	0.48		0.4704		103	70	130	0	0	

Sample ID: **lcs-50921** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **50921** RunNo: **67169**
Prep Date: **3/5/2020** Analysis Date: **3/10/2020** SeqNo: **2313925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	70	130			
Toluene	1.1	0.050	1.000	0	105	70	130			
Ethylbenzene	1.1	0.050	1.000	0	106	70	130			
Xylenes, Total	3.2	0.10	3.000	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.3	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.9	70	130			
Surr: Toluene-d8	0.50		0.5000		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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **mb-50921** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **50921** RunNo: **67169**
Prep Date: **3/5/2020** Analysis Date: **3/10/2020** SeqNo: **2313926** 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	0.46		0.5000		92.0	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.8	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.1	70	130			
Surr: Toluene-d8	0.51		0.5000		103	70	130			

Sample ID: **mb-51006** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51006** RunNo: **67211**
Prep Date: **3/10/2020** Analysis Date: **3/11/2020** SeqNo: **2315674** 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		90.2	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.3	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.7	70	130			
Surr: Toluene-d8	0.50		0.5000		99.4	70	130			

Sample ID: **lcs-51006** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **51006** RunNo: **67211**
Prep Date: **3/10/2020** Analysis Date: **3/11/2020** SeqNo: **2316391** 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		89.5	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.9	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.7	70	130			
Surr: Toluene-d8	0.49		0.5000		98.9	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#: **2003176**
13-Mar-20

Client: Marathon Oil Company
Project: Dee Boot Fee CTB

Sample ID: **2003176-008ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SP03 0.5'**	Batch ID: **50921**	RunNo: **67169**
Prep Date: **3/5/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313955** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.95	0	90.2	70	130			
Surr: BFB	460		478.9		96.6	70	130			

Sample ID: **2003176-008amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SP03 0.5'**	Batch ID: **50921**	RunNo: **67169**
Prep Date: **3/5/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313956** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.9	24.51	0	83.5	70	130	5.32	20	
Surr: BFB	460		490.2		94.8	70	130	0	0	

Sample ID: **lcs-50921**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50921**	RunNo: **67169**
Prep Date: **3/5/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313969** 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	88.0	70	130			
Surr: BFB	490		500.0		97.6	70	130			

Sample ID: **mb-50921**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **50921**	RunNo: **67169**
Prep Date: **3/5/2020**	Analysis Date: **3/10/2020**	SeqNo: **2313970** 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	480		500.0		96.7	70	130			

Sample ID: **lcs-51006**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51006**	RunNo: **67211**
Prep Date: **3/10/2020**	Analysis Date: **3/11/2020**	SeqNo: **2315729** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	490		500.0		98.0	70	130			

Sample ID: **mb-51006**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **51006**	RunNo: **67211**
Prep Date: **3/10/2020**	Analysis Date: **3/11/2020**	SeqNo: **2315730** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	480		500.0		95.1	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: **MARATHON OIL COMPA** Work Order Number: **2003176** RcptNo: **1**

Received By: Jerylina P **3/4/2020 9:50:00 AM**

Completed By: **Leah Baca** **3/4/2020 4:06:02 PM** Leah SBaca

Reviewed By: ENM 3/5/20

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: JR 3/5/20

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	5.2	Good				

Chain-of-Custody Record

Client: MARATHON OIL

Mailing Address: 4111 S TIDWELL RD
CARLSBAD NM 88220

Phone #: 575-988-8753

email or Fax#: MSANJARI@MARATHONOIL.COM

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5DAY TAT
☒ Standard ☐ Rush

Project Name: DEE BOOT FEE CTB

Project #:

Project Manager: SHAR HARVESTER
SHAR.HARVESTER@WESCOMINC.COM

Sampler: BRANDON SILVAS

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.0 + CF 0.2 = 5.2 (°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. 2003176	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)
2/27	1030	S	SP01 0'	JAR 1	ICE	-001	X	X					X			
	1035		0.5'			-002	X	X					X			
	1040		1.0'			-003	PLEASE HOLD									
	1120		SP02 0'			-004	X	X					X			
	1125		0.5'			-005	X	X					X			
	1130		1.0'			-006	PLEASE HOLD									
	1145		SP03 0'			-007	X	X					X			
	1150		0.5'			-008	X	X					X			
	1155		1.0'			-009	PLEASE HOLD									
	1300		SP04 0'			-010	X	X					X			
	1305		0.5'			-011	X	X					X			
	1310		1.0'			-012	PLEASE HOLD									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/2	1100				3/3/20	1100
3/3/20	1900		J. Rota	Carrier	03/04/20	0950

Remarks:

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

Chain-of-Custody Record

Client: MARATHON OIL

Mailing Address: 4111 S T. DWELL RD
CARLSBAD, NM 88220

Phone #: 575-988-8753

email or Fax#: MSANJARI@MARATHONOIL.COM

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
5 day TAT
☑ Standard ☐ Rush

Project Name:
DEE BOOT FEE CTB
HEATER 1 SPILL

Project #:

Project Manager:
SAAR HARVESTER
SAAR.HARVESTER@WESCOMINC.COM

Sampler: BRANDON SILVAS

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.0 +0.2 (CF) = 5.2 (°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. 2003176	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)
2/27	1320	S	SP05 0'	JAR 1	ICE	-013	X	X					X			
	1325		0.5'			-014	PLEASE HOLD									
	1330		1.0'			-015	X	X					X			
	1340		SP06 0'			-016	X	X					X			
	1345		0.5'			-017	PLEASE HOLD									
	1350		1.0'			-018	X	X					X			
	1430		SP07 0'			-019	X	X					X			
	1435		0.5'			-020	X	X					X			
	1440		1.0'			-021	PLEASE HOLD									
2/28	1729		BG01 0'			-022	X	X					X			
	1735		0.5'			-023	X	X					X			
	1740		1.0'			-024	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
3/2/20	1100				3/3/20	1100
3/3/20	1900		J. Pete	Carrier	03/04/20	0950

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
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Website: www.hallenvironmental.com

May 08, 2020

Ashley Maxwell

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

RE: Dee Boot OrderNo.: 2005057

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 23 sample(s) on 5/2/2020 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2005057**
Date Reported: **5/8/2020**

CLIENT: Souder, Miller & Associates
Client Sample ID: CS1
Project: Dee Boot
Collection Date: 5/1/2020 9:30:00 AM
Lab ID: 2005057-001 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	5/7/2020 3:51:23 AM	52317
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 6:56:33 PM	52228
Surr: BFB	94.2	70-130		%Rec	1	5/4/2020 6:56:33 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/5/2020 12:18:44 PM	52242
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/5/2020 12:18:44 PM	52242
Surr: DNOP	136	55.1-146		%Rec	1	5/5/2020 12:18:44 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 6:56:33 PM	52228
Toluene	ND	0.050		mg/Kg	1	5/4/2020 6:56:33 PM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 6:56:33 PM	52228
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 6:56:33 PM	52228
Surr: 1,2-Dichloroethane-d4	93.3	70-130		%Rec	1	5/4/2020 6:56:33 PM	52228
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	5/4/2020 6:56:33 PM	52228
Surr: Dibromofluoromethane	102	70-130		%Rec	1	5/4/2020 6:56:33 PM	52228
Surr: Toluene-d8	99.6	70-130		%Rec	1	5/4/2020 6:56:33 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS2
Project: Dee Boot
Collection Date: 5/1/2020 9:32:00 AM
Lab ID: 2005057-002 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	70	60		mg/Kg	20	5/7/2020 4:03:44 AM	52317
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 7:25:04 PM	52228
Surr: BFB	92.5	70-130		%Rec	1	5/4/2020 7:25:04 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	20	9.8		mg/Kg	1	5/5/2020 12:42:44 PM	52242
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/5/2020 12:42:44 PM	52242
Surr: DNOP	123	55.1-146		%Rec	1	5/5/2020 12:42:44 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 7:25:04 PM	52228
Toluene	ND	0.050		mg/Kg	1	5/4/2020 7:25:04 PM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 7:25:04 PM	52228
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 7:25:04 PM	52228
Surr: 1,2-Dichloroethane-d4	92.3	70-130		%Rec	1	5/4/2020 7:25:04 PM	52228
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	5/4/2020 7:25:04 PM	52228
Surr: Dibromofluoromethane	101	70-130		%Rec	1	5/4/2020 7:25:04 PM	52228
Surr: Toluene-d8	97.7	70-130		%Rec	1	5/4/2020 7:25:04 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS3
Project: Dee Boot
Collection Date: 5/1/2020 9:33:00 AM
Lab ID: 2005057-003 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	5/7/2020 4:16:04 AM	52317
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 7:53:33 PM	52228
Surr: BFB	93.7	70-130		%Rec	1	5/4/2020 7:53:33 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	73	9.3		mg/Kg	1	5/5/2020 1:06:46 PM	52242
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/5/2020 1:06:46 PM	52242
Surr: DNOP	115	55.1-146		%Rec	1	5/5/2020 1:06:46 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 7:53:33 PM	52228
Toluene	ND	0.049		mg/Kg	1	5/4/2020 7:53:33 PM	52228
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 7:53:33 PM	52228
Xylenes, Total	ND	0.098		mg/Kg	1	5/4/2020 7:53:33 PM	52228
Surr: 1,2-Dichloroethane-d4	91.1	70-130		%Rec	1	5/4/2020 7:53:33 PM	52228
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	5/4/2020 7:53:33 PM	52228
Surr: Dibromofluoromethane	102	70-130		%Rec	1	5/4/2020 7:53:33 PM	52228
Surr: Toluene-d8	96.8	70-130		%Rec	1	5/4/2020 7:53:33 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS4
Project: Dee Boot
Collection Date: 5/1/2020 9:35:00 AM
Lab ID: 2005057-004 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	5/7/2020 4:28:24 AM	52317
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 8:22:04 PM	52228
Surr: BFB	95.0	70-130		%Rec	1	5/4/2020 8:22:04 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	470	9.8		mg/Kg	1	5/5/2020 1:30:50 PM	52242
Motor Oil Range Organics (MRO)	250	49		mg/Kg	1	5/5/2020 1:30:50 PM	52242
Surr: DNOP	117	55.1-146		%Rec	1	5/5/2020 1:30:50 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 8:22:04 PM	52228
Toluene	ND	0.050		mg/Kg	1	5/4/2020 8:22:04 PM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 8:22:04 PM	52228
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 8:22:04 PM	52228
Surr: 1,2-Dichloroethane-d4	92.3	70-130		%Rec	1	5/4/2020 8:22:04 PM	52228
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	5/4/2020 8:22:04 PM	52228
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/4/2020 8:22:04 PM	52228
Surr: Toluene-d8	98.9	70-130		%Rec	1	5/4/2020 8:22:04 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS5
Project: Dee Boot
Collection Date: 5/1/2020 9:37:00 AM
Lab ID: 2005057-005 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	59		mg/Kg	20	5/7/2020 4:40:44 AM	52317
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 8:50:31 PM	52228
Surr: BFB	95.0	70-130		%Rec	1	5/4/2020 8:50:31 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/5/2020 1:54:53 PM	52242
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 1:54:53 PM	52242
Surr: DNOP	142	55.1-146		%Rec	1	5/5/2020 1:54:53 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 8:50:31 PM	52228
Toluene	ND	0.049		mg/Kg	1	5/4/2020 8:50:31 PM	52228
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 8:50:31 PM	52228
Xylenes, Total	ND	0.098		mg/Kg	1	5/4/2020 8:50:31 PM	52228
Surr: 1,2-Dichloroethane-d4	92.8	70-130		%Rec	1	5/4/2020 8:50:31 PM	52228
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	5/4/2020 8:50:31 PM	52228
Surr: Dibromofluoromethane	103	70-130		%Rec	1	5/4/2020 8:50:31 PM	52228
Surr: Toluene-d8	99.9	70-130		%Rec	1	5/4/2020 8:50:31 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS6
Project: Dee Boot
Collection Date: 5/1/2020 1:12:00 PM
Lab ID: 2005057-006 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 10:37:37 AM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 9:19:19 PM	52228
Surr: BFB	92.9	70-130		%Rec	1	5/4/2020 9:19:19 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/5/2020 2:19:01 PM	52242
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/5/2020 2:19:01 PM	52242
Surr: DNOP	96.0	55.1-146		%Rec	1	5/5/2020 2:19:01 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	5/4/2020 9:19:19 PM	52228
Toluene	ND	0.049		mg/Kg	1	5/4/2020 9:19:19 PM	52228
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 9:19:19 PM	52228
Xylenes, Total	ND	0.098		mg/Kg	1	5/4/2020 9:19:19 PM	52228
Surr: 1,2-Dichloroethane-d4	92.7	70-130		%Rec	1	5/4/2020 9:19:19 PM	52228
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	5/4/2020 9:19:19 PM	52228
Surr: Dibromofluoromethane	106	70-130		%Rec	1	5/4/2020 9:19:19 PM	52228
Surr: Toluene-d8	100	70-130		%Rec	1	5/4/2020 9:19:19 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS7
Project: Dee Boot
Collection Date: 5/1/2020 12:57:00 PM
Lab ID: 2005057-007 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 11:14:41 AM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 9:48:04 PM	52228
Surr: BFB	96.5	70-130		%Rec	1	5/4/2020 9:48:04 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	16	9.5		mg/Kg	1	5/5/2020 2:43:05 PM	52242
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 2:43:05 PM	52242
Surr: DNOP	119	55.1-146		%Rec	1	5/5/2020 2:43:05 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 9:48:04 PM	52228
Toluene	ND	0.049		mg/Kg	1	5/4/2020 9:48:04 PM	52228
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 9:48:04 PM	52228
Xylenes, Total	ND	0.098		mg/Kg	1	5/4/2020 9:48:04 PM	52228
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%Rec	1	5/4/2020 9:48:04 PM	52228
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	5/4/2020 9:48:04 PM	52228
Surr: Dibromofluoromethane	103	70-130		%Rec	1	5/4/2020 9:48:04 PM	52228
Surr: Toluene-d8	102	70-130		%Rec	1	5/4/2020 9:48:04 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS8
Project: Dee Boot
Collection Date: 5/1/2020 1:02:00 PM
Lab ID: 2005057-008 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 11:27:01 AM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 10:16:56 PM	52228
Surr: BFB	95.3	70-130		%Rec	1	5/4/2020 10:16:56 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	14	9.5		mg/Kg	1	5/5/2020 3:07:10 PM	52242
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 3:07:10 PM	52242
Surr: DNOP	120	55.1-146		%Rec	1	5/5/2020 3:07:10 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 10:16:56 PM	52228
Toluene	ND	0.050		mg/Kg	1	5/4/2020 10:16:56 PM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 10:16:56 PM	52228
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 10:16:56 PM	52228
Surr: 1,2-Dichloroethane-d4	91.4	70-130		%Rec	1	5/4/2020 10:16:56 PM	52228
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	5/4/2020 10:16:56 PM	52228
Surr: Dibromofluoromethane	103	70-130		%Rec	1	5/4/2020 10:16:56 PM	52228
Surr: Toluene-d8	101	70-130		%Rec	1	5/4/2020 10:16:56 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS9
Project: Dee Boot
Collection Date: 5/1/2020 1:05:00 PM
Lab ID: 2005057-009 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 11:39:22 AM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 10:45:45 PM	52228
Surr: BFB	93.3	70-130		%Rec	1	5/4/2020 10:45:45 PM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	12	8.9		mg/Kg	1	5/5/2020 3:31:20 PM	52242
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/5/2020 3:31:20 PM	52242
Surr: DNOP	128	55.1-146		%Rec	1	5/5/2020 3:31:20 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 10:45:45 PM	52228
Toluene	ND	0.050		mg/Kg	1	5/4/2020 10:45:45 PM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 10:45:45 PM	52228
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 10:45:45 PM	52228
Surr: 1,2-Dichloroethane-d4	91.1	70-130		%Rec	1	5/4/2020 10:45:45 PM	52228
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	5/4/2020 10:45:45 PM	52228
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/4/2020 10:45:45 PM	52228
Surr: Toluene-d8	99.2	70-130		%Rec	1	5/4/2020 10:45:45 PM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: Dee Boot
Collection Date: 5/1/2020 12:00:00 PM
Lab ID: 2005057-010 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 11:51:43 AM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/5/2020 1:38:18 AM	52228
Surr: BFB	95.2	70-130		%Rec	1	5/5/2020 1:38:18 AM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/5/2020 3:55:21 PM	52242
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 3:55:21 PM	52242
Surr: DNOP	117	55.1-146		%Rec	1	5/5/2020 3:55:21 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/5/2020 1:38:18 AM	52228
Toluene	ND	0.050		mg/Kg	1	5/5/2020 1:38:18 AM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/5/2020 1:38:18 AM	52228
Xylenes, Total	ND	0.099		mg/Kg	1	5/5/2020 1:38:18 AM	52228
Surr: 1,2-Dichloroethane-d4	90.1	70-130		%Rec	1	5/5/2020 1:38:18 AM	52228
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	5/5/2020 1:38:18 AM	52228
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/5/2020 1:38:18 AM	52228
Surr: Toluene-d8	102	70-130		%Rec	1	5/5/2020 1:38:18 AM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: Dee Boot
Collection Date: 5/1/2020 12:02:00 PM
Lab ID: 2005057-011 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 12:04:04 PM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/5/2020 2:07:02 AM	52228
Surr: BFB	95.4	70-130		%Rec	1	5/5/2020 2:07:02 AM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/5/2020 4:19:29 PM	52242
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/5/2020 4:19:29 PM	52242
Surr: DNOP	109	55.1-146		%Rec	1	5/5/2020 4:19:29 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	5/5/2020 2:07:02 AM	52228
Toluene	ND	0.050		mg/Kg	1	5/5/2020 2:07:02 AM	52228
Ethylbenzene	ND	0.050		mg/Kg	1	5/5/2020 2:07:02 AM	52228
Xylenes, Total	ND	0.10		mg/Kg	1	5/5/2020 2:07:02 AM	52228
Surr: 1,2-Dichloroethane-d4	92.2	70-130		%Rec	1	5/5/2020 2:07:02 AM	52228
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	5/5/2020 2:07:02 AM	52228
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/5/2020 2:07:02 AM	52228
Surr: Toluene-d8	102	70-130		%Rec	1	5/5/2020 2:07:02 AM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW3
Project: Dee Boot
Collection Date: 5/1/2020 12:04:00 PM
Lab ID: 2005057-012 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 12:41:07 PM	52321
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/5/2020 2:35:47 AM	52228
Surr: BFB	94.7	70-130		%Rec	1	5/5/2020 2:35:47 AM	52228
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/5/2020 4:43:29 PM	52242
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/5/2020 4:43:29 PM	52242
Surr: DNOP	141	55.1-146		%Rec	1	5/5/2020 4:43:29 PM	52242
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	5/5/2020 2:35:47 AM	52228
Toluene	ND	0.049		mg/Kg	1	5/5/2020 2:35:47 AM	52228
Ethylbenzene	ND	0.049		mg/Kg	1	5/5/2020 2:35:47 AM	52228
Xylenes, Total	ND	0.098		mg/Kg	1	5/5/2020 2:35:47 AM	52228
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	5/5/2020 2:35:47 AM	52228
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	5/5/2020 2:35:47 AM	52228
Surr: Dibromofluoromethane	103	70-130		%Rec	1	5/5/2020 2:35:47 AM	52228
Surr: Toluene-d8	99.9	70-130		%Rec	1	5/5/2020 2:35:47 AM	52228

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW4
Project: Dee Boot
Collection Date: 5/1/2020 12:07:00 PM
Lab ID: 2005057-013 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 12:53:27 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	12	9.4		mg/Kg	1	5/5/2020 11:29:46 AM	52254
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/5/2020 11:29:46 AM	52254
Surr: DNOP	92.6	55.1-146		%Rec	1	5/5/2020 11:29:46 AM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 2:27:21 PM	52230
Surr: BFB	103	66.6-105		%Rec	1	5/4/2020 2:27:21 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 2:27:21 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 2:27:21 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 2:27:21 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 2:27:21 PM	52230
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	5/4/2020 2:27:21 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW5
Project: Dee Boot
Collection Date: 5/1/2020 12:23:00 PM
Lab ID: 2005057-014 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 1:05:48 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	17	9.2		mg/Kg	1	5/5/2020 11:54:04 AM	52254
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/5/2020 11:54:04 AM	52254
Surr: DNOP	96.0	55.1-146		%Rec	1	5/5/2020 11:54:04 AM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 3:37:53 PM	52230
Surr: BFB	104	66.6-105		%Rec	1	5/4/2020 3:37:53 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 3:37:53 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 3:37:53 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 3:37:53 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 3:37:53 PM	52230
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/4/2020 3:37:53 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW6
Project: Dee Boot
Collection Date: 5/1/2020 12:27:00 PM
Lab ID: 2005057-015 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	59		mg/Kg	20	5/7/2020 1:18:09 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	20	9.5		mg/Kg	1	5/5/2020 12:18:26 PM	52254
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 12:18:26 PM	52254
Surr: DNOP	86.8	55.1-146		%Rec	1	5/5/2020 12:18:26 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 5:58:45 PM	52230
Surr: BFB	103	66.6-105		%Rec	1	5/4/2020 5:58:45 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 5:58:45 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 5:58:45 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 5:58:45 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 5:58:45 PM	52230
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	5/4/2020 5:58:45 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW7
Project: Dee Boot
Collection Date: 5/1/2020 12:29:00 PM
Lab ID: 2005057-016 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	59		mg/Kg	20	5/7/2020 1:30:29 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	18	9.8		mg/Kg	1	5/5/2020 12:42:39 PM	52254
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/5/2020 12:42:39 PM	52254
Surr: DNOP	88.5	55.1-146		%Rec	1	5/5/2020 12:42:39 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 6:22:06 PM	52230
Surr: BFB	102	66.6-105		%Rec	1	5/4/2020 6:22:06 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 6:22:06 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 6:22:06 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 6:22:06 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 6:22:06 PM	52230
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	5/4/2020 6:22:06 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW8
Project: Dee Boot
Collection Date: 5/1/2020 12:32:00 PM
Lab ID: 2005057-017 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	5/7/2020 1:42:50 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	17	9.6		mg/Kg	1	5/5/2020 1:07:06 PM	52254
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 1:07:06 PM	52254
Surr: DNOP	83.2	55.1-146		%Rec	1	5/5/2020 1:07:06 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 6:45:48 PM	52230
Surr: BFB	101	66.6-105		%Rec	1	5/4/2020 6:45:48 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 6:45:48 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 6:45:48 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 6:45:48 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 6:45:48 PM	52230
Surr: 4-Bromofluorobenzene	97.4	80-120		%Rec	1	5/4/2020 6:45:48 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW9
Project: Dee Boot
Collection Date: 5/1/2020 12:34:00 PM
Lab ID: 2005057-018 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	5/7/2020 1:55:10 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	24	9.4		mg/Kg	1	5/5/2020 1:31:35 PM	52254
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/5/2020 1:31:35 PM	52254
Surr: DNOP	77.9	55.1-146		%Rec	1	5/5/2020 1:31:35 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 7:09:14 PM	52230
Surr: BFB	102	66.6-105		%Rec	1	5/4/2020 7:09:14 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 7:09:14 PM	52230
Toluene	ND	0.049		mg/Kg	1	5/4/2020 7:09:14 PM	52230
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 7:09:14 PM	52230
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 7:09:14 PM	52230
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	5/4/2020 7:09:14 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW10
Project: Dee Boot
Collection Date: 5/1/2020 12:37:00 PM
Lab ID: 2005057-019 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 2:07:31 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	5/5/2020 11:54:28 PM	52254
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 11:54:28 PM	52254
Surr: DNOP	70.4	55.1-146		%Rec	1	5/5/2020 11:54:28 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 7:32:34 PM	52230
Surr: BFB	104	66.6-105		%Rec	1	5/4/2020 7:32:34 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 7:32:34 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 7:32:34 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 7:32:34 PM	52230
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 7:32:34 PM	52230
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/4/2020 7:32:34 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW11
Project: Dee Boot
Collection Date: 5/1/2020 12:40:00 PM
Lab ID: 2005057-020 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	5/7/2020 2:19:52 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	24	9.6		mg/Kg	1	5/5/2020 2:20:20 PM	52254
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 2:20:20 PM	52254
Surr: DNOP	82.5	55.1-146		%Rec	1	5/5/2020 2:20:20 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 7:55:56 PM	52230
Surr: BFB	102	66.6-105		%Rec	1	5/4/2020 7:55:56 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 7:55:56 PM	52230
Toluene	ND	0.049		mg/Kg	1	5/4/2020 7:55:56 PM	52230
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 7:55:56 PM	52230
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 7:55:56 PM	52230
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	5/4/2020 7:55:56 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW12
Project: Dee Boot
Collection Date: 5/1/2020 12:43:00 PM
Lab ID: 2005057-021 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 2:32:13 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	36	9.6		mg/Kg	1	5/5/2020 3:09:10 PM	52254
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 3:09:10 PM	52254
Surr: DNOP	86.8	55.1-146		%Rec	1	5/5/2020 3:09:10 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 8:19:28 PM	52230
Surr: BFB	102	66.6-105		%Rec	1	5/4/2020 8:19:28 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 8:19:28 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 8:19:28 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 8:19:28 PM	52230
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 8:19:28 PM	52230
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	5/4/2020 8:19:28 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW13
Project: Dee Boot
Collection Date: 5/1/2020 12:46:00 PM
Lab ID: 2005057-022 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/7/2020 3:09:16 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	25	9.2		mg/Kg	1	5/5/2020 3:33:47 PM	52254
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/5/2020 3:33:47 PM	52254
Surr: DNOP	74.0	55.1-146		%Rec	1	5/5/2020 3:33:47 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 9:06:52 PM	52230
Surr: BFB	102	66.6-105		%Rec	1	5/4/2020 9:06:52 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	5/4/2020 9:06:52 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 9:06:52 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 9:06:52 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 9:06:52 PM	52230
Surr: 4-Bromofluorobenzene	99.0	80-120		%Rec	1	5/4/2020 9:06:52 PM	52230

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 **2005057**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW14
Project: Dee Boot
Collection Date: 5/1/2020 12:49:00 PM
Lab ID: 2005057-023 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	61		mg/Kg	20	5/7/2020 3:21:37 PM	52321
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	22	9.9		mg/Kg	1	5/5/2020 3:58:15 PM	52254
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/5/2020 3:58:15 PM	52254
Surr: DNOP	78.2	55.1-146		%Rec	1	5/5/2020 3:58:15 PM	52254
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 9:30:56 PM	52230
Surr: BFB	108	66.6-105	S	%Rec	1	5/4/2020 9:30:56 PM	52230
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 9:30:56 PM	52230
Toluene	ND	0.050		mg/Kg	1	5/4/2020 9:30:56 PM	52230
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 9:30:56 PM	52230
Xylenes, Total	ND	0.10		mg/Kg	1	5/4/2020 9:30:56 PM	52230
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	5/4/2020 9:30:56 PM	52230

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#: **2005057**

08-May-20

Client: Souder, Miller & Associates

Project: Dee Boot

Sample ID: **MB-52317**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52317**	RunNo: **68713**							
Prep Date: **5/6/2020**	Analysis Date: **5/6/2020**	SeqNo: **2377596**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52317**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52317**	RunNo: **68713**							
Prep Date: **5/6/2020**	Analysis Date: **5/6/2020**	SeqNo: **2377597**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Sample ID: **MB-52321**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52321**	RunNo: **68745**							
Prep Date: **5/7/2020**	Analysis Date: **5/7/2020**	SeqNo: **2378332**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52321**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52321**	RunNo: **68745**							
Prep Date: **5/7/2020**	Analysis Date: **5/7/2020**	SeqNo: **2378333**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	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#: **2005057**
08-May-20

Client: Souder, Miller & Associates
Project: Dee Boot

Sample ID: **LCS-52254** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52254** RunNo: **68634**
Prep Date: **5/4/2020** Analysis Date: **5/5/2020** SeqNo: **2375312** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.5	70	130			
Surr: DNOP	3.8		5.000		75.0	55.1	146			

Sample ID: **MB-52254** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52254** RunNo: **68634**
Prep Date: **5/4/2020** Analysis Date: **5/5/2020** SeqNo: **2375313** 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	9.4		10.00		94.4	55.1	146			

Sample ID: **MB-52242** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52242** RunNo: **68637**
Prep Date: **5/4/2020** Analysis Date: **5/5/2020** SeqNo: **2375356** 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	11		10.00		109	55.1	146			

Sample ID: **LCS-52242** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52242** RunNo: **68637**
Prep Date: **5/4/2020** Analysis Date: **5/5/2020** SeqNo: **2375357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	70	130			
Surr: DNOP	5.3		5.000		107	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#: **2005057**
08-May-20

Client: Souder, Miller & Associates
Project: Dee Boot

Sample ID: **mb-52230** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374937** 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		102	66.6	105			

Sample ID: **lcs-52230** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374938** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.7	80	120			
Surr: BFB	1100		1000		112	66.6	105			S

Sample ID: **2005057-014ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SW5** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374941** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	24.88	0	98.3	80	120			
Surr: BFB	1100		995.0		114	66.6	105			S

Sample ID: **2005057-014amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SW5** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374942** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.78	0	94.8	80	120	3.96	20	
Surr: BFB	1100		991.1		114	66.6	105	0	0	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#: **2005057**
08-May-20

Client: Souder, Miller & Associates
Project: Dee Boot

Sample ID: **mb-52230** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374972** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.4	80	120			

Sample ID: **LCS-52230** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374973** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.5	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	0.98		1.000		98.4	80	120			

Sample ID: **2005057-013ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW4** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374975** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	78.5	119			
Toluene	1.1	0.050	1.000	0.01870	113	75.7	123			
Ethylbenzene	1.2	0.050	1.000	0	116	74.3	126			
Xylenes, Total	3.4	0.10	3.000	0	115	72.9	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID: **2005057-013amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW4** Batch ID: **52230** RunNo: **68625**
Prep Date: **5/3/2020** Analysis Date: **5/4/2020** SeqNo: **2374976** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	78.5	119	0.618	20	
Toluene	1.1	0.050	1.000	0.01870	110	75.7	123	2.04	20	
Ethylbenzene	1.1	0.050	1.000	0	114	74.3	126	1.54	20	
Xylenes, Total	3.4	0.10	3.000	0	113	72.9	130	1.42	20	
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2005057**
08-May-20

Client: Souder, Miller & Associates
Project: Dee Boot

Sample ID: **mb-52228** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375082** 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	0.47		0.5000		94.0	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.48		0.5000		97.0	70	130			

Sample ID: **lcs-52228** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.8	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Ethylbenzene	1.1	0.050	1.000	0	105	70	130			
Xylenes, Total	3.2	0.10	3.000	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.4	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.4	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: Toluene-d8	0.49		0.5000		97.5	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#: **2005057**

08-May-20

Client: Souder, Miller & Associates

Project: Dee Boot

Sample ID: **mb-52228**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **52228**	RunNo: **68629**
Prep Date: **5/2/2020**	Analysis Date: **5/4/2020**	SeqNo: **2375104** 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	480		500.0		95.9	70	130			

Sample ID: **lcs-52228**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52228**	RunNo: **68629**
Prep Date: **5/2/2020**	Analysis Date: **5/4/2020**	SeqNo: **2375105** 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	89.5	70	130			
Surr: BFB	480		500.0		96.8	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: 2005057 RcptNo: 1

Received By: **Juan Rojas** 5/2/2020 8:25:00 AM

Completed By: **Juan Rojas** 5/2/2020 9:31:32 AM

Reviewed By: LB 5/2/20

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)? Not required 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: JR 5/2/20

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	8.9	Good				

Chain-of-Custody Record

Client: SMA-Carlsbad

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 day

Project Name: Dee boot

Project #: TA.20.00630

Project Manager: Ashley Maxwell

Sampler: LAA

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 5.7+0.1=5.8 (°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	8.8+0.1=8.9 HEAL No. 2005057	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)
5/1/20	930	Soil	CS1	4oz		-001	X	X					X			
	932		CS2			-002										
	933		CS3			-003										
	935		CS4			-004										
	937		CS5			-005										
	1312		CS6			-006										
	1257		CS7			-007										
	1302		CS8			-008										
	1305		CS9			-009										
	1200		SW1			-010										
	1202		SW2			-011										
	1204		SW3			-012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/1	1400				5/1	1430
5/1	1900			Courier	5/2/20	8:25

Remarks: Direct Bill: Marathon Oil

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.

Chain-of-Custody Record

Client: SMA-Carlsbad

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- day

Project Name: Dee boot

Project #: TA. 20. 00630

Project Manager: Ashley Maxwell

Sampler: CAA

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 5.7 +0.1 = 5.8 (°C) 8.8 +0.1 = 8.9

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. 2005057	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)
5/1/20	1207	Soil	SW4	4oz		-013	X	X					X			
	1223		SW5			-014										
	1227		SW6			-015										
	1229		SW7			-016										
	1232		SW8			-017										
	1234		SW9			-018										
	1237		SW10			-019										
	1240		SW11			-020										
	1243		SW12			-021										
	1246		SW13			-022										
	1249		SW14			-023										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/1	1400				5/1	1430
5/1	1900			courier	5/2/20	8:25

Remarks:
Direct Bill: Marathon Oil

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.

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 101099

CONDITIONS

Operator:	OGRID:
MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	372098
	Action Number: 101099
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NRM2006340822 DEE BOOT FEE 24 34 26 #3 #6 #7 #19 CTB, thank you. This closure is approved.	8/1/2022