



October 16, 2019

#5E27950-BG11

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

SUBJECT: Remediation Closure Report for the State AA #001 SWD Release (1RP-5257), Lea County, New Mexico

To Whom it May Concern

On behalf of Marathon Oil Permian LLC (Marathon), Souder, Miller & Associates (SMA) has prepared this Remediation Closure Report that describes the remediation of a release of produced water at the State AA #001 salt water disposal (SWD) site. The site is in Unit I, Section 35, Township 21S, Range 34E, Lea County, New Mexico, on New Mexico State Land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1 summarizes release information and Closure Criteria.

Table 1: Release Information and Closure Criteria			
Name	State AA #001	Company	Marathon Oil Permian LLC
API Number	30-025-02605	Location	32.43342, -103.433816
Incident Number	2RP-5257		
Estimated Date of Release	October 18, 2018	Date Reported to NMOCD	November 2, 2018
Land Owner	State	Reported to	NMOCD, NMSLO
Source of Release	Hole on bottom of produced water tank		
Released Volume	232 bbl	Released Material	Produced Water
Recovered Volume	0 bbl	Net Release	232 bbls
NMOCD Closure Criteria	<50 feet to groundwater		
SMA Response Dates	October 22, 2018, March 7, April 25, August 21-September 16 2019		

1.0 Background

On October 18, 2018, a release was discovered at the State AA #001 site due to a leaking produced water tank. Initial response activities were conducted by Marathon, and included draining the remaining liquids in the tank and isolating the tank. No free liquids were observed to recover. The contaminated soils were left in place in the tank battery to be removed during site remediation.

Figure 1 illustrates the vicinity and site location, Figures 2 and 3 illustrate the release location. The C-141 form is included in Appendix A.

2.0 Site Information and Closure Criteria

The State AA #001 is located approximately 45 miles east of Carlsbad, New Mexico on State land at an elevation of approximately 3,630 feet above mean sea level (amsl).

Based upon a drill log file for water well CP-00934 from the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/), depth to groundwater in the area is estimated to be as shallow as 42 feet below grade surface (bgs). The water well is located approximately 1.0 miles southeast of the site location at 3,608 feet amsl.

The site is located within a depression along the path of an unnamed arroyo, according to the San Simon Ranch Quad 7.5-min USGS topographic map. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does lie within a sensitive area (unnamed arroyo) 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 groundwater depth of less than 50 feet bgs. Unless a deferral is approved by NMOCD per 19.15.29.12.B.(2), the site will be restored to meet the standards of Table I of 19.15.29.12 NMAC. Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

3.1 Initial Site Assessment, October 22, 2018

On October 22, 2018, SMA personnel arrived on site in response to the release associated with State AA #001. SMA performed initial site delineation activities by collecting soil samples around the release source area and throughout the visibly stained area within the tank battery. A total of seven sample locations (L1-L7) and seven perimeter/sidewall samples (SW1-SW7) were investigated using a hand-auger, to depths up to 2-feet bgs. Background field readings indicated chloride concentrations of 118 ppm.

3.2 Electromagnetic Survey, January 9, 2019

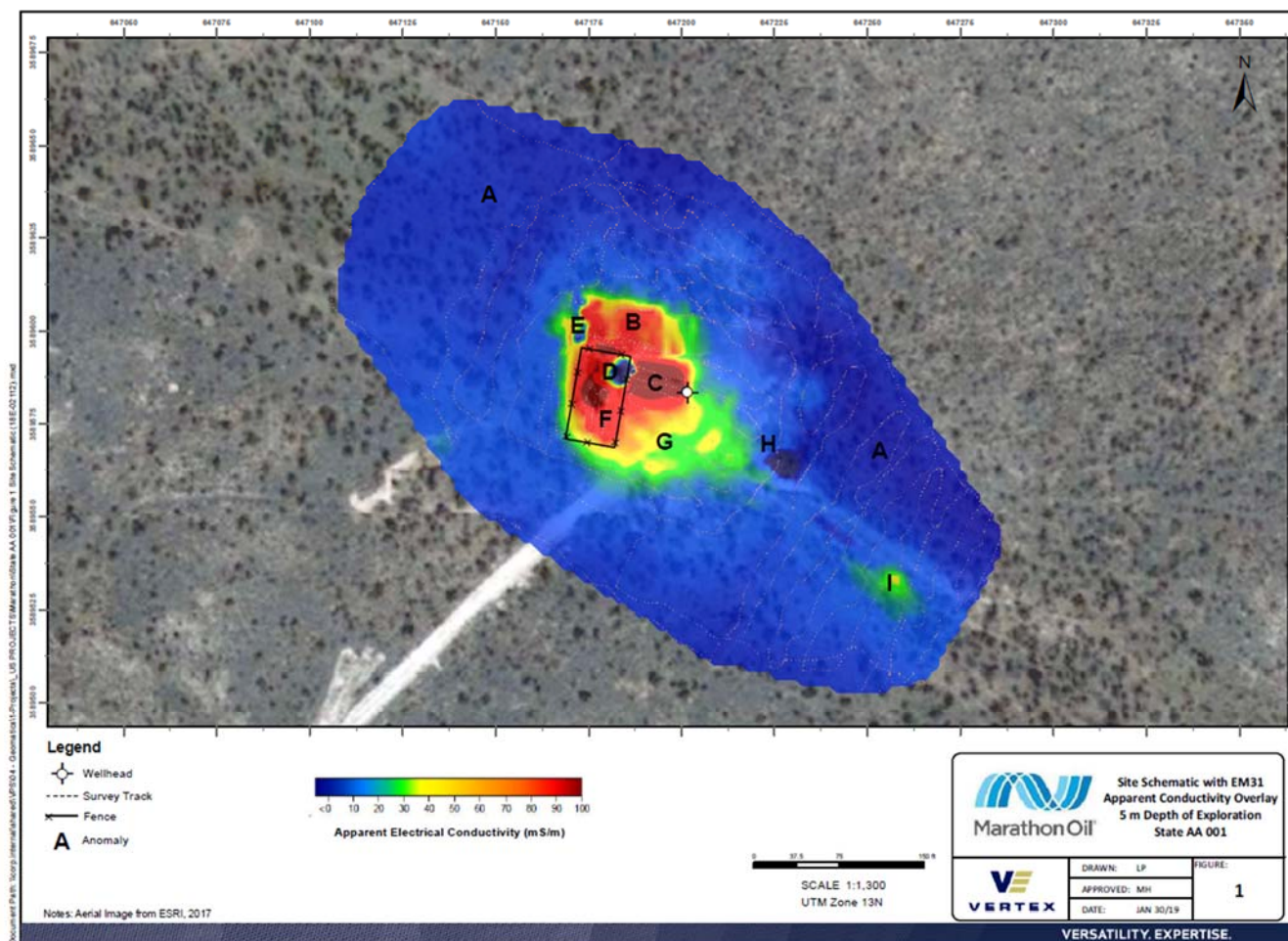
On January 9, 2019, Vertex Resource Services Inc. (Vertex) conducted an electromagnetic (EM) survey of the entire wellsite and extending off the wellsite. The purpose of the EM survey was to map variations in ground conductivity that may identify the location of and extent of a produced water release, which are typically high in chlorides and exhibit high conductivity readings. The survey was performed using a Geonics EM31 Terrain Conductivity Meter at 10-yard spaced transects across the site.

Results of the survey indicated elevated conductivity levels, relative to background, on the well pad, particularly in the areas of the tank battery, north of the tank battery, and northeast of the tank battery, as shown in Image 1, below. The highest conductivity readings (>100 – 200 milli-Siemen/meter (mS/M)) were reported inside the tank battery where the release occurred, and along the pipe that runs from the

pump to the injection wellhead. The specific depth of the elevated conductivity could not be determined using the EM survey method; however, the effective measurement depth of the instrument is approximately 16 feet and readings are a weighted average. Note that a small hotspot occurred southeast of the tank battery (denoted as “1” in Image 1); this hotspot was a result of two partially buried metal stakes and not due to contamination.

A copy of the Vertex EM survey report is included in Appendix B of the approved work plan.

Image 1. Vertex EM Survey Results



3.3 Confirmation Soil Borings, March 7, 2019

To determine the vertical extent of contamination, SMA oversaw drilling of soil borings on March 7, 2019. Soil borings were drilled using a trailer mounted LST1G drill rig operated by C&M. The borings were drilled using a hollow stem auger (HSA) and sampled using the split-spoon method. Field-screening results indicated soil chlorides were below the closure level at 4-, 10-, and 15-foot depths. Laboratory results at 10 feet indicated chloride concentration of 710 mg/kg. Samples collected for laboratory analysis were analyzed by Hall Environmental Analytical Laboratory in Albuquerque, NM, for total chloride using EPA Method 300.0, and MRO, DRO, and GRO by EPA Method 8015D. Field and analytical results for soil borings SB1 through SB3 are shown in Table 5, locations are shown in Figure 4, and laboratory results are included in Appendix E of the approved work plan.

3.4 Confirmation Soil Borings/Temporary “Wells”, April 25, 2019

SMA obtained NMOSE-approved permits to drill “temporary wells” to fully delineate the vertical extent of chloride contamination, which had a potential to extend into the shallow groundwater. Drilling was performed on April 25, 2019, using a CME 55 track-mounted drill rig operated by HRL Solutions, Inc. (HRL). Drilling resumed at soil boring SB1, starting at 30 feet and extending to 40 feet bgs. Samples were collected and field-screened at 30, 35, and 40 feet bgs, and laboratory analyzed at 30 and 35 feet bgs. Results indicated chloride concentrations were below the closure criteria of 600 mg/kg at all depths. Additionally, groundwater was not encountered during drilling operations. The boring was set as a temporary well for one week. Upon returning a week later, it was observed that no groundwater had entered the well. The well was removed, plugged, and abandoned per NMOSE specifications.

Field and analytical results for soil borings SB3 and SB5 and locations are shown in Figure 4 of the approved work plan. (Note that there is no SB4.) The NMOSE-approved well permits, WR-07, WD-08, and WD-11, are included in Appendix C of the approved work plan. Laboratory reports are included in Appendix E of the approved work plan.

As summarized in Table 3 of the approved work plan, results indicate that an area approximately 140 feet by 150 feet by 30 feet deep had been impacted.

In the workplan dated May 29, 2019, SMA proposed excavating and removing contaminated soil in the impacted area to approximately 10 feet bgs within the tank battery and 4 feet bgs on the well pad with a bentonite liner installed at the base of the excavation. All surface material to a depth of 4 feet will be less than 600 ppm for chlorides. On July 3, 2019, NMOCD approved the workplan with stipulations including further delineation of chloride at sample locations SB2 and SB3.

4.0 Soil Remediation Summary

In accordance with the approved workplan, SMA provided guidance and oversight of remediation activities from August 2 to September 16, 2019. After approval from area utilities via 811, SMA guided the excavation activities by collecting soil samples for field screening. Samples were screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a calibrated MiniRAE 3000 photoionization detector (PID) equipped with a 10.6 eV lamp.

The tank battery area was excavated 10 feet bgs. Confirmation samples were comprised of five-point composites of the base (TBH-1 and TBH-2) and walls (TB-SW1 through TB-SW6). A total of eight (8) confirmation samples were collected within the tank battery and a bentonite liner was installed at the base of the excavation. Tank battery samples were analyzed for total chloride using EPA Method 300.0 and MRO, DRO, and GRO by EPA Method 8015D.

The area outside the tank battery and on the well pad was excavated to four (4) feet bgs, with the sidewalls extended until chloride levels were below 600 ppm. Confirmation samples were comprised of five-point composites of the base (BH1-BH6) and walls (SW1-SW6). A total of 12 confirmation samples were collected on the well pad and a bentonite liner was installed at the base of the excavation. Well pad base samples were analyzed for total chloride using EPA Method 300.0 and MRO, DRO, and GRO by EPA Method 8015D. Well pad sidewall samples were analyzed for total chloride using EPA Method 300.0 only.

As required by NMOCD, previous samples SB2 and SB3 were delineated for chlorides by collecting samples at 21 and 22 feet, respectively, using a trackhoe. The total excavation removed approximately 3,130 cubic yards of contaminated material.

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

In addition to meeting the Closure Criteria, the top four (4) feet of impacted areas on and off the well pad meet the Reclamation requirement of 19.15.29.13(D)(1). Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at R360 near Hobbs, NM, an NMOCD permitted disposal facility.

5.0 Scope and Limitations

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

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

Submitted by:
SOUDER, MILLER & ASSOCIATES



Ashley Maxwell
Project Manager

Reviewed by:



Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

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

Tables:

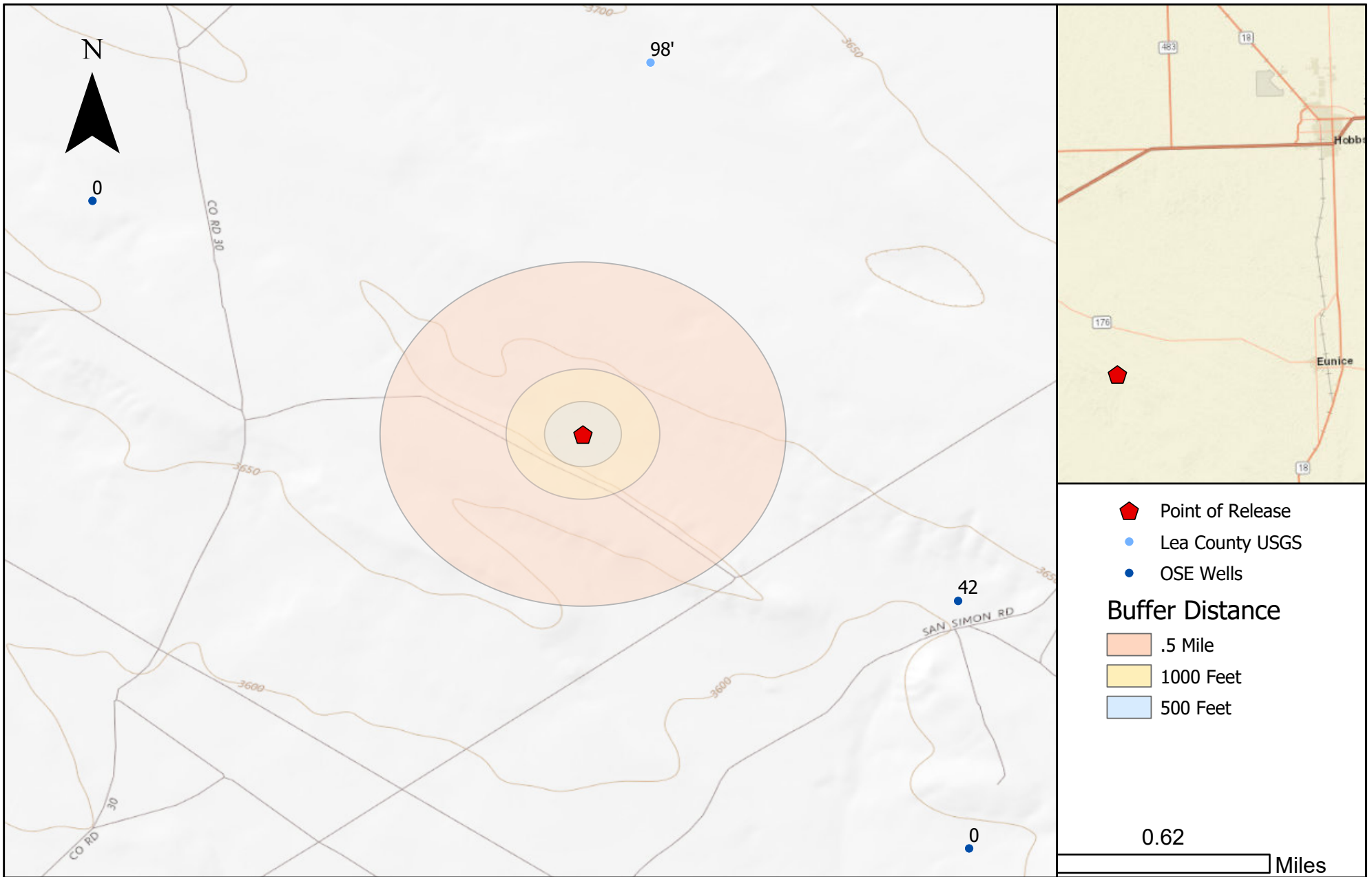
Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report

FIGURES

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Regional Vicinity & Wellhead Protection Map
State AA #1- Marathon
Sec 35 T21S R34E, NM

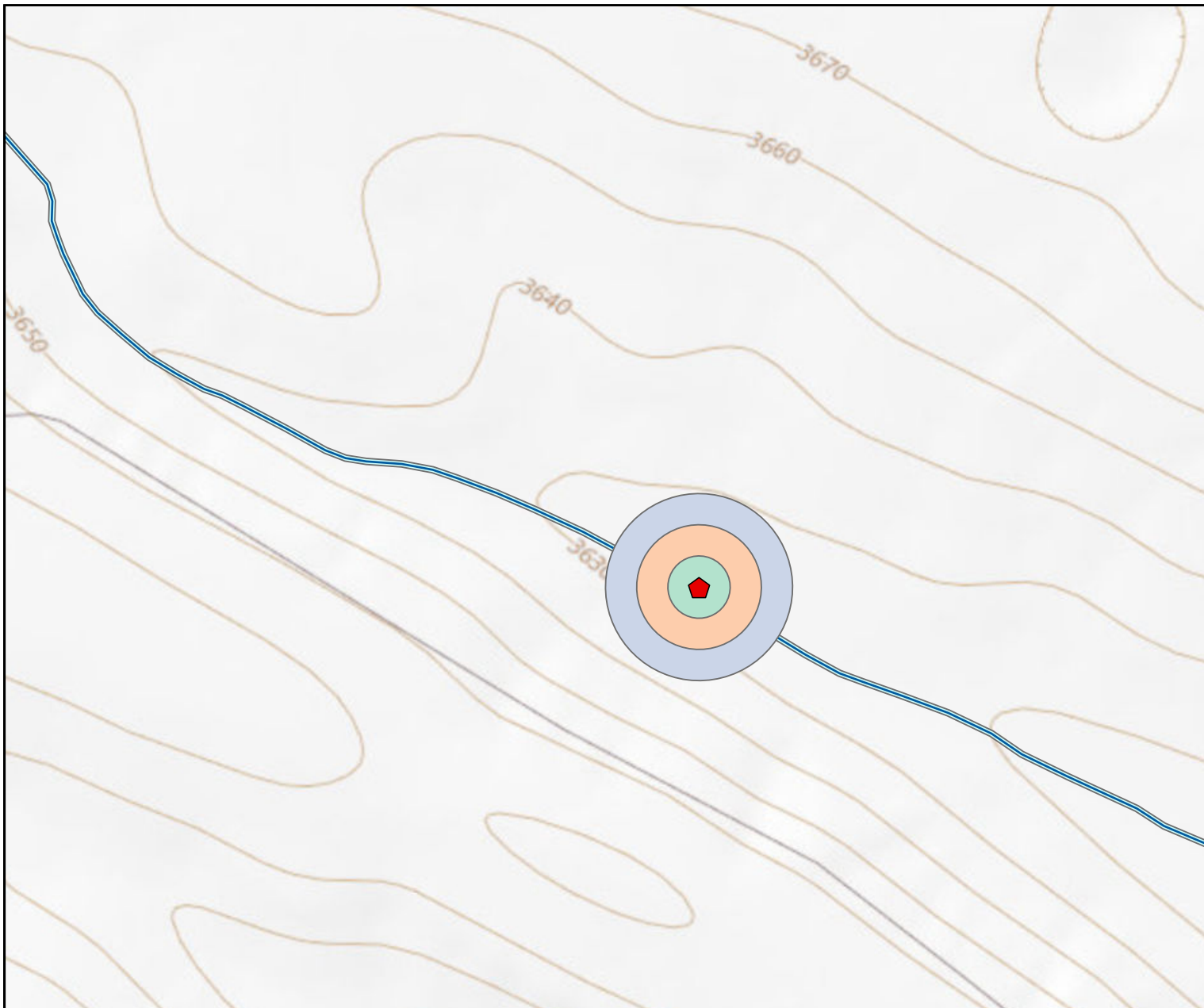
Figure 1

Date Saved: 2/4/2019	Revisions			Drawn Date Checked Approved	Heather Patterson <u>2/4/2019</u>
	By: _____	Date: _____	Descr: _____		
	By: _____	Date: _____	Descr: _____		
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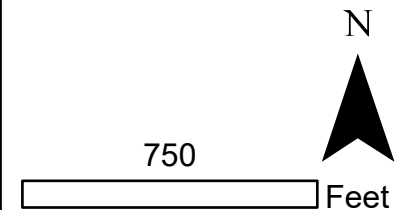


Legend

- Point of Release
- Springs Seeps
- Streams Canals
- Rivers
- NM Wetlands
- Lakes Playas
- FEMA Flood Zones 2011

Buffer Distance

- 100 Feet
- 200 Feet
- 300 Feet



Surface Water Protection Map
State AA #1- Marathon
Sec 35 T21S R34E, NM

Figure 2

Date Saved:
2/4/2019

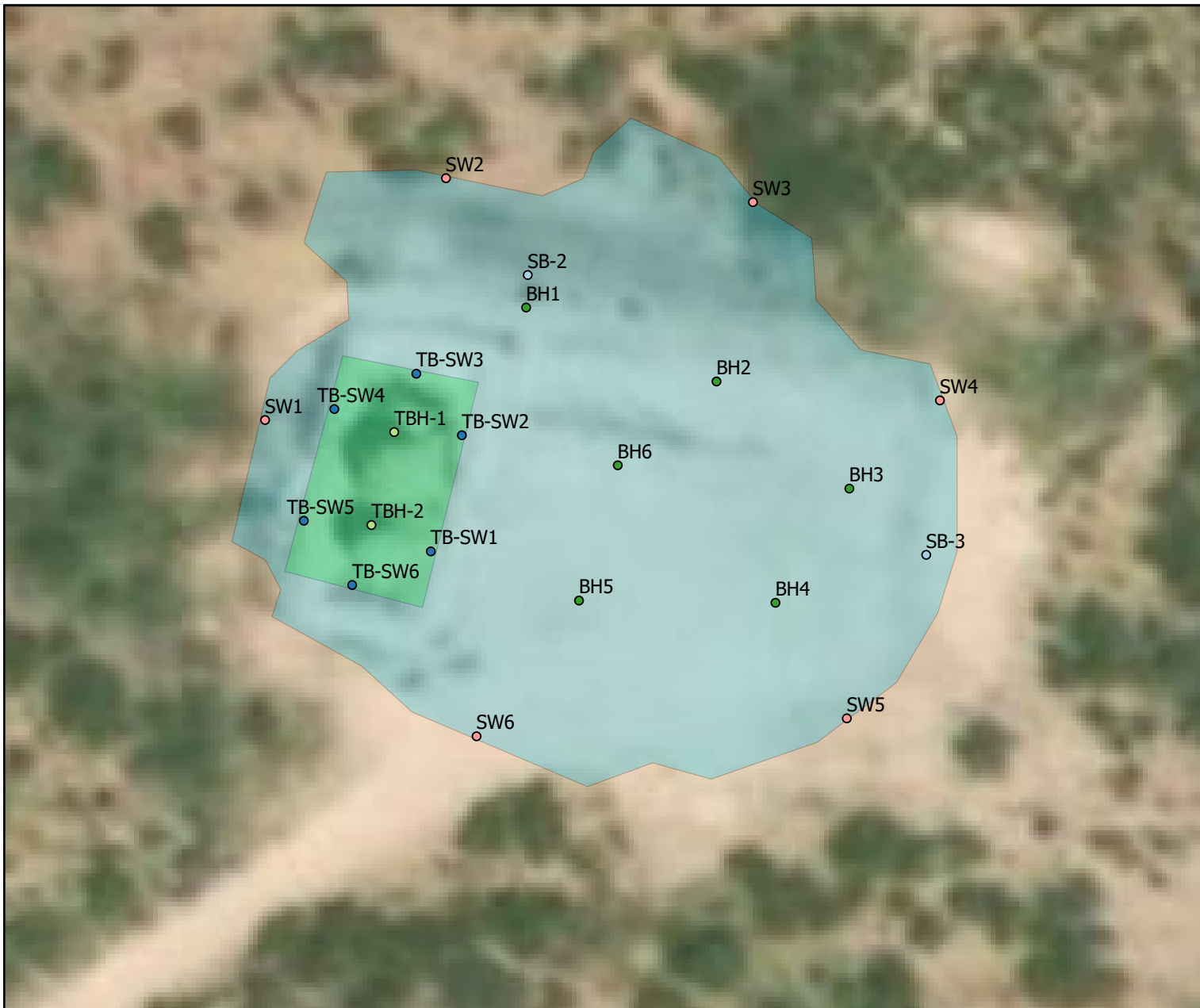
Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

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Drawn	<u>Heather Patterson</u>
Date	<u>2/4/2019</u>
Checked	_____
Approved	_____

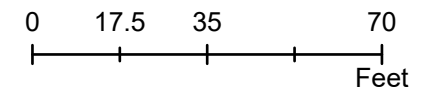


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Legend

- Bore Hole Samples
- Tank Battery-Bottom Hole
- Tank Battery- Side Wall
- Well Pad- Bottom Hole
- Well Pad- Side Wall
- 4' Excavation
- 10' Excavation



Site and Sample Location Map
State AA #001 SWD - Marathon Oil LLC
Sec35 T21S R34E, Lea County, New Mexico

Figure 3

Date Saved:
10/16/2019

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

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Drawn	<u>Henryetta Price</u>
Date	<u>10/16/2019</u>
Checked	_____
Approved	_____



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TABLES

Table 2:
NMOCD Closure Criteria Justification

Marathon Oil Permian LLC
State AA #001

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	~42'	NMOSE online water well database, CP-00934, drill log file date 9/14/2005
Horizontal Distance From All Water Sources Within 1/2 Mile (ft)	none	NMOSE online water well database, active well CP-00934, located 1.0 mi to SE
Horizontal Distance to Nearest Significant Watercourse (ft)	0'	Google Earth Pro and San Simon Ranch Quad 7.5-min USGS Topo Map, well along a depression, intermittent flow line

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	yes	600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'		20000	2500	1000	50	10
Surface Water	yes or no	if yes, then				
<300' from continuously flowing watercourse or other significant watercourse?	yes (intermittent watercourse)	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	no					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	no					
<1000' from fresh water well or spring?	no					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	no					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	no					
<100' from wetland?	no					
within area overlying a subsurface mine	no					
within an unstable area?	no					
within a 100-year floodplain?	no					

Table 3:
Summary of Sample Results

Marathon Oil Permian LLC
State AA #1 SWD (2RP-5257)
API: 30-025-02605

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria <50 ft							100	600
SW1	9/3/2019	0-4	in-situ	-	-	-	-	260
SW2	9/3/2019	0-4	in-situ	-	-	-	-	100
SW3	9/3/2019	0-4	excavate	-	-	-	-	760
	9/13/2019	0-4	in-situ	-	-	-	-	230
SW4	9/3/2019	0-4	in-situ	-	-	-	-	570
SW5	9/3/2019	0-4	in-situ	-	-	-	-	420
SW6	9/16/2019	0-4	in-situ	-	-	-	-	210
SB2	9/3/2019	21	in-situ	-	-	-	-	410
SB3	9/3/2019	22	in-situ	-	-	-	-	260
BH1	9/3/2019	4	in-situ	<4.9	<10	<50	<64.9	110
BH2	9/3/2019	4	in-situ	<4.9	<9.4	<47	<61.3	290
BH3	9/3/2019	4	in-situ	<4.8	<8.1	<40	<52.9	180
BH4	9/3/2019	4	in-situ	<4.9	<9.6	<48	<62.5	140
BH5	9/13/2019	4	in-situ	<4.9	<8.7	<43	<56.6	810
BH6	9/3/2019	4	in-situ	<4.8	19	<47	<70.8	370
TBH-1	9/3/2019	10	in-situ	<4.9	<9.6	<48	<62.5	1000
TBH-2	9/3/2019	10	in-situ	<4.9	<9.4	<47	<61.3	1500
TB-SW1	9/3/2019	0-10	in-situ	<5.0	<9.7	<48	<62.7	2200
TB-SW2	9/3/2019	0-10	in-situ	<4.9	<9.0	<45	<58.9	2,800
TB-SW3	9/3/2019	0-10	in-situ	<4.8	<9.5	<48	<62.3	890
TB-SW4	9/3/2019	0-10	in-situ	<5.0	<9.2	<46	<60.2	410
TB-SW5	9/3/2019	0-10	in-situ	<5.0	<9.6	<48	<62.6	3300
TB-SW6	9/13/2019	0-10	in-situ	<4.8	37	<49	<90.8	5,000

= Not Analyzed



APPENDIX A
FORM C141

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

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

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

Incident ID	NOY1830941911
District RP	1RP-5257
Facility ID	
Application ID	pOY1830942336

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD) NOY1830941911
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

State minerals

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)

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

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
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: _____	Title: _____
Signature: <u>Callie Kerrigan</u>	Date: _____
email: _____	Telephone: _____
OCD Only <div style="border: 1px solid black; padding: 5px; display: inline-block;"> RECEIVED <i>By Olivia Yu at 11:48 am, Nov 05, 2018</i> </div>	
Received by: _____	Date: _____

Incident ID	NOY1830941911
District RP	1RP-5257
Facility ID	
Application ID	pOY1830942336

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>~42</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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

Incident ID	NOY1830941911
District RP	1RP-5257
Facility ID	
Application ID	pOY1830942336

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: _____ Isaac Castro _____ Title: _____ Environmental Professional _____

Signature: _____ *Isaac Castro* _____ Date: _____ 10/16/19 _____

email: _____ icaastro@marathonoil.com _____ Telephone: _____ 575-988-0561 _____

OCD Only

Received by: _____ Date: _____

Incident ID	NOY1830941911
District RP	1RP-5257
Facility ID	
Application ID	pOY1830942336

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: _____ Isaac Castro _____ Title: _____ Environmental Professional _____

Signature: _____ *Isaac Castro* _____ Date: _____ 10/16/19 _____

email: _____ icaastro@marathonoil.com _____ Telephone: _____ 575-988-0561 _____

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

APPENDIX B

NMOSE WELLS REPORT

STATE ENGINEER OFFICE
WELL RECORD

CP934

Section 1. GENERAL INFORMATION

(A) Owner of well Gruy Petroleum Management Co. Owner's Well No. MW-1
Street or Post Office Address 508 West Wall St. Suite 600
City and State Midland, Texas 79701

Well was drilled under Permit No. CP-934 and is located in the:
Riddle State 1
N NE 1 4 NE 1 % of Section 1 Township 22S Range 34E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor Scarborough Drilling, Inc. License No. WD1188

Address P.O. Box 305 Lamesa, Texas 79331

Drilling Began 09-01-05 Completed 09-01-05 Type tools air rotary Size of hole 8 in.

Elevation of land surface or _____ at well's _____ ft. Total depth of well 60 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 42 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

STATE ENGINEER OFFICE
ROSMELL, NEW MEXICO
2005 SEP 15 AM 1:30

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
<u>4</u>	<u>sch 40</u>	<u>pvc</u>	<u>0</u>	<u>40</u>		<u>.020</u>	<u>40</u>	<u>60</u>

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				
<u>0</u>	<u>36</u>	<u>4</u>	<u>cement</u>		<u>poured</u>
<u>36</u>	<u>39</u>	<u>4</u>	<u>bentonite</u>		<u>poured</u>
<u>39</u>	<u>60</u>	<u>4</u>	<u>sand</u>		<u>poured</u>

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
<u>1</u>			
<u>2</u>			
<u>3</u>			
<u>4</u>			

State Engineer Representative _____

FOR USE OF STATE ENGINEER ONLY 339093

Date Received 9-15-05 Quad _____ FWL _____ FSL _____
FDs No. CP-934 Use OWD Location No. 22S.34E.1.212

[illegible]

Lee Sealorough
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office. All sections except Section 5 shall be answered as completely and accurately as possible when any well is

National Water Information System: Web Interface

USGS Water Resources

Data Category:
Groundwater

Geographic Area:
United States

GO

Click to hideNews Bulletins

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

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 322657103255201

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

USGS 322657103255201 21S.34E.25.13141

Lea County, New Mexico
Latitude 32°26'57", Longitude 103°25'52" NAD27
Land-surface elevation 3,685 feet above NAVD88
The depth of the well is 196 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

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source o measure
1965-10-29		D	100.94			2			U	
1968-03-28		D	100.27			2			U	
1971-02-10		D	99.61			2			U	
1976-12-15		D	98.87			2			U	
1981-03-05		D	98.80			2			U	
1986-03-20		D	99.08			2			U	

Explanation

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

[Questions about sites/data?](#)
[Feedback on this web site](#)
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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: 2019-02-04 17:04:59 EST

0.74 0.6 nadww01

APPENDIX C

PHOTO LOG

September 13, 2019

Tank Battery with bentonite liner Facing Southeast



September 18, 2019

BH1, SW2, SW3 with bentonite liner Facing West



September 18, 2019

BH2, BH3, BH4, SW3, SW4 with bentonite liner facing Northwest



September 17, 2019

BH3, BH4, BH5, SW4, and SW5 with bentonite liner facing Northeast



September 18, 2019

BH4, BH5, BH6, SW5 & SW6 with bentonite liner facing south



APPENDIX D
LABORATORY ANALYTICAL
REPORTS



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

September 12, 2019

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

RE: State AA 1

OrderNo.: 1909194

Dear Hernryetta Price:

Hall Environmental Analysis Laboratory received 19 sample(s) on 9/5/2019 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW1

Project: State AA 1

Collection Date: 9/3/2019 8:45:00 AM

Lab ID: 1909194-001

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	260	60		mg/Kg	20	9/9/2019 4:53:05 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW2

Project: State AA 1

Collection Date: 9/3/2019 10:00:00 AM

Lab ID: 1909194-002

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	100	60		mg/Kg	20	9/9/2019 5:30:20 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW3

Project: State AA 1

Collection Date: 9/3/2019 10:10:00 AM

Lab ID: 1909194-003

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	760	60		mg/Kg	20	9/9/2019 5:42:44 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW4

Project: State AA 1

Collection Date: 9/3/2019 10:20:00 AM

Lab ID: 1909194-004

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	570	60		mg/Kg	20	9/9/2019 5:55:09 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW5

Project: State AA 1

Collection Date: 9/3/2019 10:30:00 AM

Lab ID: 1909194-005

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	420	60		mg/Kg	20	9/9/2019 6:07:33 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH1

Project: State AA 1

Collection Date: 9/3/2019 3:12:00 PM

Lab ID: 1909194-006

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	110	60		mg/Kg	20	9/9/2019 6:19:57 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/10/2019 2:41:33 PM	47330
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/10/2019 2:41:33 PM	47330
Surr: DNOP	59.8	70-130	S	%Rec	1	9/10/2019 2:41:33 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 2:10:06 PM	47319
Surr: BFB	94.6	77.4-118		%Rec	1	9/9/2019 2:10:06 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH2

Project: State AA 1

Collection Date: 9/3/2019 12:30:00 PM

Lab ID: 1909194-007

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	290	59		mg/Kg	20	9/9/2019 6:32:21 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/10/2019 10:38:23 AM	47330
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/10/2019 10:38:23 AM	47330
Surr: DNOP	80.0	70-130		%Rec	1	9/10/2019 10:38:23 AM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 2:32:59 PM	47319
Surr: BFB	97.9	77.4-118		%Rec	1	9/9/2019 2:32:59 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH3

Project: State AA 1

Collection Date: 9/3/2019 12:45:00 PM

Lab ID: 1909194-008

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	180	59		mg/Kg	20	9/9/2019 6:44:46 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	8.1		mg/Kg	1	9/10/2019 11:00:25 AM	47330
Motor Oil Range Organics (MRO)	ND	40		mg/Kg	1	9/10/2019 11:00:25 AM	47330
Surr: DNOP	96.3	70-130		%Rec	1	9/10/2019 11:00:25 AM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2019 3:41:33 PM	47319
Surr: BFB	97.0	77.4-118		%Rec	1	9/9/2019 3:41:33 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH4

Project: State AA 1

Collection Date: 9/3/2019 12:35:00 PM

Lab ID: 1909194-009

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	140	60		mg/Kg	20	9/9/2019 7:22:00 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/10/2019 11:44:31 AM	47330
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/10/2019 11:44:31 AM	47330
Surr: DNOP	67.0	70-130	S	%Rec	1	9/10/2019 11:44:31 AM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 4:04:28 PM	47319
Surr: BFB	99.1	77.4-118		%Rec	1	9/9/2019 4:04:28 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH6

Project: State AA 1

Collection Date: 9/3/2019 12:40:00 PM

Lab ID: 1909194-010

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	370	61		mg/Kg	20	9/9/2019 7:34:25 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	19	9.4		mg/Kg	1	9/10/2019 3:03:45 PM	47330
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/10/2019 3:03:45 PM	47330
Surr: DNOP	58.3	70-130	S	%Rec	1	9/10/2019 3:03:45 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2019 4:27:21 PM	47319
Surr: BFB	96.7	77.4-118		%Rec	1	9/9/2019 4:27:21 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SB2-21'

Project: State AA 1

Collection Date: 9/3/2019 1:15:00 PM

Lab ID: 1909194-011

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	410	60		mg/Kg	20	9/9/2019 7:46:49 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SB3-22'

Project: State AA 1

Collection Date: 9/3/2019 2:45:00 PM

Lab ID: 1909194-012

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	260	59		mg/Kg	20	9/9/2019 7:59:14 PM	47358

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TBH-1

Project: State AA 1

Collection Date: 9/3/2019 11:45:00 AM

Lab ID: 1909194-013

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	1000	60		mg/Kg	20	9/9/2019 8:11:39 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/10/2019 12:06:35 PM	47330
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/10/2019 12:06:35 PM	47330
Surr: DNOP	67.7	70-130	S	%Rec	1	9/10/2019 12:06:35 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 4:50:16 PM	47319
Surr: BFB	97.6	77.4-118		%Rec	1	9/9/2019 4:50:16 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TBH-2

Project: State AA 1

Collection Date: 9/3/2019 12:00:00 PM

Lab ID: 1909194-014

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	1500	59		mg/Kg	20	9/9/2019 8:24:03 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/10/2019 12:28:40 PM	47330
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/10/2019 12:28:40 PM	47330
Surr: DNOP	68.2	70-130	S	%Rec	1	9/10/2019 12:28:40 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 5:13:07 PM	47319
Surr: BFB	98.6	77.4-118		%Rec	1	9/9/2019 5:13:07 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW1

Project: State AA 1

Collection Date: 9/3/2019 12:05:00 PM

Lab ID: 1909194-015

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CJS
Chloride	2200	150		mg/Kg	50	9/11/2019 1:07:49 AM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/10/2019 12:50:42 PM	47330
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/10/2019 12:50:42 PM	47330
Surr: DNOP	62.2	70-130	S	%Rec	1	9/10/2019 12:50:42 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2019 5:35:59 PM	47319
Surr: BFB	99.9	77.4-118		%Rec	1	9/9/2019 5:35:59 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW2

Project: State AA 1

Collection Date: 9/3/2019 12:10:00 PM

Lab ID: 1909194-016

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CJS
Chloride	2800	150		mg/Kg	50	9/11/2019 1:20:14 AM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	9/10/2019 1:12:51 PM	47330
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/10/2019 1:12:51 PM	47330
Surr: DNOP	53.1	70-130	S	%Rec	1	9/10/2019 1:12:51 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2019 5:58:52 PM	47319
Surr: BFB	99.4	77.4-118		%Rec	1	9/9/2019 5:58:52 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW3

Project: State AA 1

Collection Date: 9/3/2019 12:15:00 PM

Lab ID: 1909194-017

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	890	60		mg/Kg	20	9/9/2019 9:01:15 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/10/2019 1:34:59 PM	47330
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/10/2019 1:34:59 PM	47330
Surr: DNOP	55.4	70-130	S	%Rec	1	9/10/2019 1:34:59 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2019 6:21:40 PM	47319
Surr: BFB	97.4	77.4-118		%Rec	1	9/9/2019 6:21:40 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW4

Project: State AA 1

Collection Date: 9/3/2019 12:17:00 PM

Lab ID: 1909194-018

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	410	60		mg/Kg	20	9/9/2019 9:13:40 PM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	9/10/2019 1:57:08 PM	47330
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/10/2019 1:57:08 PM	47330
Surr: DNOP	46.2	70-130	S	%Rec	1	9/10/2019 1:57:08 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2019 6:44:31 PM	47319
Surr: BFB	97.4	77.4-118		%Rec	1	9/9/2019 6:44:31 PM	47319

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909194**

Date Reported: **9/12/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW5

Project: State AA 1

Collection Date: 9/3/2019 12:22:00 PM

Lab ID: 1909194-019

Matrix: SOIL

Received Date: 9/5/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CJS
Chloride	3300	150		mg/Kg	50	9/11/2019 1:32:38 AM	47358
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/10/2019 2:19:15 PM	47330
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/10/2019 2:19:15 PM	47330
Surr: DNOP	48.2	70-130	S	%Rec	1	9/10/2019 2:19:15 PM	47330
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2019 7:07:17 PM	47319
Surr: BFB	95.6	77.4-118		%Rec	1	9/9/2019 7:07:17 PM	47319

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909194

12-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: MB-47358	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 47358	RunNo: 62754
Prep Date: 9/9/2019	Analysis Date: 9/9/2019	SeqNo: 2138680 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-47358	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 47358	RunNo: 62754
Prep Date: 9/9/2019	Analysis Date: 9/9/2019	SeqNo: 2138681 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 95.3 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909194

12-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: LCS-47342	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 47342		RunNo: 62753							
Prep Date: 9/9/2019	Analysis Date: 9/9/2019		SeqNo: 2137494		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.3	70	130			

Sample ID: MB-47342	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 47342		RunNo: 62753							
Prep Date: 9/9/2019	Analysis Date: 9/9/2019		SeqNo: 2137495		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		91.1	70	130			

Sample ID: MB-47330	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 47330		RunNo: 62772							
Prep Date: 9/6/2019	Analysis Date: 9/10/2019		SeqNo: 2138432		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Sample ID: LCS-47330	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 47330		RunNo: 62772							
Prep Date: 9/6/2019	Analysis Date: 9/10/2019		SeqNo: 2138742		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	63.9	124			
Surr: DNOP	4.8		5.000		95.8	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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909194

12-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: MB-47319	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 47319	RunNo: 62763								
Prep Date: 9/6/2019	Analysis Date: 9/9/2019	SeqNo: 2138146	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	960		1000		96.3	77.4	118			

Sample ID: LCS-47319	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 47319	RunNo: 62763								
Prep Date: 9/6/2019	Analysis Date: 9/9/2019	SeqNo: 2138147	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	93.3	80	120			
Surr: BFB	1100		1000		112	77.4	118			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Sample Log-In Check List

Client Name: **SMA-CARLSBAD**

Work Order Number: **1909194**

RcptNo: 1

Received By: **Daniel Marquez**

9/5/2019 9:00:00 AM

Completed By: **Leah Baca**

9/5/2019 10:23:03 AM

Reviewed By: **LB**

9/5/19

[Signature]
Leah Baca

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: **DAD 9/5/19**

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	1.9	Good	Yes			



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

September 20, 2019

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

RE: State AA 1

OrderNo.: 1909858

Dear Hernryetta Price:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/17/2019 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909858**

Date Reported: **9/20/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW3

Project: State AA 1

Collection Date: 9/13/2019 2:45:00 PM

Lab ID: 1909858-001

Matrix: SOIL

Received Date: 9/17/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	230	60		mg/Kg	20	9/18/2019 10:48:13 AM	47554

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909858**

Date Reported: **9/20/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: BH5

Project: State AA 1

Collection Date: 9/13/2019 9:20:00 AM

Lab ID: 1909858-002

Matrix: SOIL

Received Date: 9/17/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	810	60		mg/Kg	20	9/18/2019 11:25:27 AM	47554
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	9/19/2019 8:57:43 AM	47548
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	9/19/2019 8:57:43 AM	47548
Surr: DNOP	94.3	70-130		%Rec	1	9/19/2019 8:57:43 AM	47548
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/18/2019 11:55:01 AM	47534
Surr: BFB	98.4	77.4-118		%Rec	1	9/18/2019 11:55:01 AM	47534

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909858**

Date Reported: **9/20/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: TB-SW6

Project: State AA 1

Collection Date: 9/13/2019 9:50:00 AM

Lab ID: 1909858-003

Matrix: SOIL

Received Date: 9/17/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	5000	300		mg/Kg	100	9/18/2019 11:49:55 PM	47554
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	37	9.7		mg/Kg	1	9/19/2019 9:19:45 AM	47548
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/19/2019 9:19:45 AM	47548
Surr: DNOP	108	70-130		%Rec	1	9/19/2019 9:19:45 AM	47548
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/18/2019 1:03:33 PM	47534
Surr: BFB	96.2	77.4-118		%Rec	1	9/18/2019 1:03:33 PM	47534

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1909858**

Date Reported: **9/20/2019**

CLIENT: Souder, Miller & Associates

Client Sample ID: SW6

Project: State AA 1

Collection Date: 9/16/2019 8:45:00 AM

Lab ID: 1909858-004

Matrix: SOIL

Received Date: 9/17/2019 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	210	60		mg/Kg	20	9/18/2019 11:50:15 AM	47554

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909858

20-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: MB-47554	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 47554	RunNo: 63009								
Prep Date: 9/18/2019	Analysis Date: 9/18/2019	SeqNo: 2149781	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-47554	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 47554	RunNo: 63009								
Prep Date: 9/18/2019	Analysis Date: 9/18/2019	SeqNo: 2149782	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909858

20-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: LCS-47548	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 47548		RunNo: 63032							
Prep Date: 9/18/2019	Analysis Date: 9/19/2019		SeqNo: 2149625		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	107	63.9	124			
Surr: DNOP	5.4		5.000		109	70	130			

Sample ID: MB-47548	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 47548		RunNo: 63032							
Prep Date: 9/18/2019	Analysis Date: 9/19/2019		SeqNo: 2149626		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	12		10.00		117	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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1909858

20-Sep-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: MB-47534	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 47534	RunNo: 63006								
Prep Date: 9/17/2019	Analysis Date: 9/18/2019	SeqNo: 2148848			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	980		1000		98.4	77.4	118			

Sample ID: LCS-47534	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 47534	RunNo: 63006								
Prep Date: 9/17/2019	Analysis Date: 9/18/2019	SeqNo: 2148849			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	89.1	80	120			
Surr: BFB	1100		1000		114	77.4	118			

Sample ID: 1909858-002AMS	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH5	Batch ID: 47534	RunNo: 63006								
Prep Date: 9/17/2019	Analysis Date: 9/18/2019	SeqNo: 2148856			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.7	23.41	0	105	69.1	142			
Surr: BFB	1200		936.3		125	77.4	118			S

Sample ID: 1909858-002AMSD	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH5	Batch ID: 47534	RunNo: 63006								
Prep Date: 9/17/2019	Analysis Date: 9/18/2019	SeqNo: 2148857			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.7	23.45	0	98.0	69.1	142	6.94	20	
Surr: BFB	1100		938.1		120	77.4	118	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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Sample Log-In Check List

Client Name: **SMA-CARLSBAD**

Work Order Number: **1909858**

RcptNo: 1

Received By: **Desiree Dominguez** 9/17/2019 9:00:00 AM

Completed By: **Yazmine Garduno** 9/17/2019 9:08:50 AM

Reviewed By:

9/17/19

DD

Yazmine Garduno

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: **DAD 9/17/19**

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				

