Form C-141
Page 6

State of New Mexico
Oil Conservation Division

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 5/25/2022

email: icastro@marathonoil.com Telephone: 575-988-0561

OCD Only

Received by: Robert Hamlet Date: 5/26/2022

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: 5/26/2022

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

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)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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		

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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?
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

☐ 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: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: RECEIVED By Olivia Yu at 11:48 am, Nov 05, 2018 _____ 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?	>45 (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	NOY1830941911
District RP	1RP-5257
Facility ID	
Application ID	pOY1830942336

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Printed Name: _____Melodie Sanjari_____ Title: _____Environmental Professional_____

Signature:_____Melodie Sanjari_____ Date: ___5/25/2022_____

email: _icastro@marathonoil.com_____ Telephone: _____575-988-0561_____

OCD Only

Received by: _____ Date: _____

Incident ID	NOY1830941911
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Closure

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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

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Printed Name: _____Melodie Sanjari_____ Title: ___Environmental Professional_____

Signature: Melodie Sanjari Date: __5/25/2022_____

email: ___icastro@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: _____

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

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 temporary wells detailed in section 3.4, depth to groundwater in the area is estimated to be greater than 45 feet below grade surface (bgs). The wells WR-07 is located as an extension of sample location SB2 and WD-08 and WD-11 are located both upstream and downstream of the location, respectively. Well files are included in Appendix E.

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

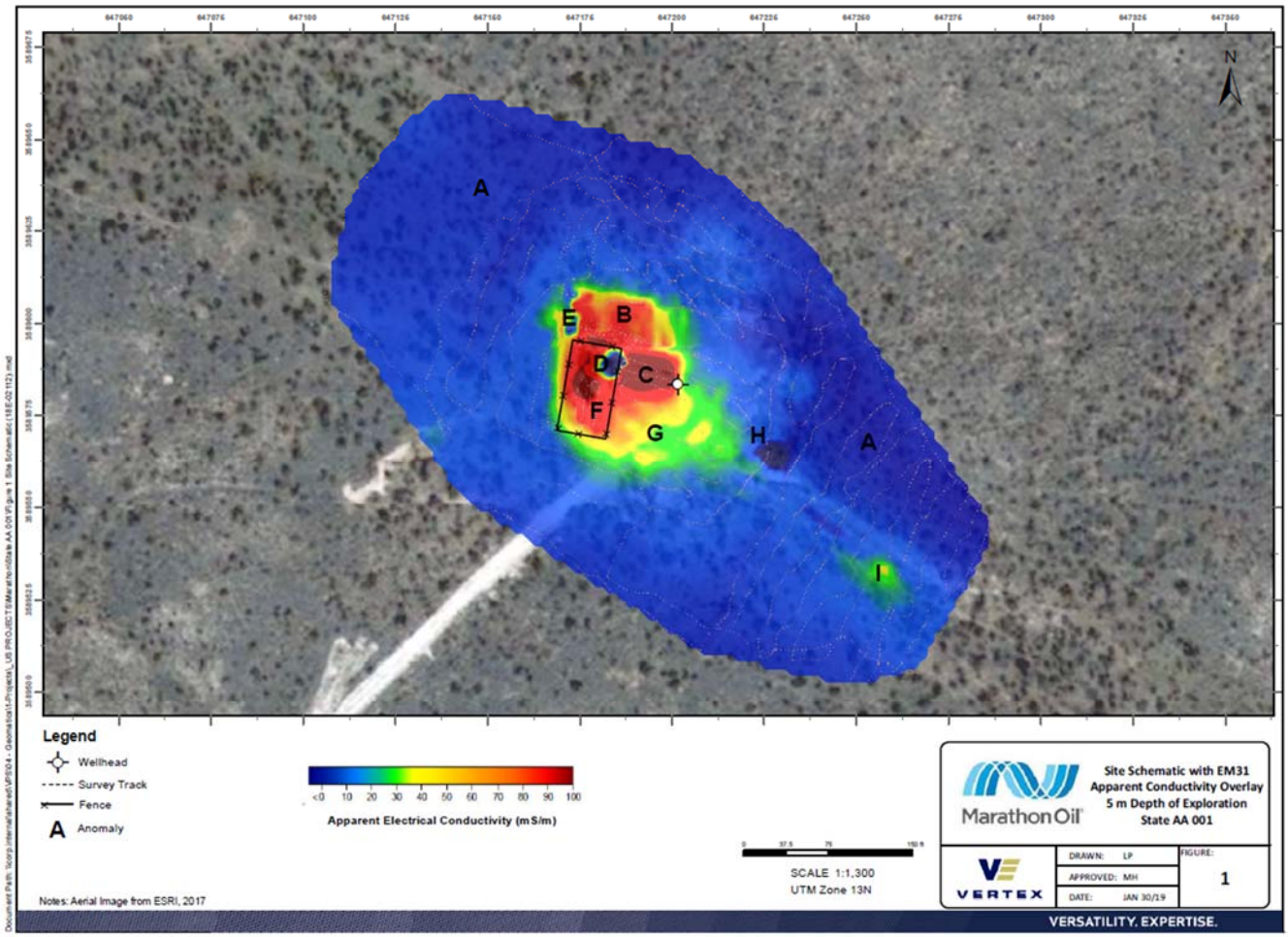
On January 9, 2019, Vertex Resource Services Inc. (Vertex) conducted an electromagnetic (EM) survey of the entire wellsite and extending off the wellsite. The purpose of the EM survey was to map variations in ground conductivity that may identify the location of and extent of a produced water release, 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 "I" 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 45 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 (Table 5 in Appendix E from Work Plan). Additionally, the borings were set as a temporary well for one week. Upon returning a week later, it was observed that no groundwater had entered the well. Based on the full delineation in Appendix E, this would leave at least an 18 foot buffer between the bottom of the elevated chlorides to potential groundwater.** 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

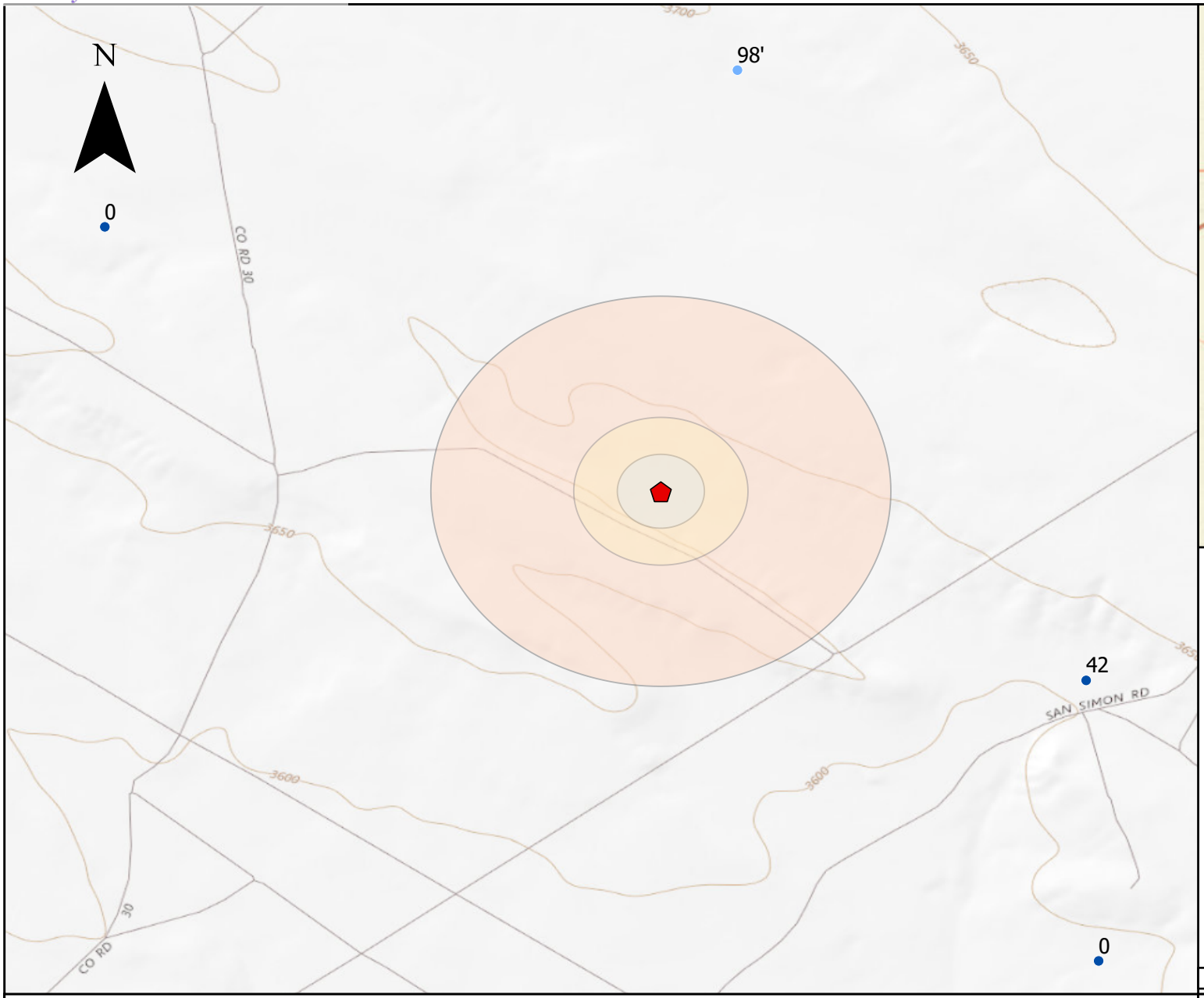
Tables:

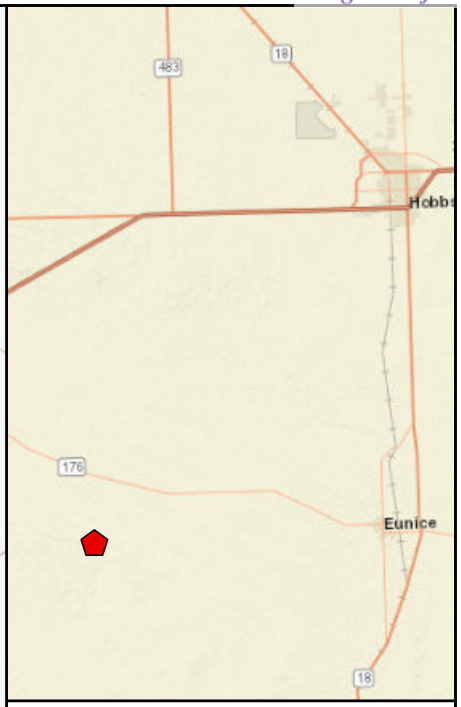
Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report
Appendix C: Photo Log
Appendix D: Laboratory Analysis
Appendix E: **Additional Information Requested by the Division**

FIGURES





Point of Release

Lea County USGS

OSE Wells

Buffer Distance

.5 Mile

1000 Feet

500 Feet

0.62 Miles

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

Figure 1

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Date Saved: 2/4/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn Heather Patterson

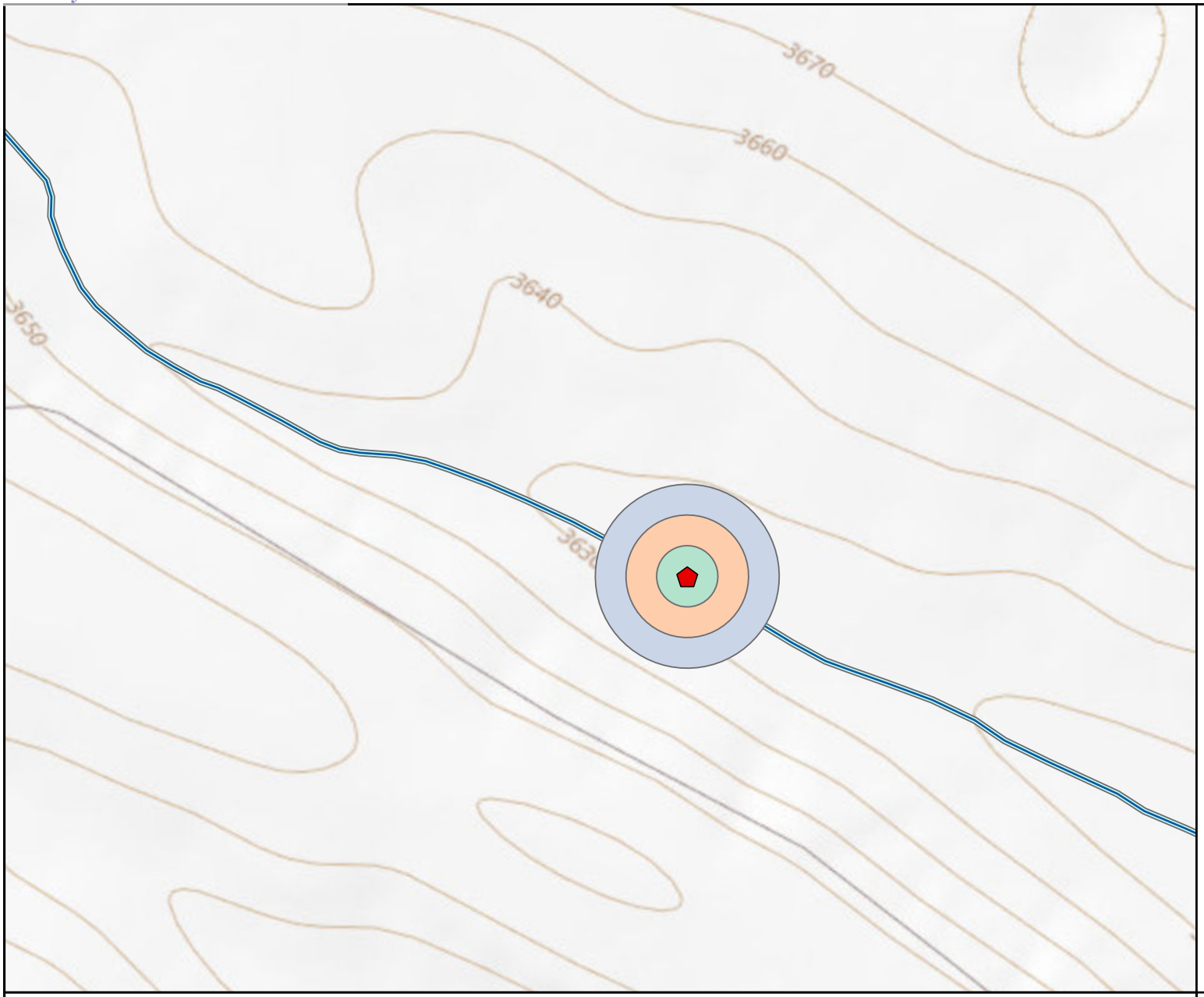
Date 2/4/2019

Checked

Approved

SMA

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



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

N

750 Feet

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

Figure 2

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Date Saved: 2/4/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn Heather Patterson
Date 2/4/2019
Checked
Approved

SMA

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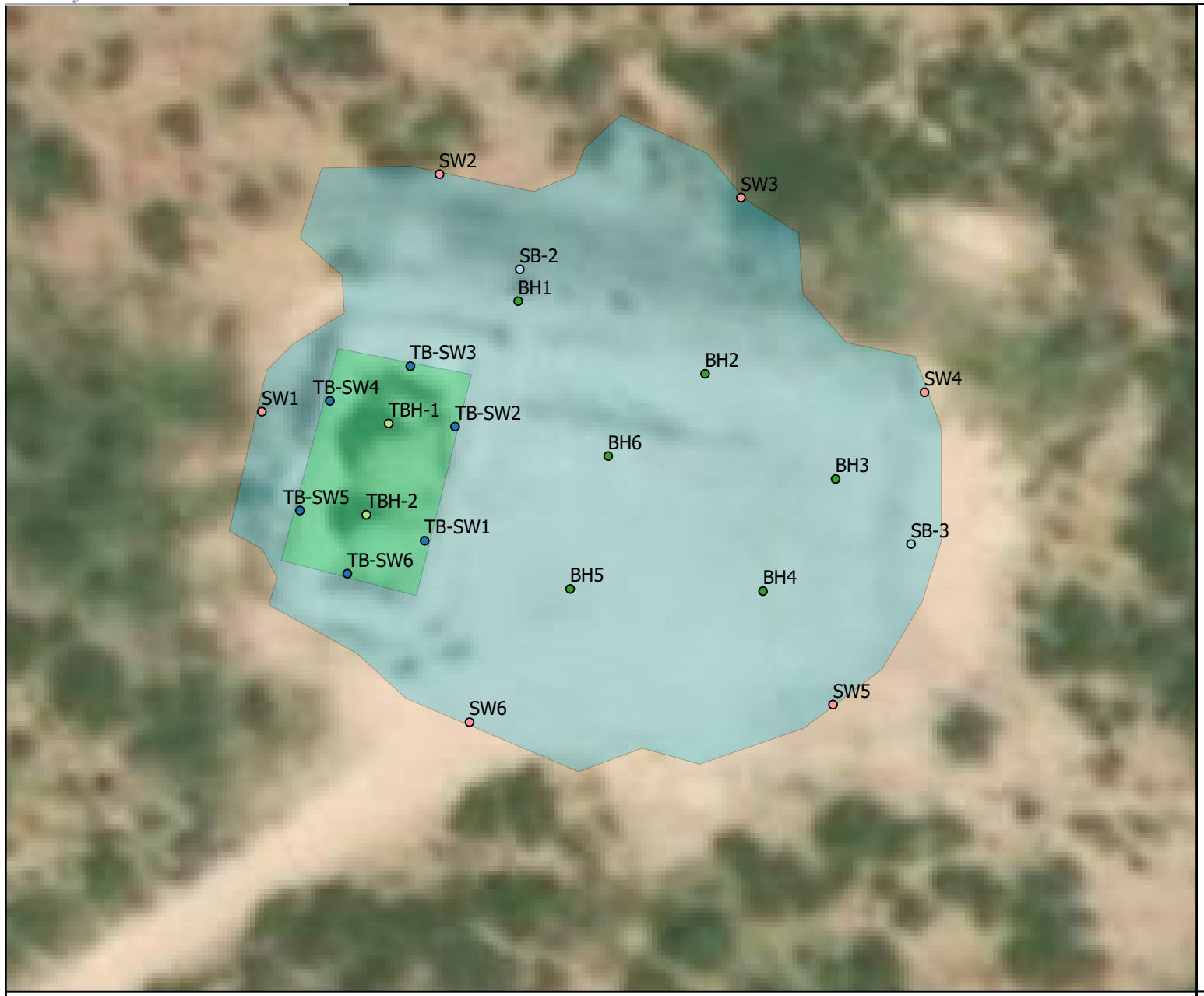

Legend

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

N

0 17.5 35 70

Feet

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

Figure 3

P:\5-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

Date Saved: 10/16/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn *Henryetta Price*
Date 10/16/2019
Checked
Approved

SMA

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

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
Hortizontal 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
Hortizontal 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)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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		

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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?
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

- ☐ 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: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

OCD Only

RECEIVED
By Olivia Yu at 11:48 am, Nov 05, 2018

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	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: _icastro@marathonoil.com_____ Telephone: _____575-988-0561_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

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: ___icastro@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

Revised June 1972

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:
a. Riddle State 1 ¼ NE ¼ NW ¼ NE ¼ 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 is _____ 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 From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2005 SEP 15 AM 11:37

Section 3. RECORD OF CASING

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

Section 4. RECORD OF MUDDING AND CEMENTING

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

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY 339693

Date Received 9-15-05 Quad _____ FWL _____ FSL _____

File No. CP-934 Use OWD Location No. 22S.34E.1.212

Original of Poor Quality

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	Sand
5	15	10	Sand/ caliche
15	25	10	sand/sandstone
25	50	25	sandstone
50	60	10	sandy clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Lee Scarborough
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

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
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

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

State AA #1 SWD (1RP-5257) **PHOTO LOG**

September 13, 2019
Tank Battery with bentonite liner Facing Southeast

September 18, 2019
BH1, SW2, SW3 with bentonite liner Facing West

State AA #1 SWD (1RP-5257) **PHOTO LOG**

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

State AA #1 SWD (1RP-5257) **PHOTO LOG**

September 18, 2019
BH4, BH5, BH6, SW5 & SW6 with bentonite liner facing south

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

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,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909194**
Date Reported: **9/12/2019**

Hall Environmental Analysis Laboratory, Inc.

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 Quanitative 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 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#: **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 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#: **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 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: **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** Leah S Baca

Reviewed By: LB 9/5/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. 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			

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: 5 day
☐ Standard ☐ Rush

Project Name: STATE AA #1

Project #:

Project Manager: Hearyetta Price

Sampler: HAP + MRS

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 2.2-0.3=1.9°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. 1909194-001	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)
9/3/19	0845	Soil	SW1	402		-001							X			
	1000		SW2			-002										
	1010		SW3			-003										
	1020		SW4			-004										
	1030		SW5			-005										
	1512		BH1			-006		X								
	1230		BH2			-007		X								
	1245		BH3			-008		X								
	1235		BH4			-009		X								
	1240		BH6			-010		X								
	1315		SB2 - 21'			-011										
	1445		SB3 - 22'			-012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date Time	Remarks:
9/3	1830	Hearyetta Price				Marathon OR
9/4/19	1900			Courier	9/5/19 9:00	

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
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: 5 day
☐ Standard ☐ Rush
Project Name: State AA #1
Project #:
Project Manager: Hennyetta Price
Sampler: HAZMRS
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp (including CF): 2.2 - 0.3 = 1.9 °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. 1909194	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)
9/3/19	1145		TBH-1	402		-013		X					X			
	1200		TBH-2			-014										
	1205		TB-SW1			-015										
	1210		TB-SW2			-016										
	1215		TB-SW3			-017										
	1217		TB-SW4			-018										
	1222		TB-SW5			-019		↓					↓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9/3/19	1830	Hennyetta Price			9/4/19	0900
9/4/19	1900			Courier	9/5/19	9:00

Remarks: Marathon

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1909858**
Date Reported: **9/20/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909858**
Date Reported: **9/20/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909858**
Date Reported: **9/20/2019**

Hall Environmental Analysis Laboratory, Inc.

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

Analytical Report
Lab Order **1909858**
Date Reported: **9/20/2019**

Hall Environmental Analysis Laboratory, Inc.

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 Quanitative 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 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#: **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 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#: **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 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: **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

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. 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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	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 2 day

Project Name: State AA #1

Project #:

Project Manager: Henryetta Price

Sampler: HAP

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): 1.6 - 0.1 = 01.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1909858	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)						
9/13/19	1445	Soil	SW 3	4oz		-001							X									
↓	0920	↓	BH 5	↓		-002		X					X									
↓	0950	↓	TB-SW6	↓		-003		X					X									
9/16/19	0845	SOIL	SW6	4oz		-004							X									

Date	Time	Relinquished by	Received by	Via	Date	Time
9/16/19	1300	Henryetta Price	[signature]		9/16/19	1400
9/16/19	1910	[signature]	DB	courier	9/17/19	9:00

Remarks: Marathon

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

APPENDIX E - Additional Information Requested by the Division

From: Hamlet, Robert, EMNRD
To: Sanjari, Melodie (MRO)
Cc: Ashley Maxwell; Billings, Bradford, EMNRD; Bratcher, Mike, EMNRD; Nobui, Jennifer, EMNRD; Harimon, Jocelyn, EMNRD
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (1RP-5257) Reply
Date: Wednesday, May 25, 2022 3:00:18 PM
Attachments: image013.png
image014.png

Melodie,

Had a short discussion with Brad Billings about this incident. Soil boring SB1 went to 45' and was left open for 72 hrs. with no trace of groundwater. This would leave at least an 18 feet buffer between the bottom of the chloride contaminant zone and possible groundwater. We are ok with closing this incident under one circumstance. Add a paragraph to the closure report saying that the SB1 borehole was extended down to 45' and no water was found etc.. Also, add to your table at 45' that no sample analysis data was done, only verifying lack of groundwater. It's a little unclear in the report and on the table that the 45 ft. depth was attained on SB1 borehole.. We just need to make sure it gets into the incident file, so it's part of the incident history.

Please load the closure report to the payment portal and I will approve it at that point. Also, email me when you load it on there and I'll fast track the approval.

Thanks,

Robert Hamlet • Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
811 S. First Street | Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Wednesday, May 25, 2022 8:41 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Cc: Ashley Maxwell <ashley.maxwell@soudermiller.com>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@state.nm.us>
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (1RP-5257) Reply

Good Morning All,

The drilling of the confirmation soil boring detailed in section 3.4 of the work plan was a continuation of SB1. 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 in required 10' section. There was also no water present at the depth of 45 feet.

Melodie Sanjari
Environmental Professional
Permian & Oklahoma
575-988-8753

Total Environmental Awareness at Marathon

From: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Sent: Wednesday, May 25, 2022 9:30 AM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Cc: Ashley Maxwell <ashley.maxwell@soudermiller.com>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@state.nm.us>
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (1RP-5257) Reply

Melodie,

How far away from SB1 was the 45 ft. borehole? Was any sample data collected from the borehole? We want to make sure that there is at least 10-15 ft. of clean soil in between the bottom of the contamination zone and groundwater. Right now, chlorides are above the closure standards at 27 ft at SB1. Somewhere between 27' and 30' chlorides meet closure criteria. The sample data cuts off at 40', which puts it right on the cusp of being in that danger zone of 10-15 ft.

Any analytical data from the 45 ft borehole would be helpful in gaining a greater understanding of the site specifics.

Thanks

Robert Hamlet • Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
811 S. First Street | Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Friday, May 20, 2022 10:43 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>
Cc: Ashley Maxwell <ashley.maxwell@soudermiller.com>
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (1RP-5257) Reply

Good Morning All,

I appreciate that you have several incidents on your plates but wanted to loop back on this while it's somewhat fresh in everyone's minds after our meeting last week.

Please advise on portal resubmission and let me know if you have any questions.

Have a great weekend

Melodie Sanjari
Environmental Professional
Permian & Oklahoma

575-988-8753

Total Environmental Awareness at Marathon

From: Sanjari, Melodie (MRO)
Sent: Monday, May 16, 2022 12:51 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>
Cc: Ashley Maxwell <ashley.maxwell@soudermiller.com>
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (1RP-5257) Reply
Importance: High

Good Morning All,

I trust everyone had a great weekend. Wanted to reach out concerning the State AA Incident (1RP-5257) after our meeting last week. I know that we ended the meeting on the agreement of drilling a temporary monitoring well for a depth to groundwater determination but due to a gross oversight on my part – I answered Mr. Billings question incorrectly.

We indeed ***did*** drill monitoring wells during the characterization of the release, not only on the pad itself but both upstream and downstream to confirm that there was separation from the elevated chlorides that were observed during the delineation of SB1 (visual below). The Section 3.4 in the attached approved work plan discusses these test wells in detail (pages 4-5), including no presence of groundwater at 45 feet bgs after a week of recharge and no elevated chlorides noted between 27' bgs and the 45' depth of the well. The wells themselves are CP 01787 Pods 1, 2 and 3, and are detailed in Appendix C of the attached (pages 27-55).

As we have been able to confirm officially that these efforts were taken to show more than 15 feet of separation, I would say that potential impact to groundwater has been addressed – am I correct in my assumption that closure would be granted? I would be happy to resubmit the BTEX data along with the OSE well information to the portal if that helps.

Looking forward to hearing from you all.

Melodie Sanjari
Environmental Professional
Permian & Oklahoma
575-988-8753

Total Environmental Awareness at Marathon

From: Sanjari, Melodie (MRO)
Sent: Wednesday, May 11, 2022 1:54 PM
To: 'Hamlet, Robert, EMNRD' <Robert.Hamlet@state.nm.us>
Cc: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>
Subject: RE: [EXTERNAL] Marathon Oil Company - State AA #1 (2RP-5257) Reply

Afternoon Mr. Hamlet,

Because of a typo in your email and the email of the SMA rep it seems this afternoon's meeting invite at 2pm MTN did not get sent to you both until just now. Are you able to confirm your attendance or shall we re-schedule?

Thanks

Melodie Sanjari
Environmental Professional
Permian & Oklahoma
575-988-8753

FIGURE 4

Project No: 5E27950
Scale: Horiz: 1" = 20' Vert: N/A
Date: May 2019

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

Designed SAH
Drawn DJB
Checked RSA

SOUDER, MILLER & ASSOCIATES
SMA Engineering Environmental Surveying
401 West Broadway Avenue
Farmington, NM 87401-5907
Phone (505) 325-7535 Toll-Free (800) 519-0098 Fax (505) 326-0045
Serving the Southwest & Rocky Mountains
www.soudermiller.com

MARATHON

CARLSBAD, NEW MEXICO

SOIL BORING LOCATIONS AND IMPACTED AREAS
STATE AA #0001 SWD
SECTION 35, T21S, R34E

LEA COUNTY

W:\5-Marathon MSA 2019 (5E27950)\BG11 - State AA #1 SWD\CAD-Figures\5E27950 State AAA#1 SWD.dwg, DJB, 5/23/2019 11:51 AM

Table 5:
Summary of Sample Results

Marathon Oil Permian LLC
State AA #001

Sample ID	Date Sampled	Depth	Chloride mg/kg		GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	
NMOCD Closure Levels			600					100	
			Lab	Field	Lab	Lab	Lab	Lab	Field
BG1 (background)	3/7/2019	5-6	--	131	--	--	--	--	--
	3/7/2019	14-15	<60	163	--	--	--	--	--
SB1	3/7/2019	5	--	2420	--	--	--	--	6297
	3/7/2019	10	--	2430	--	--	--	--	--
	3/7/2019	15	3700	1998	<4.6	<9.3	<47	<60.9	530
	3/7/2019	26-27	--	875	--	--	--	--	--
	3/7/2019	27	1600	856	<4.7	<9.2	<46	<59.9	637
	4/25/2019	30	210	403	--	--	--	--	--
	4/25/2019	35	380	345	--	--	--	--	--
	4/25/2019	40	--	111	--	--	--	--	--
SB2	3/7/2019	4	--	2637	--	--	--	--	624
	3/7/2019	8	--	480	--	--	--	--	526
	3/7/2019	12	730	430	<4.7	<9.8	<49	<63.5	536
SB3	3/7/2019	4	--	169	--	--	--	--	--
	3/7/2019	10	--	481	--	--	--	--	562
	3/7/2019	15	710	469	<4.9	<9.6	<48	<62.5	541
SB5	4/25/2019	20	490	266	--	--	--	--	--
	4/25/2019	30	<30	<60	--	--	--	--	--
	4/25/2019	40	--	<60	--	--	--	--	--

No sample analysis was collected at SB1 at 45 feet but we were able to verify lack of groundwater

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

May 02, 2019

Stephanie Hinds

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

RE: State AA 1 OrderNo.: 1904D42

Dear Stephanie Hinds:

Hall Environmental Analysis Laboratory received 5 sample(s) on 4/27/2019 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,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order: **1904D42**
Date Reported: **5/2/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Lab Order:** 1904D42
Project: State AA 1

Lab ID: 1904D42-001 **Collection Date:** 4/25/2019 11:43:00 AM
Client Sample ID: SB 1-30 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	210	60		mg/Kg	20	5/1/2019 2:05:17 PM	44638

Lab ID: 1904D42-002 **Collection Date:** 4/25/2019
Client Sample ID: SB 1-35 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	380	60		mg/Kg	20	5/1/2019 2:17:41 PM	44638

Lab ID: 1904D42-003 **Collection Date:** 4/25/2019 1:47:00 PM
Client Sample ID: SB 5-20 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	490	60		mg/Kg	20	5/1/2019 2:30:05 PM	44638

Lab ID: 1904D42-004 **Collection Date:** 4/25/2019
Client Sample ID: SB 5-30 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/1/2019 2:42:29 PM	44638

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904D42**

02-May-19

Client: Souder, Miller & Associates

Project: State AA 1

Sample ID: **MB-44638**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **44638**	RunNo: **59556**							
Prep Date: **5/1/2019**	Analysis Date: **5/1/2019**	SeqNo: **2007895**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-44638**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **44638**	RunNo: **59556**							
Prep Date: **5/1/2019**	Analysis Date: **5/1/2019**	SeqNo: **2007896**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.8	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

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: **1904D42** RcptNo: **1**

Received By: **Erin Melendrez** **4/27/2019 9:15:00 AM**

Completed By: **Erin Melendrez** **4/27/2019 11:26:31 AM**

Reviewed By: LB 4/29/19

LB: IO 4/29/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preserved 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 ☑

IO 4/29/19

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

Adjusted?

Checked by:

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 ☐

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	1.6	Good	Yes			

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: State AA #1

Project #:

Project Manager: S. Hinds

Sampler: JVH

On Ice: ☒ Yes ☐ No

# of Coolers: 1 (CF = -0.4)

Cooler Temp(including CF): 1.6°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. 1904D42	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)
4-25-19	11:43	soil	SB1-30	4oz		-001							X			
	11:54		SB1-35			-002							X			
	12:06		SB1-40			-005	Please hold									
	1:47		SB5-20			-003							X			
	2:00		SB5-30			-004							X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/26/19	1400	Samantha Watson			4/26/19	1000
4/26/19	1900			Courier	4/27/19	0915

Remarks: Marathon

* SB1-40 please hold - may test further after results *

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.

NMOSE WELL DRILLING PERMITS

WR-07, WD-08, AND WD-11

John R. D Antonio, Jr., P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

Trn Nbr: 645764
File Nbr: CP 01787

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Apr. 16, 2019

MARATHON OIL COMPANY
C/O STEPHANIE HINDS
SOUDER MILLER & ASSOCIATES
401 W BROADWAY
FARMINGTON, NM 87401

Greetings:

Your approved copy of the above numbered permit to drill a well for non-consumptive purposes is enclosed. You must obtain an additional permit if you intend to use the water. It is your responsibility to provide the contracted well driller with a copy of the permit that must be made available during well drilling activities.

Carefully review the attached conditions of approval for all specific permit requirements.

* If use of this well is temporary in nature and the well will be plugged at the end of the well usage, the OSE must initially approve of the plugging. If plugging approval is not conditioned in this permit, the applicant must submit a Plugging Plan of Operations for approval prior to the well being plugged. The Plugging Record must be properly completed and submitted to the OSE within 30 days of the well plugging.

* If the final intended purpose and condition requires a well ID tag and meter installation, the applicant must immediately send a completed meter report form to this office.

* The well record and log must be submitted within 30 days of the completion of the well or if the attempt was a dry hole.

* This permit expires and will be cancelled if no well is drilled and/or a well log is not received by the date set forth in the conditions of approval.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us.

Sincerely,

Claudia Cuillen
(575)622-6521

Enclosure

explore

File No. CP-1787

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐ Pollution Control And/Or Recovery	☐ Ground Source Heat Pump
☒ Exploratory Well (Pump test)	☐ Construction Site/Public Works Dewatering	☐ Other(Describe):
☐ Monitoring Well	☐ Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

☐ Temporary Request - Requested Start Date: Requested End Date:

Plugging Plan of Operations Submitted? ☒ Yes ☐ No

1. APPLICANT(S)

Name: Souder, Miller & Associates on behalf of Marathon Oil Company	Name:
Contact or Agent: check here if Agent ☒ Stephanie Hinds	Contact or Agent: check here if Agent ☐
Mailing Address: 401 W. Broadway	Mailing Address:
City: Farmington	City:
State: NM Zip Code: 87401	State: Zip Code:
Phone: 505-325-7535 ☒ Home ☐ Cell Phone (Work):	Phone: ☐ Home ☐ Cell Phone (Work):
E-mail (optional): stephanie.hinds@soudermiller.com	E-mail (optional):

2019 APR -8 AM 9:15
STATE ENGINEER OFFICE ROSWELL, NEW MEXICO

FOR OSE INTERNAL USE Application for Permit, Form WR-07, Rev 11/17/16

File No.: CP-1787	Trn. No.: 645764	Receipt No.: 2-40646
Trans Description (optional): Expl		
Sub-Basin: CP	PCW/LOG Due Date:	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

■ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range*) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
Well 1	103°26'6.09"W	32°26'2.73"N	NE1/4 SE1/4 of T21S, R34E, S35
Well 2	103°26'4.16"W	32°26'1.03"N	NE1/4 SE1/4 of T21S, R34E, S35
Well 3	103°26'2.50"W	32°26'0.43"N	NE1/4 SE1/4 of T21S, R34E, S35

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ **Yes** ■ **No** **If yes, how many**_____

Other description relating well to common landmarks, streets, or other:
Located near State AA #1 SWD, API 30-025-02605

Well is on land owned by: State or Private - Merchant Livestock LLC

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ☐ **Yes** ■ **No**
If yes, how many_____

Approximate depth of well (feet): 45	Outside diameter of well casing (inches): 2 inch
Driller Name: HRL COMPLIANCE SOLUTIONS, INC	Driller License Number: 1789

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Soil borings will be drilled for investigative purposes, which is to delineate the vertical extent of chloride contamination due to a produced water release at the State AA #1 SWD. Groundwater may be as shallow as 30 feet. Temporary wells will be installed if contamination is shown to extend to groundwater. If chloride contamination cleans up prior to reaching groundwater, then no wells will be installed.

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory:	**Pollution Control and/or Recovery:**	**Construction De-Watering:**	**Mine De-Watering:**
☒ Include a description of any proposed pump test, if applicable.	☐ Include a plan for pollution control/recovery, that includes the following. ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	☐ Include a plan for pollution control/recovery, that includes the following. ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ☐ Include the reason for the monitoring well, and, ☐ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☐ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Stephanie Hinds
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Applicant Signature

Applicant Signature

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2019 APR -3 AM 9:15

ACTION OF THE STATE ENGINEER

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 16th day of APRIL 20 19, for the State Engineer.

JOHN R. D'ANTONIO JR., P.E., State Engineer

By: Signature JUAN HERNANDEZ Print

Title: WATER RESOURCES MANAGER I
Print

SEAL OF THE STATE OF NEW MEXICO · GREAT SEAL · 1912

FOR OSE INTERNAL USE — Application for Permit, Form WR-07

File No.:	Trn No.:

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

17-1B Depth of the well shall not exceed the thickness of the Ogallala formation.

17-4 No water shall be appropriated and beneficially used under this permit.

17-6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging.

17-7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

Trn Desc: CP 01787 POD1-POD3

File Number: CP 01787
Trn Number: 645764

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.

17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record.
The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.

17-C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, and well shall be plugged or capped on or before , unless a permit to use water from this well is acquired from the Office of the State Engineer.

17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.

17-Q The State Engineer retains jurisdiction over this permit.

17-R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

LOG The Point of Diversion CP 01787 POD1 must be completed and the Well Log filed on or before 04/15/2020.

LOG The Point of Diversion CP 01787 POD2 must be completed and the Well Log filed on or before 04/15/2020.

LOG The Point of Diversion CP 01787 POD3 must be completed and the Well Log filed on or before 04/15/2020.

IT IS THE PERMITTEE'S RESPONSIBILITY O OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 04/08/2019	Pub. of Notice Ordered:
Date Returned - Correction:	Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

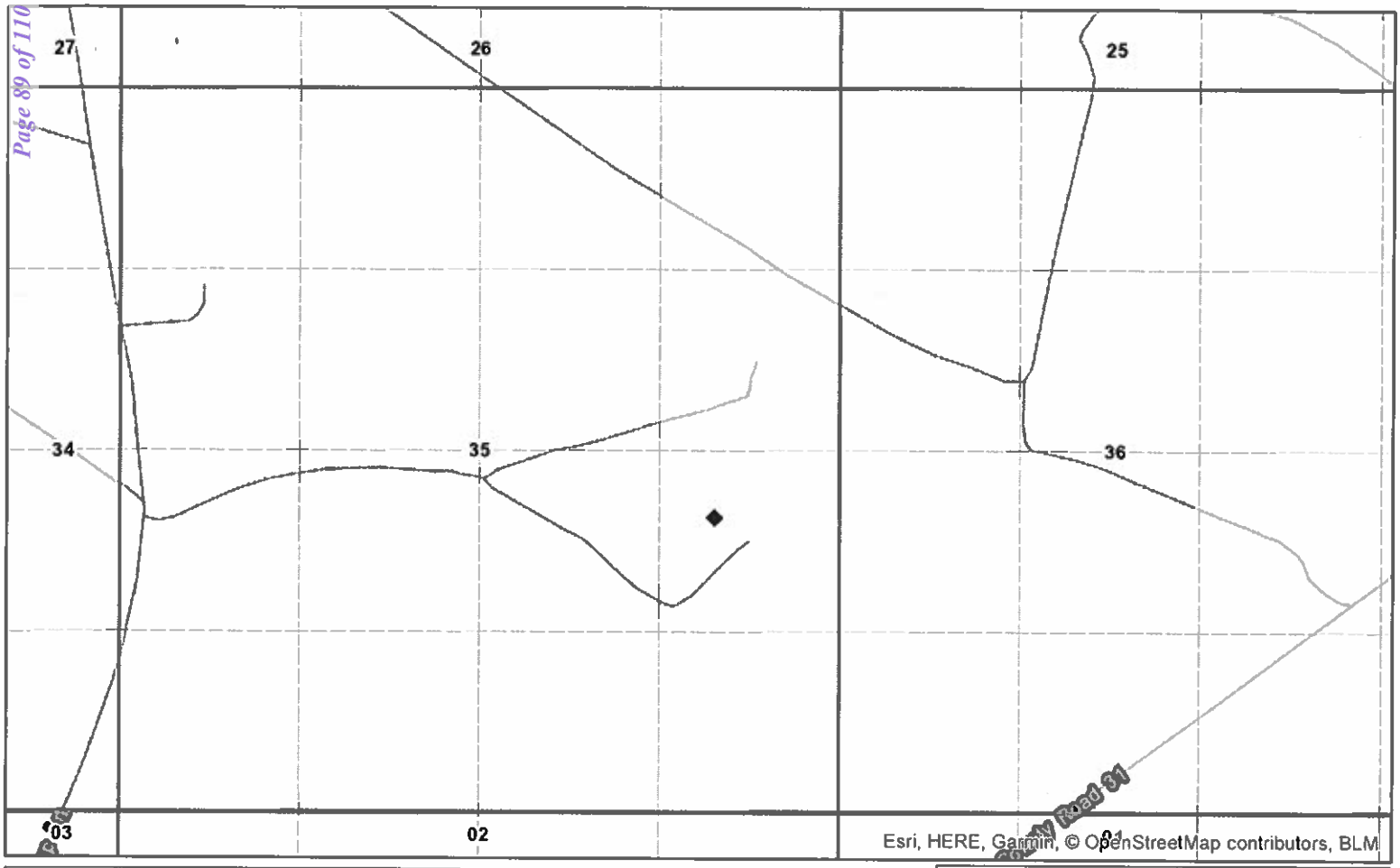
Witness my ~~hand and~~ seal this 16 day of Apr A.D., 2019

John R. D Antonio, Jr., P.E. , State Engineer

By: _____
JUAN HERNANDEZ

Trn Desc: CP 01787 POD1-POD3

File Number: CP 01787
Trn Number: 645764



Coordinates

UTM - NAD 83 (m) - Zone 13

Easting 647128.272

Northing 3589630.366

State Plane - NAD 83 (f) - Zone E

Easting 818490.111

Northing 522817.014

Degrees Minutes Seconds

Latitude 32 : 26 : 2.730000

Longitude -103 : 26 : 6.090000

Location pulled from Coordinate Search

NEW MEXICO OFFICE OF THE STATE ENGINEER

1:18,056

mi

0 0.05 0.1 0.2

N

GUILLEN 4/16/2019

Spatial Information

County: Lea

Groundwater Basin: Capitan

Abstract Area:Capitan-CP

Land Grant:
Not in Land Grant

Restrictions:

NA

PLSS Description

SENWNESE Qtr of Sec 35 of 021S 034E

Derived from CADNSDI- Qtr Sec. locations are calculated and are only approximations

Parcel Information

UPC/DocNum:

Parcel Owner:

Address:

Legal:

POD Information

Owner: SOUDER, MILLER & ASSOCIATES

File Number: CP-1787 POD1

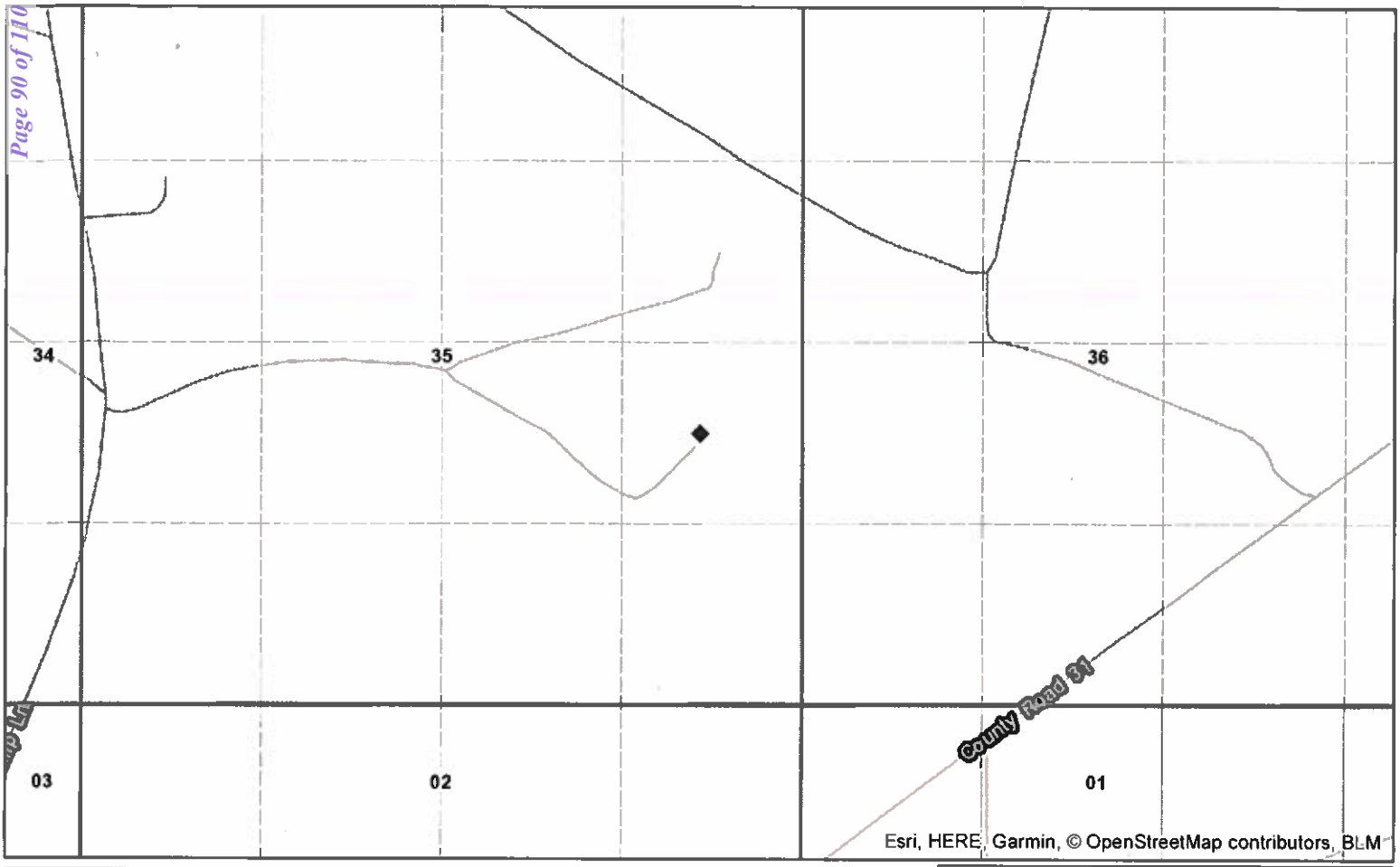
POD Status: NoData

Permit Status: NoData

Permit Use: NoData

Purpose: EXPL

- Coord Search Location
- WRAB Abstract Project Areas
- BLM Land Grant
- PLSSTownship
- PLSSFirstDiv...
- PLSSSecond...



Coordinates

UTM - NAD 83 (m) - Zone 13

Easting 647179.446

Northing 3589578.751

State Plane - NAD 83 (f) - Zone E

Easting 818656.965

Northing 522646.605

Degrees Minutes Seconds

Latitude 32 : 26 : 1.030000

Longitude -103 : 26 : 4.160000

Location pulled from Coordinate Search

NEW MEXICO OFFICE OF THE STATE ENGINEER

1:18,056

mi

0 0.05 0.1 0.2

N

GUILLEN 4/16/2019

Spatial Information

County: Lea

Groundwater Basin: Capitan

Abstract Area:Capitan-CP

Land Grant:
Not in Land Grant

Restrictions:

NA

PLSS Description

NESWNESE Qtr of Sec 35 of 021S 034E

Derived from CADNSDI- Qtr Sec. locations are calculated and are only approximations

Parcel Information

UPC/DocNum:

Parcel Owner:

Address:

Legal:

POD Information

Owner: SOUDER, MILLER & ASSOCIATES

File Number: CP-1787 POD2

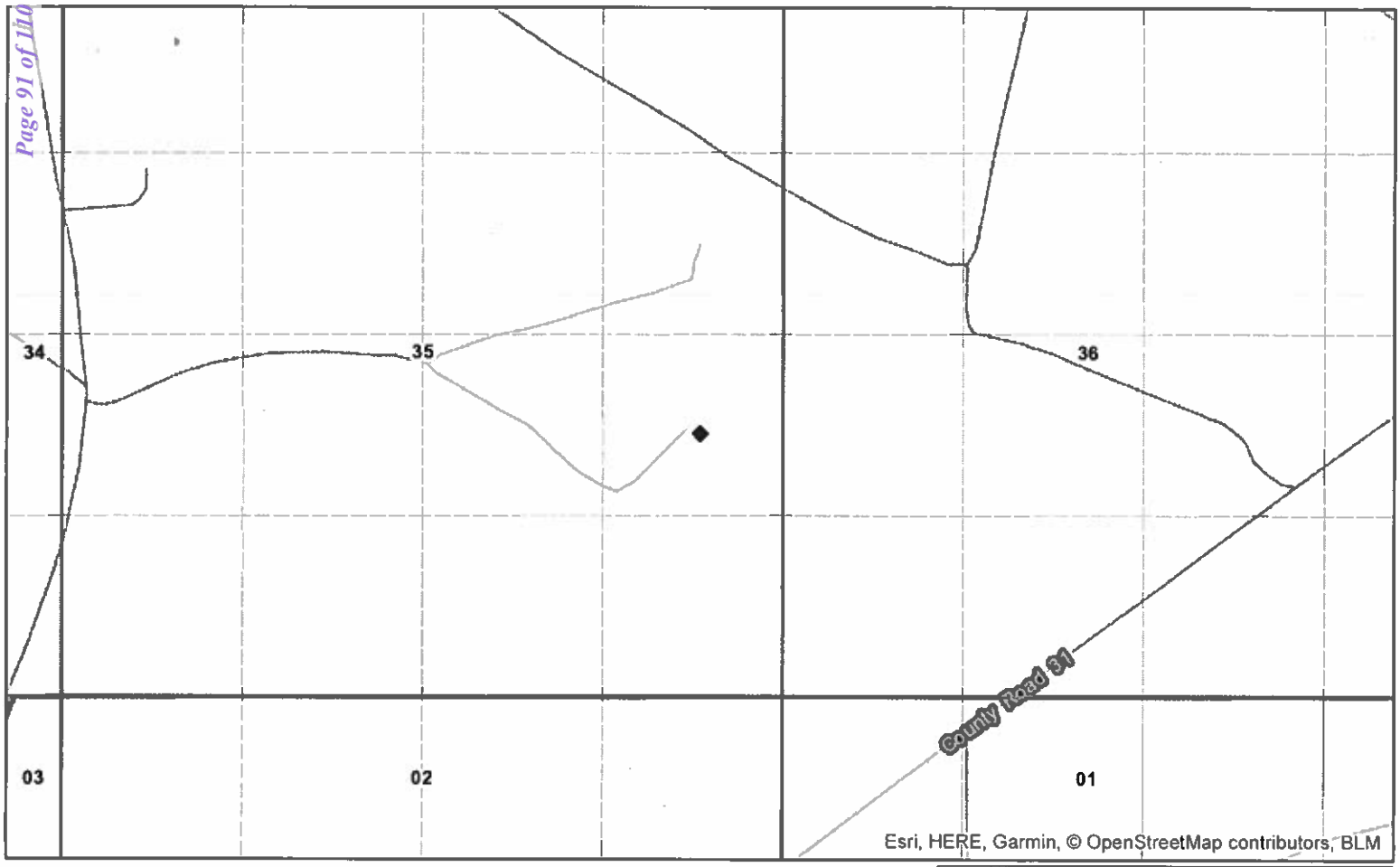
POD Status: NoData

Permit Status: NoData

Permit Use: NoData

Purpose: EXPL

- Coord Search Location
- WRAB Abstract Project Areas
- BLM Land Grant
- PLSSTownship
- PLSSFirstDiv...
- PLSSSecond...



Coordinates

UTM - NAD 83 (m) - Zone 13

Easting 647223.072

Northing 3589560.908

State Plane - NAD 83 (f) - Zone E

Easting 818799.745

Northing 522587.167

Degrees Minutes Seconds

Latitude 32 : 26 : 0.430000

Longitude -103 : 26 : 2.500000

Location pulled from Coordinate Search

NEW MEXICO OFFICE OF THE STATE ENGINEER

1:18,056

mi

0 0.05 0.1 0.2

N

GUILLEN 4/16/2019

Office of the State Engineer

Interstate Stream Commission

Spatial Information

County: Lea

Groundwater Basin: Capitan

Abstract Area:Capitan-CP

Land Grant:
Not in Land Grant

Restrictions:

NA

PLSS Description

NWSENESE Qtr of Sec 35 of 021S 034E

Derived from CADNSDI- Qtr Sec. locations are calculated and are only approximations

Parcel Information

UPC/DocNum:

Parcel Owner:

Address:

Legal:

POD Information

Owner: SOUDER, MILLER & ASSOCIATES

File Number: CP-1787 POD3

POD Status: NoData

Permit Status: NoData

Permit Use: NoData

Purpose: EXPL

- Coord Search Location
- WRAB Abstract Project Areas
- BLM Land Grant
- PLSSTownship
- PLSSFirstDiv...
- PLSSSecond...

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

John D' Antonio, P.E.
State Engineer

District II
1900 West Second St.
Roswell, New Mexico 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

April 11, 2019

Marathon Oil Company
c/o Souder, Miller & Associates
401 West Broadway
Farmington, NM 87401

RE: *Well Plugging Plan of Operations* (CP-1787 POD1-POD3)

Greetings:
Attached is your copy of the Well Plugging Plan of Operations for the above described project.

The proposed method of operations for the subject coreholes is found to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted June 30, 2017 by the State Engineer subject to the following:

The applicant states the coreholes are not anticipated to encounter groundwater. Should the coreholes be dry to total depth, the applicant, may apply clean native fill to 10 feet bgs followed by a 10 ft seal to ground surface. The applicant may use bentonite pellets in lieu of cuttings if desired.

Should groundwater be encountered, direct pour of pellets may be conducted provided the applicant apply the sealant in lifts, maintain a record of the amount applied, anticipated tag and actual tag. The pellets should be hydrated in lifts according to manugaturer's instructions.

Sincerely,

Alvaro Alvarado
Water Resources Manager I
Cc Santa Fe

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: Well 1 cp 1787 POD1

Name of well owner: Souder, Miller & Associates, agent for Marathon Oil Company

Mailing address: 401 W. Broadway

City: Farmington State: NM Zip code: 87401

Phone number: 505-325-7535 E-mail: stephanie.hinds@soudermiller.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: HRL Compliance Solutions, Inc.

New Mexico Well Driller License No.: 1789 Expiration Date: 12/20/2020

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2019 APR -3 AM 9:16

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 32 deg, 26 min, 2.73 sec
Longitude: 103 deg, 26 min, 6.09 sec, WGS84
☐ Check if seconds are decimal format.

2) Reason(s) for plugging well:

Well is intended only for temporary investigative purposes; no monitoring is planned at this time. Boring will be drilled into groundwater (only if contamination is shown to extend to groundwater), at which point it will be sampled for lab analysis. The well will then be backfilled with drill cuttings.

3) Was well used for any type of monitoring program? No If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? unknown If yes, provide additional detail, including analytical results and/or laboratory report(s):

Analytical results will be provided.

5) Static water level: unknown feet below land surface / feet above land surface (circle one)

6) Depth of the well: ~45 feet

7) Inside diameter of innermost casing: 2 inches.

8) Casing material: PVC

9) The well was constructed with:

☐ an open-hole production interval, state the open interval: _____

☒ a well screen or perforated pipe, state the screened interval(s): ~5-10 feet of 0.010" slotted screen

10) What annular interval surrounding the artesian casing of this well is cement-grouted? N/A

11) Was the well built with surface casing? no If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? N/A If yes, please describe:

12) Has all pumping equipment and associated piping been removed from the well? yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

Well will be plugged using drill cuttings from the bore hole from total depth to ground surface.

2) Will well head be cut-off below land surface after plugging? N/A

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: N/A

4) Type of Cement proposed: N/A

5) Proposed cement grout mix: N/A gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: N/A batch-mixed and delivered to the site

N/A mixed on site

7) Grout additives requested, and percent by dry weight relative to cement:

N/A

8) Additional notes and calculations:

N/A

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

If there is a possibility of soil contamination extending into groundwater, then a temporary well will be placed. Upon reaching groundwater, a temporary screen will be placed, and a groundwater sample will be collected. After groundwater sample has been collected, the temporary well will be backfilled with drill cuttings from total depth up to ground surface.

VIII. SIGNATURE:

I, Stephanie Hinds, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Stephanie Hinds — Signature of Applicant

4/8/2019 — Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

✓ Approved subject to the attached conditions.

_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11 day of APRIL, 2019

Tom Blaine P.E., New Mexico State Engineer

By: Ean Avor Morley

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2019 APR -8 AM 9:16

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			
Bottom of proposed interval of grout placement (ft bgl)			
Theoretical volume of grout required per interval (gallons)			
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			
Mixed on-site or batch-mixed and delivered?			
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

John D' Antonio, P.E.
State Engineer

District II
1900 West Second St.
Roswell, New Mexico 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

April 11, 2019

Marathon Oil Company
c/o Souder, Miller & Associates
401 West Broadway
Farmington, NM 87401

RE: *Well Plugging Plan of Operations* (CP-1787 POD1-POD3)

Greetings:
Attached is your copy of the Well Plugging Plan of Operations for the above described project.

The proposed method of operations for the subject coreholes is found to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted June 30, 2017 by the State Engineer subject to the following:

The applicant states the coreholes are not anticipated to encounter groundwater. Should the coreholes be dry to total depth, the applicant, may apply clean native fill to 10 feet bgs followed by a 10 ft seal to ground surface. The applicant may use bentonite pellets in lieu of cuttings if desired.

Should groundwater be encountered, direct pour of pellets may be conducted provided the applicant apply the sealant in lifts, maintain a record of the amount applied, anticipated tag and actual tag. The pellets should be hydrated in lifts according to manugaturer's instructions.

Sincerely,

Alvaro Alvarado
Water Resources Manager I
Cc Santa Fe

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: Well 2 CP-1787 POD2

Name of well owner: Souder, Miller & Associates, agent for Marathon Oil Company

Mailing address: 401 W. Broadway

City: Farmington State: NM Zip code: 87401

Phone number: 505-325-7535 E-mail: stephanie.hinds@soudermiller.com

2019 APR -8 AM 9:16
STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: HRL Compliance Solutions, Inc.

New Mexico Well Driller License No.: 1789 Expiration Date: 12/20/2020

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 32 deg, 26 min, 1.03 sec
Longitude: 103 deg, 26 min, 4.16 sec, WGS84
☐ Check if seconds are decimal format.

2) Reason(s) for plugging well:

Well is intended only for temporary investigative purposes; no monitoring is planned at this time. Boring will be drilled into groundwater (only if contamination is shown to extend to groundwater), at which point it will be sampled for lab analysis. The well will then be backfilled with drill cuttings.

3) Was well used for any type of monitoring program? No If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? unknown If yes, provide additional detail, including analytical results and/or laboratory report(s):

Analytical results will be provided.

5) Static water level: unknown feet below land surface / feet above land surface (circle one)

6) Depth of the well: ~45 feet

7) Inside diameter of innermost casing: 2 inches.

8) Casing material: PVC

9) The well was constructed with:

☐ an open-hole production interval, state the open interval: _____

☒ a well screen or perforated pipe, state the screened interval(s): ~5-10 feet of 0.010" slotted screen

10) What annular interval surrounding the artesian casing of this well is cement-grouted? N/A

11) Was the well built with surface casing? no If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? N/A If yes, please describe:

12) Has all pumping equipment and associated piping been removed from the well? yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

Well will be plugged using drill cuttings from the bore hole from total depth to ground surface.

2) Will well head be cut-off below land surface after plugging? N/A

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: N/A

4) Type of Cement proposed: N/A

5) Proposed cement grout mix: N/A gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: N/A batch-mixed and delivered to the site

N/A mixed on site

7) Grout additives requested, and percent by dry weight relative to cement:

N/A

8) Additional notes and calculations:

N/A

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

If there is a possibility of soil contamination extending into groundwater, then a temporary well will be placed. Upon reaching groundwater, a temporary screen will be placed, and a groundwater sample will be collected. After groundwater sample has been collected, the temporary well will be backfilled with drill cuttings from total depth up to ground surface.

VIII. SIGNATURE:

I, Stephanie Hinds, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Stephanie Hinds — Signature of Applicant

4/8/2019 — Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

✓ Approved subject to the attached conditions.

_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11 day of April, 2019

Tom Blaine P.E., New Mexico State Engineer

By: Tom Blaine

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2019 APR -8 AM 9:16

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			
Bottom of proposed interval of grout placement (ft bgl)			
Theoretical volume of grout required per interval (gallons)			
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			
Mixed on-site or batch-mixed and delivered?			
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

John D' Antonio, P.E.
State Engineer

District II
1900 West Second St.
Roswell, New Mexico 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

April 11, 2019

Marathon Oil Company
c/o Souder, Miller & Associates
401 West Broadway
Farmington, NM 87401

RE: *Well Plugging Plan of Operations* (CP-1787 POD1-POD3)

Greetings:
Attached is your copy of the Well Plugging Plan of Operations for the above described project.

The proposed method of operations for the subject coreholes is found to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted June 30, 2017 by the State Engineer subject to the following:

The applicant states the coreholes are not anticipated to encounter groundwater. Should the coreholes be dry to total depth, the applicant, may apply clean native fill to 10 feet bgs followed by a 10 ft seal to ground surface. The applicant may use bentonite pellets in lieu of cuttings if desired.

Should groundwater be encountered, direct pour of pellets may be conducted provided the applicant apply the sealant in lifts, maintain a record of the amount applied, anticipated tag and actual tag. The pellets should be hydrated in lifts according to manugaturer's instructions.

Sincerely,

Alvaro Alvarado
Water Resources Manager I
Cc Santa Fe

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: Well 3 cp-1787 POD3

Name of well owner: Souder, Miller & Associates, agent for Marathon Oil Company

Mailing address: 401 W. Broadway

City: Farmington State: NM Zip code: 87401

Phone number: 505-325-7535 E-mail: stephanie.hinds@soudermiller.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: HRL Compliance Solutions, Inc.

New Mexico Well Driller License No.: 1789 Expiration Date: 12/20/2020

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IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 32 deg, 26 min, 0.43 sec
Longitude: 103 deg, 26 min, 2.50 sec, WGS84
☐ Check if seconds are decimal format.

2) Reason(s) for plugging well:

Well is intended only for temporary investigative purposes; no monitoring is planned at this time. Boring will be drilled into groundwater (only if contamination is shown to extend to groundwater), at which point it will be sampled for lab analysis. The well will then be backfilled with drill cuttings.

3) Was well used for any type of monitoring program? No If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? unknown If yes, provide additional detail, including analytical results and/or laboratory report(s):

Analytical results will be provided.

5) Static water level: unknown feet below land surface / feet above land surface (circle one)

6) Depth of the well: ~45 feet

7) Inside diameter of innermost casing: 2 inches.

8) Casing material: PVC

9) The well was constructed with:

☐ an open-hole production interval, state the open interval: _____

☒ a well screen or perforated pipe, state the screened interval(s): ~5-10 feet of 0.010" slotted screen

10) What annular interval surrounding the artesian casing of this well is cement-grouted? N/A

11) Was the well built with surface casing? no If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? N/A If yes, please describe:

12) Has all pumping equipment and associated piping been removed from the well? yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

Well will be plugged using drill cuttings from the bore hole from total depth to ground surface.

2) Will well head be cut-off below land surface after plugging? N/A

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: N/A

4) Type of Cement proposed: N/A

5) Proposed cement grout mix: N/A gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: N/A batch-mixed and delivered to the site

N/A mixed on site

7) Grout additives requested, and percent by dry weight relative to cement:

N/A

8) Additional notes and calculations:

N/A

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

If there is a possibility of soil contamination extending into groundwater, then a temporary well will be placed. Upon reaching groundwater, a temporary screen will be placed, and a groundwater sample will be collected. After groundwater sample has been collected, the temporary well will be backfilled with drill cuttings from total depth up to ground surface.

VIII. SIGNATURE:

I, Stephanie Hinds, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Stephanie Hinds — Signature of Applicant

4/8/2019 — Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

✓ Approved subject to the attached conditions.

_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11 day of April, 2019

Tom Blaine P.E., New Mexico State Engineer

By: For Adrian Morley

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TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			
Bottom of proposed interval of grout placement (ft bgl)			
Theoretical volume of grout required per interval (gallons)			
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			
Mixed on-site or batch-mixed and delivered?			
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

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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 110636

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 110636
	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 #NOY1830941911 MARATHON STATE AA #1 SWD, thank you. This closure is approved.	5/26/2022