Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220

September 13, 2019

#5E27950-BG5

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

SUBJECT: Remediation Closure Report for the Mohawk State #1 Release (2RP-5248), Chavez County, New Mexico

Dear Mr. Bratcher:

On behalf of Marathon Oil Permian LLC, Souder, Miller & Associates (SMA) has prepared this Remediation Closure Report that describes the delineation and remediation for a release of liquids related to oil and gas production activities at the Mohawk State #1 site. The site is in Unit P, Section 20, Township 08S, Range 33E, Chavez County, New Mexico, on State land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1, summarizes information regarding the release.

Table 1: Release Information and Closure Criteria			
Name	Mohawk State #1	Company	Marathon Oil Permian LLC
API Number	30-005-29108	Location	33.6002° -103.58209°
Incident Number	2RP-5248		
Estimated Date of Release	February 2, 2019	Date Reported to NMOCD	February 7, 2019
Land Owner	State	Reported To	NMOCD, NMSLO
Source of Release	Line leak		
Released Volume	9.34 bbl	Released Material	Produced Water
Recovered Volume	8 bbl	Net Release	1.34 bbl
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	April 19, July 11-17, 2019		

096X5-190916-C-1410

1.0 Background

On February 6, 2019, a release was discovered at the Mohawk State #1 site due to a leak on a line connecting the heater treater to the tank. Initial response activities were conducted by Marathon, and included source elimination and hydrovac activities, which recovered approximately 8 barrels of fluid. Fluids were contained within the earthen berm. 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 Mohawk State #1 is located approximately 55 miles east of Roswell, New Mexico on State land at an elevation of approximately 4,389 feet above mean sea level (amsl).

Based upon USGS water well data (Appendix B), depth to groundwater in the area is estimated to be 132 feet below grade surface (bgs). There are no known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 4/30/2019). The nearest significant watercourse is an unnamed playa located approximately 1,530 feet to the west. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for groundwater depth of greater than 100 feet bgs. Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

On April 19, 2019, SMA personnel arrived on site in response to the release associated with Mohawk State #1. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a calibrated MiniRAE 2000 photoionization detector (PID).

A total of four (4) sample locations (L1-L4) were investigated using a hand-auger, to depths up to one (1) foot bgs. A total of six (6) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Table 3 itemizes the samples and locations for all samples are depicted on Figure 3.

Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

As summarized in Table 3, results indicate that an area approximately thirty-three (33) feet by fifteen (15) feet by one (1) foot deep had been impacted.

4.0 Soil Remediation Summary

In the Remediation Plan submitted on May 06, 2019, SMA proposed the impacted area would be excavated to approximately one (1) foot bgs. Due to the lack of response and minor affected area, SMA proceeded with remediation activities.

From July 11-17, 2019, SMA returned to the site to guide 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 walls and base were excavated until field screening results indicated that the NMOCD Closure Criteria would be met. NMOCD was notified on July 9, 2019 that closure samples were expected to be collected in two (2) business days.

On July 12, 2019, collected a confirmation sample from the eastern base of the one-foot deep excavation, in the area of sample L2. On July 17 2019, SMA returned to the location to collect confirmation samples from the western portion of the excavation (L3), from the northern sidewall (CSW2), and the southern sidewall (CSW1), which abutted the production tank. The final excavation measured 25 feet by 11 feet and was approximately one foot deep (275 cubic feet total).

A total of four (4) confirmation samples were collected for analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

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

Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at 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 Scientist

Reviewed by:

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

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

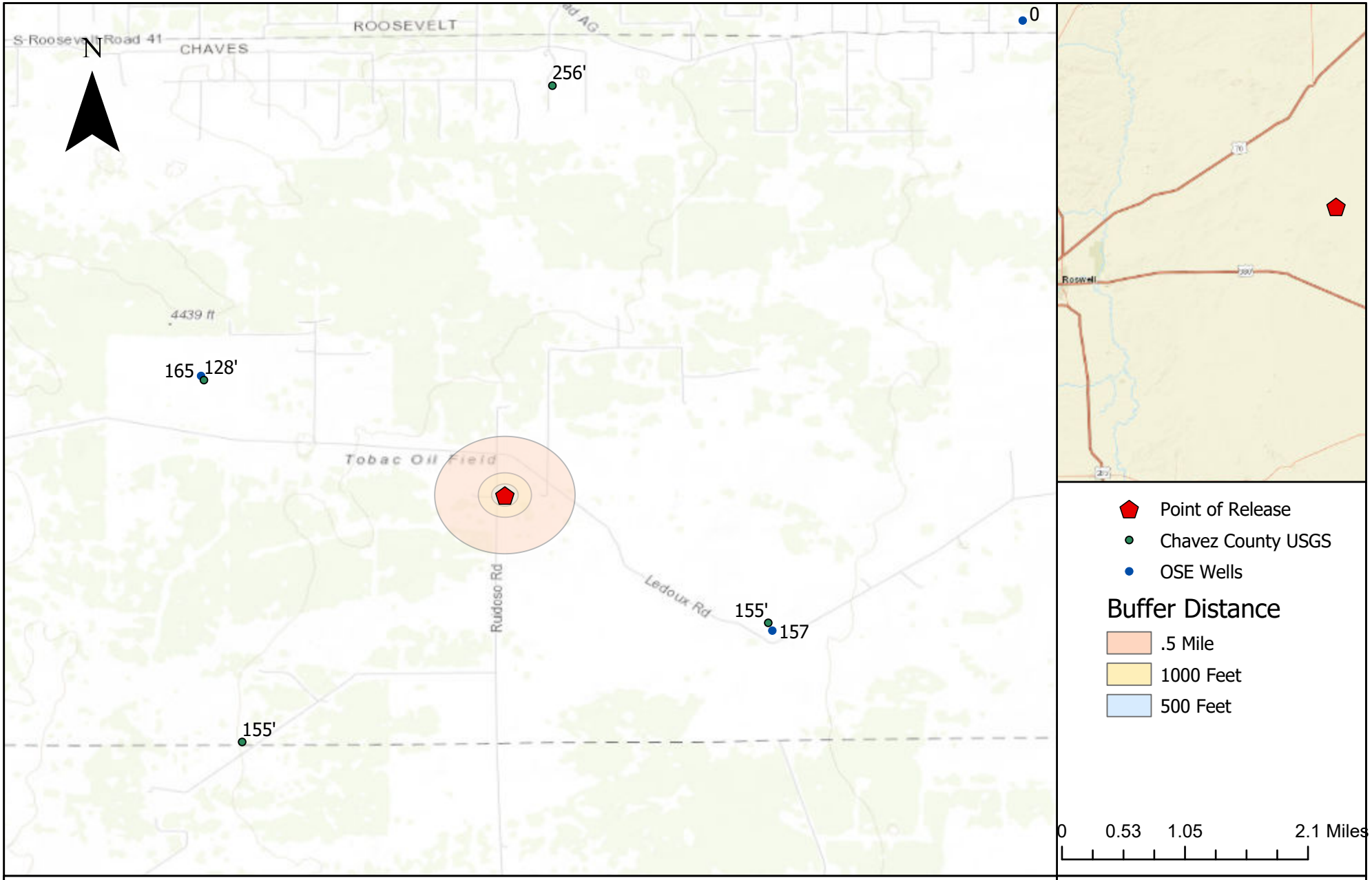
Tables:

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

Appendices:

Appendix A: Form C141
Appendix B: Water Well Data
Appendix C: Photo Log
Appendix D: Laboratory Analytical Reports

FIGURES



Regional Vicinity & Wellhead Protection Map
Mohawk State #1- Marathon
Sec 20 T8S R33E, New Mexico

Figure 1

\\CBO10\Projects\5-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

Date Saved: 4/10/2019

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

Drawn Heather Patterson
Date 4/10/2019
Checked
Approved

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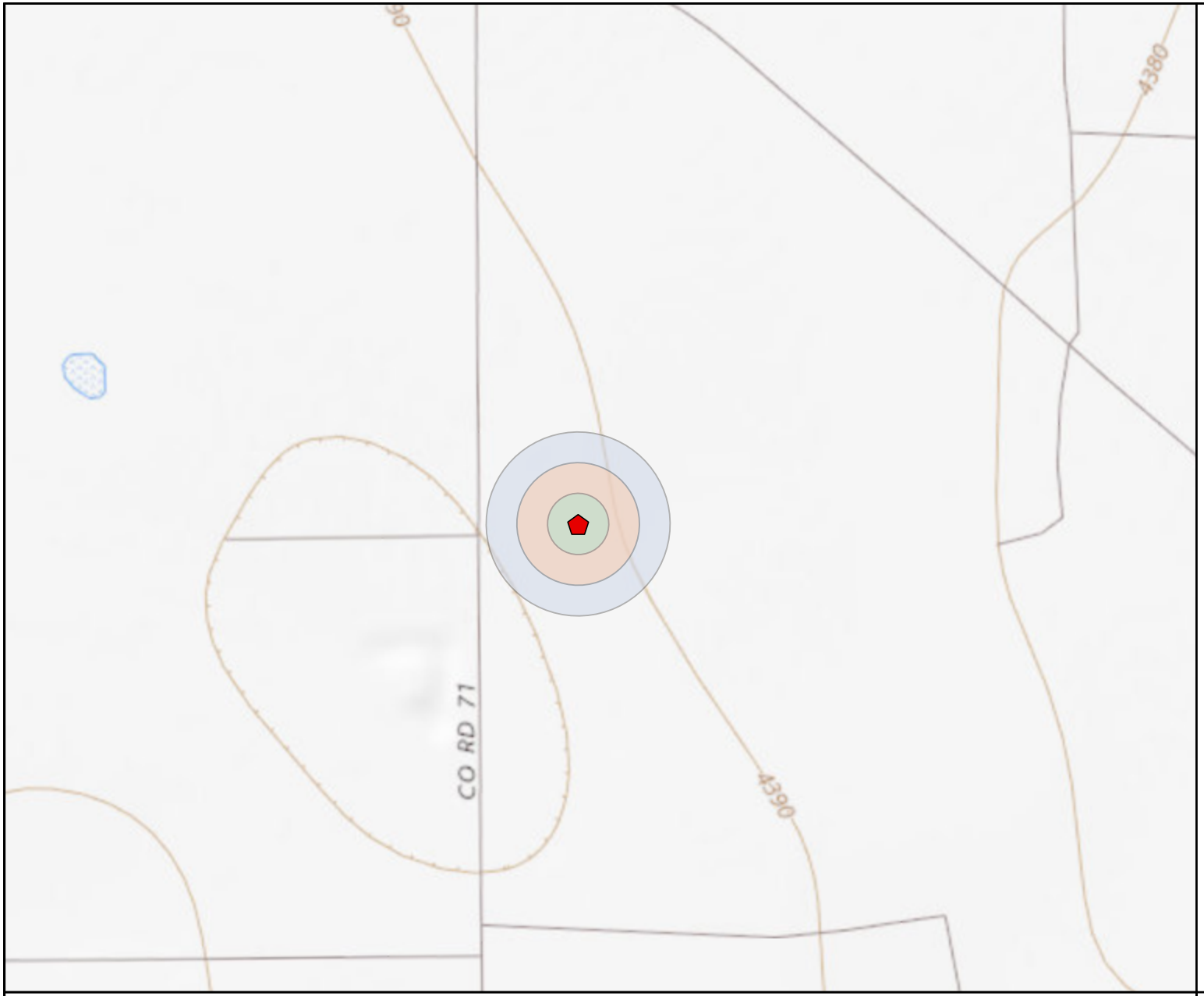

Legend

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

Buffer Distance

- 100 Feet
- 200 Feet
- 300 Feet

N

0 145 290 580 US Feet

Surface Water Protection Map
Mohawk State #1- Marathon
Sec 20 T8S R33E, New Mexico

Figure 2

\\CBO10\Projects\5-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

Date Saved: 4/10/2019

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

Drawn Heather Patterson
Date 4/10/2019
Checked
Approved

SMA

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Carlsbad, New Mexico 88221
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Legend

- Samples Points
- 1.5' Excavation
- Production tank

N

0 16 32 64

Feet

Site and Sample Location Map
Mohawk State #1- Marathon Oil LLC
Sec 20 T8S R33E, Chavez County, New Mexico

Figure 3

P:\15-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

Date Saved: 8/30/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn *Henryetta Price*
Date 9/5/2019
Checked
Approved

SMA

201 South Halaguena Street
Carlsbad, New Mexico 88221
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TABLES

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	132	USGS Water Well Data
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	>1/2 mile	Figure 1
Hortizontal Distance to Nearest Significant Watercourse (ft)	1,530	Figure 1

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

Table 3:
Summary of Sample Results

Marathon Oil Permian LLC
Mohawk State #1 (2RP-5248)
API: 30-005-29108

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria				**50**	**10**	**1000**			**2,500**	**20,000**
L1	4/19/2019	0.5	in-situ	<0.224	<0.025	<5.0	<9.9	<50	<64.9	<60
L2	4/19/2019	0.5	excavate	<0.222	<0.025	41	7,800	4,100	11,941	1,700
	4/19/2019	1	in-situ	<0.224	<0.025	<5.0	550	450	1,000	--
	7/12/2019	1	in-situ	<0.225	<0.025	<5.0	<9.7	<48	<62.7	420
L3	4/19/2019	0.5	excavate	<0.222	<0.025	53	6,300	4,000	10,353	1,200
	4/19/2019	1	in-situ	<0.224	<0.025	<5.0	16	<48	16	--
	7/17/2019	1	in-situ	-	-	<4.9	16	<49	16	560
L4	4/19/2019	0.5	in-situ	<0.216	<0.024	<4.8	<9.5	<47	<61.3	<60
CSW1	7/17/2019	1	in-situ	<0.211	<0.023	<4.7	22	120	142	4500
CSW2	7/17/2019	1	in-situ	<1.07	<0.12	<4.7	650	860	1510	2000

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

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	NAB1904952756
District RP	2RP-5248
Facility ID	
Application ID	pAB1904952568

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Isaac Castro	Contact Telephone 575-988-0561
Contact email icastro@marathonoil.com	Incident # *(assigned by OCD)* NAB1904952756
Contact mailing address 4111 Tidwell Road, Carlsbad New Mexico, 88220	

Location of Release Source

Latitude 33.60022 Longitude -103.58209
(NAD 83 in decimal degrees to 5 decimal places)

Site Name MOHAWK STATE #001	Site Type Oil facility
Date Release Discovered 2/6/19	API# *(if applicable)* 30-005-29108

Unit Letter	Section	Township	Range	County
P	20	08S	33E	Chavez

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) 9.34	Volume Recovered (bbls) 8
	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

Operator reported spill due to a leak on a line from the heater treater to the tank. Approximately 9.34 bbls of produced water spilled inside lined containment. The operator shut the well in and immediately called a vac truck to recover liquids. All spillage was contained on location.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1904952756
District RP	2RP-5248
Facility ID	
Application ID	pAB1904952568

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: Isaac Castro Title: HES Advanced Environmental Tech

Signature: Cuddy Kerrigan Isaac Castro Date: 2/13/19

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

OCD Only

Received by: Amalia Barrazante Date: 2/18/2019

State of New Mexico
Oil Conservation Division

Incident ID	nAB1904952756
District RP	2RP-5248
Facility ID	
Application ID	pAB1904952568

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?	132 (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	nAB1904952756
District RP	2RP-5248
Facility ID	
Application ID	pAB1904952568

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: 9-16-19

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

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1904952756
District RP	2RP-5248
Facility ID	
Application ID	pAB1904952568

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: 9-16-19

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
WATER WELL DATA

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

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 631556.38 **Northing (Y):** 3718731.55 **Radius:** 1610

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Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333651103370901

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 333651103370901 08s.32e.13.43421

Chaves County, New Mexico
Latitude 33°36'51", Longitude 103°37'09" NAD27
Land-surface elevation 4,418 feet above NGVD29
The depth of the hole is 180.00 feet below land surface.

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
1995-01-25		D	127.55			2		S	USGS	

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	S	Steel-tape measurement.
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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: 2019-04-10 11:48:23 EDT
0.49 0.46 nadww02

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Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333503103325801

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 333503103325801 08S.33E.34.212211

Chaves County, New Mexico
Latitude 33°35'03", Longitude 103°32'58" NAD27
Land-surface elevation 4,355 feet above NGVD29
The depth of the well is 180 feet below land surface.

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
1995-02-21		D	155			0		S	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	0	Water level accuracy to nearest foot
Status		The reported water-level measurement represents a static level
Method of measurement	S	Steel-tape measurement.
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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: 2019-04-10 11:51:15 EDT
0.66 0.6 nadww01

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- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333410103365201

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 333410103365201 08S.33E.31.333323

Chaves County, New Mexico
Latitude 33°34'10", Longitude 103°36'52" NAD27
Land-surface elevation 4,397 feet above NGVD29
The depth of the well is 186 feet below land surface.

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
1995-01-25		D	155.80			2		S	USGS	

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	S	Steel-tape measurement.
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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: 2019-04-10 11:52:01 EDT
0.65 0.61 nadww01

APPENDIX C
PHOTO LOG

Mohawk State #1 (2RP-5248) Photo Log

July 17, 2019
L2 facing North

July 17, 2019
L3 facing West

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

April 29, 2019

Heather Patterson

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

RE: Mohawk OrderNo.: 1904A75

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 4/23/2019 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-0.5
Project: Mohawk
Collection Date: 4/19/2019 10:27:00 AM
Lab ID: 1904A75-001 **Matrix:** SOIL **Received Date:** 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	4/26/2019 4:10:58 PM	44561
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/24/2019 6:57:39 PM	44491
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/24/2019 6:57:39 PM	44491
Surr: DNOP	97.0	70-130		%Rec	1	4/24/2019 6:57:39 PM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2019 5:08:49 PM	44487
Surr: BFB	86.1	73.8-119		%Rec	1	4/24/2019 5:08:49 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/24/2019 5:08:49 PM	44487
Toluene	ND	0.050		mg/Kg	1	4/24/2019 5:08:49 PM	44487
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2019 5:08:49 PM	44487
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2019 5:08:49 PM	44487
Surr: 4-Bromofluorobenzene	86.3	80-120		%Rec	1	4/24/2019 5:08:49 PM	44487

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-0.5
Project: Mohawk
Collection Date: 4/19/2019 10:38:00 AM
Lab ID: 1904A75-002 **Matrix:** SOIL **Received Date:** 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1700	60		mg/Kg	20	4/26/2019 4:23:23 PM	44561
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	7800	96		mg/Kg	10	4/25/2019 9:08:34 AM	44491
Motor Oil Range Organics (MRO)	4100	480		mg/Kg	10	4/25/2019 9:08:34 AM	44491
Surr: DNOP	0	70-130	S	%Rec	10	4/25/2019 9:08:34 AM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	41	4.9		mg/Kg	1	4/24/2019 6:19:37 PM	44487
Surr: BFB	342	73.8-119	S	%Rec	1	4/24/2019 6:19:37 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/24/2019 6:19:37 PM	44487
Toluene	ND	0.049		mg/Kg	1	4/24/2019 6:19:37 PM	44487
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2019 6:19:37 PM	44487
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2019 6:19:37 PM	44487
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/24/2019 6:19:37 PM	44487

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-1
Project: Mohawk
Collection Date: 4/19/2019 10:41:00 AM
Lab ID: 1904A75-003 **Matrix:** SOIL **Received Date:** 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	550	19		mg/Kg	2	4/25/2019 2:38:19 PM	44491
Motor Oil Range Organics (MRO)	450	95		mg/Kg	2	4/25/2019 2:38:19 PM	44491
Surr: DNOP	97.7	70-130		%Rec	2	4/25/2019 2:38:19 PM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2019 6:42:56 PM	44487
Surr: BFB	88.0	73.8-119		%Rec	1	4/24/2019 6:42:56 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/24/2019 6:42:56 PM	44487
Toluene	ND	0.050		mg/Kg	1	4/24/2019 6:42:56 PM	44487
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2019 6:42:56 PM	44487
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2019 6:42:56 PM	44487
Surr: 4-Bromofluorobenzene	88.0	80-120		%Rec	1	4/24/2019 6:42:56 PM	44487

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-0.5
Project: Mohawk
Collection Date: 4/19/2019 10:47:00 AM
Lab ID: 1904A75-004 **Matrix:** SOIL **Received Date:** 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1200	60		mg/Kg	20	4/26/2019 4:35:47 PM	44561
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	6300	95		mg/Kg	10	4/25/2019 3:27:19 PM	44491
Motor Oil Range Organics (MRO)	4000	480		mg/Kg	10	4/25/2019 3:27:19 PM	44491
Surr: DNOP	0	70-130	S	%Rec	10	4/25/2019 3:27:19 PM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	53	4.9		mg/Kg	1	4/24/2019 7:06:19 PM	44487
Surr: BFB	449	73.8-119	S	%Rec	1	4/24/2019 7:06:19 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/24/2019 7:06:19 PM	44487
Toluene	ND	0.049		mg/Kg	1	4/24/2019 7:06:19 PM	44487
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2019 7:06:19 PM	44487
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2019 7:06:19 PM	44487
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	4/24/2019 7:06:19 PM	44487

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-1
Project: Mohawk
Collection Date: 4/19/2019 10:52:00 AM
Lab ID: 1904A75-005 **Matrix:** SOIL
Received Date: 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	16	9.6		mg/Kg	1	4/24/2019 10:37:40 PM	44491
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/24/2019 10:37:40 PM	44491
Surr: DNOP	97.6	70-130		%Rec	1	4/24/2019 10:37:40 PM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2019 7:29:51 PM	44487
Surr: BFB	84.0	73.8-119		%Rec	1	4/24/2019 7:29:51 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/24/2019 7:29:51 PM	44487
Toluene	ND	0.050		mg/Kg	1	4/24/2019 7:29:51 PM	44487
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2019 7:29:51 PM	44487
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2019 7:29:51 PM	44487
Surr: 4-Bromofluorobenzene	86.6	80-120		%Rec	1	4/24/2019 7:29:51 PM	44487

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-0.5
Project: Mohawk
Collection Date: 4/19/2019 11:03:00 AM
Lab ID: 1904A75-006 **Matrix:** SOIL **Received Date:** 4/23/2019 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	4/26/2019 4:48:12 PM	44561
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	4/24/2019 11:26:17 PM	44491
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/24/2019 11:26:17 PM	44491
Surr: DNOP	92.4	70-130		%Rec	1	4/24/2019 11:26:17 PM	44491
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/24/2019 7:53:30 PM	44487
Surr: BFB	88.8	73.8-119		%Rec	1	4/24/2019 7:53:30 PM	44487
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	4/24/2019 7:53:30 PM	44487
Toluene	ND	0.048		mg/Kg	1	4/24/2019 7:53:30 PM	44487
Ethylbenzene	ND	0.048		mg/Kg	1	4/24/2019 7:53:30 PM	44487
Xylenes, Total	ND	0.096		mg/Kg	1	4/24/2019 7:53:30 PM	44487
Surr: 4-Bromofluorobenzene	88.8	80-120		%Rec	1	4/24/2019 7:53:30 PM	44487

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#: **1904A75**
29-Apr-19

Client: Souder, Miller & Associates
Project: Mohawk

Sample ID: **MB-44561**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **44561**	RunNo: **59463**							
Prep Date: **4/26/2019**	Analysis Date: **4/26/2019**	SeqNo: **2003513**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-44561**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **44561**	RunNo: **59463**							
Prep Date: **4/26/2019**	Analysis Date: **4/26/2019**	SeqNo: **2003514**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	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#: **1904A75**
29-Apr-19

Client: Souder, Miller & Associates
Project: Mohawk

Sample ID: **MB-44491**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **44491**	RunNo: **59379**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000150** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		92.3	70	130			

Sample ID: **LCS-44491**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **44491**	RunNo: **59379**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000151** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.2	63.9	124			
Surr: DNOP	4.5		5.000		90.2	70	130			

Sample ID: **1904A75-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **L1-0.5**	Batch ID: **44491**	RunNo: **59378**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2001017** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.8	48.92	0	95.4	53.5	126			
Surr: DNOP	4.5		4.892		92.7	70	130			

Sample ID: **1904A75-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **L1-0.5**	Batch ID: **44491**	RunNo: **59378**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2001019** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.5	47.26	0	97.1	53.5	126	1.65	21.7	
Surr: DNOP	4.4		4.726		93.8	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904A75**

29-Apr-19

Client: Souder, Miller & Associates

Project: Mohawk

Sample ID: **MB-44487**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000945** 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	880		1000		88.1	73.8	119			

Sample ID: **LCS-44487**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000946** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.0	80.1	123			
Surr: BFB	970		1000		97.1	73.8	119			

Sample ID: **1904A75-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **L1-0.5**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000948** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	24.75	0	109	69.1	142			
Surr: BFB	980		990.1		98.7	73.8	119			

Sample ID: **1904A75-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **L1-0.5**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000949** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	24.95	0	110	69.1	142	1.71	20	
Surr: BFB	1000		998.0		100	73.8	119	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904A75**
29-Apr-19

Client: Souder, Miller & Associates
Project: Mohawk

Sample ID: **MB-44487**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000977** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.4	80	120			

Sample ID: **LCS-44487**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **44487**	RunNo: **59391**
Prep Date: **4/23/2019**	Analysis Date: **4/24/2019**	SeqNo: **2000978** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.0	80	120			
Toluene	0.93	0.050	1.000	0	92.8	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.7	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.1	80	120			
Surr: 4-Bromofluorobenzene	0.89		1.000		89.5	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1904A75** RcptNo: **1**

Received By: **Desiree Dominguez** **4/23/2019 11:15:00 AM** DD

Completed By: **Leah Baca** **4/23/2019 11:37:52 AM** Leah Baca

Reviewed By: YG 4/23/19

Labeled by DAD 4/23/19

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 4/23/19

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	4.7	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: ~~Normal~~ 5 day
☐ Standard ☐ **Rush**

Project Name: Mohawk

Project #:

Project Manager: Heather Patterson

Sampler: Hmp

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.6°c +0.1°c = 4.7°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. 1904A75	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)
4/19/19	10:27	Soil	L1-0.5	4oz		-001	X	X					X			
	10:38		L2-0.5			-002	X	X					X			
	10:41		L2-1			-003	X	X								
	10:47		L3-0.5			-004	X	X					X			
	10:52		L3-1			-005 ~~-005~~	X	X								
	11:03		L4-0.5			-006	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
4/21/19	10:00				4/22/19	1500
4/22/19	1900			courier	4/23/19	11:15

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 23, 2019

Heather Patterson

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

RE: Mohawk OrderNo.: 1907744

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/16/2019 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2 @ 1'
Project: Mohawk
Collection Date: 7/12/2019 2:00:00 PM
Lab ID: 1907744-001 **Matrix:** SOIL **Received Date:** 7/16/2019 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	420	60		mg/Kg	20	7/20/2019 11:31:24 AM	46295
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/22/2019 8:55:40 PM	46282
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/22/2019 8:55:40 PM	46282
Surr: DNOP	92.8	70-130		%Rec	1	7/22/2019 8:55:40 PM	46282
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/18/2019 1:30:27 PM	46240
Surr: BFB	101	73.8-119		%Rec	1	7/18/2019 1:30:27 PM	46240
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	7/18/2019 1:30:27 PM	46240
Toluene	ND	0.050		mg/Kg	1	7/18/2019 1:30:27 PM	46240
Ethylbenzene	ND	0.050		mg/Kg	1	7/18/2019 1:30:27 PM	46240
Xylenes, Total	ND	0.10		mg/Kg	1	7/18/2019 1:30:27 PM	46240
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/18/2019 1:30:27 PM	46240

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#: **1907744**

23-Jul-19

Client: Souder, Miller & Associates

Project: Mohawk

Sample ID: **MB-46295**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **46295**	RunNo: **61542**
Prep Date: **7/19/2019**	Analysis Date: **7/20/2019**	SeqNo: **2085988** Units: **mg/Kg**

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

Sample ID: **LCS-46295**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **46295**	RunNo: **61542**
Prep Date: **7/19/2019**	Analysis Date: **7/20/2019**	SeqNo: **2085989** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.6	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#: **1907744**

23-Jul-19

Client: Souder, Miller & Associates

Project: Mohawk

Sample ID: **MB-46240**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46240**	RunNo: **61480**
Prep Date: **7/17/2019**	Analysis Date: **7/18/2019**	SeqNo: **2084427** 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	870		1000		86.7	73.8	119			

Sample ID: **LCS-46240**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46240**	RunNo: **61480**
Prep Date: **7/17/2019**	Analysis Date: **7/18/2019**	SeqNo: **2084428** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.9	80.1	123			
Surr: BFB	1000		1000		102	73.8	119			

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#: **1907744**

23-Jul-19

Client: Souder, Miller & Associates

Project: Mohawk

Sample ID: **MB-46240**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **46240**	RunNo: **61480**
Prep Date: **7/17/2019**	Analysis Date: **7/18/2019**	SeqNo: **2084453** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.3	80	120			

Sample ID: **LCS-46240**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **46240**	RunNo: **61480**
Prep Date: **7/17/2019**	Analysis Date: **7/18/2019**	SeqNo: **2084454** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.9	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.6	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1907744** RcptNo: **1**

Received By: **Leah Baca** **7/16/2019 9:15:00 AM** Leah SBaca

Completed By: **Desiree Dominguez** **7/16/2019 11:48:51 AM** DD

Reviewed By: ENH 7/16/19

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 7/16/19

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	4.7	Good	Not Present			
2	5.5	Good	Not Present			

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: Mohawk

Project #:

Project Manager: H. Patterson

Sampler: HAP

On Ice: ☐ Yes ☐ No

# of Coolers: (2)

Cooler Temp (including CF): 4.6 + 0.1 = 4.7C <4° 0.1558

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. 1907744	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/12/19	1400	Soil	L2 @ 1'	402		-001	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/15/19	1023	Henrietta Price			7/15/19	1023
7/16/19	1990			Courier	7/16/19	0915

Remarks: Marathon
email Copy to: Henrietta.Price@SanderMiller.com

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

August 02, 2019

Heather Patterson

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

RE: Mohawk State 1 OrderNo.: 1907A67

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/20/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued July 30, 2019.

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. 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. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CL3@1'
Project: Mohawk State 1
Collection Date: 7/17/2019 3:15:00 PM
Lab ID: 1907A67-001 **Matrix:** SOIL
Received Date: 7/20/2019 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	560	60		mg/Kg	20	7/25/2019 5:29:00 PM	46399
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	16	9.9		mg/Kg	1	7/24/2019 4:45:48 PM	46341
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/24/2019 4:45:48 PM	46341
Surr: DNOP	99.4	70-130		%Rec	1	7/24/2019 4:45:48 PM	46341
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/24/2019 2:10:08 AM	46308
Surr: BFB	109	73.8-119		%Rec	1	7/24/2019 2:10:08 AM	46308

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CSW 1
Project: Mohawk State 1
Collection Date: 7/17/2019 3:15:00 PM
Lab ID: 1907A67-002 **Matrix:** SOIL
Received Date: 7/20/2019 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	4500	150		mg/Kg	50	7/29/2019 11:50:49 AM	46399
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	22	8.7		mg/Kg	1	7/25/2019 6:06:53 PM	46341
Motor Oil Range Organics (MRO)	120	44		mg/Kg	1	7/25/2019 6:06:53 PM	46341
Surr: DNOP	95.7	70-130		%Rec	1	7/25/2019 6:06:53 PM	46341
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/24/2019 2:32:51 AM	46308
Surr: BFB	110	73.8-119		%Rec	1	7/24/2019 2:32:51 AM	46308
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	7/24/2019 2:32:51 AM	46308
Toluene	ND	0.047		mg/Kg	1	7/24/2019 2:32:51 AM	46308
Ethylbenzene	ND	0.047		mg/Kg	1	7/24/2019 2:32:51 AM	46308
Xylenes, Total	ND	0.094		mg/Kg	1	7/24/2019 2:32:51 AM	46308
Surr: 4-Bromofluorobenzene	93.5	80-120		%Rec	1	7/24/2019 2:32:51 AM	46308

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CSW 2
Project: Mohawk State 1
Collection Date: 7/17/2019 3:20:00 PM
Lab ID: 1907A67-003 **Matrix:** SOIL
Received Date: 7/20/2019 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	2000	60		mg/Kg	20	7/25/2019 6:43:27 PM	46399
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	650	9.7		mg/Kg	1	7/25/2019 6:29:25 PM	46341
Motor Oil Range Organics (MRO)	860	49		mg/Kg	1	7/25/2019 6:29:25 PM	46341
Surr: DNOP	116	70-130		%Rec	1	7/25/2019 6:29:25 PM	46341
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/24/2019 10:38:55 AM	46308
Surr: BFB	114	73.8-119		%Rec	1	7/24/2019 10:38:55 AM	46308
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12		mg/Kg	5	7/24/2019 2:55:37 AM	46308
Toluene	ND	0.24		mg/Kg	5	7/24/2019 2:55:37 AM	46308
Ethylbenzene	ND	0.24		mg/Kg	5	7/24/2019 2:55:37 AM	46308
Xylenes, Total	ND	0.47		mg/Kg	5	7/24/2019 2:55:37 AM	46308
Surr: 4-Bromofluorobenzene	90.5	80-120		%Rec	5	7/24/2019 2:55:37 AM	46308

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#: **1907A67**

02-Aug-19

Client: Souder, Miller & Associates

Project: Mohawk State 1

Sample ID: **MB-46399**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **46399**	RunNo: **61687**
Prep Date: **7/25/2019**	Analysis Date: **7/25/2019**	SeqNo: **2091060** Units: **mg/Kg**

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

Sample ID: **LCS-46399**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **46399**	RunNo: **61687**
Prep Date: **7/25/2019**	Analysis Date: **7/25/2019**	SeqNo: **2091061** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907A67**

02-Aug-19

Client: Souder, Miller & Associates

Project: Mohawk State 1

Sample ID: **LCS-46341**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46341**	RunNo: **61604**
Prep Date: **7/23/2019**	Analysis Date: **7/24/2019**	SeqNo: **2089020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.2	63.9	124			
Surr: DNOP	3.8		5.000		77.0	70	130			

Sample ID: **LCS-46344**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46344**	RunNo: **61604**
Prep Date: **7/23/2019**	Analysis Date: **7/25/2019**	SeqNo: **2089021** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.8	70	130			

Sample ID: **MB-46341**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46341**	RunNo: **61604**
Prep Date: **7/23/2019**	Analysis Date: **7/25/2019**	SeqNo: **2089024** 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	7.9		10.00		78.5	70	130			

Sample ID: **MB-46344**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46344**	RunNo: **61604**
Prep Date: **7/23/2019**	Analysis Date: **7/25/2019**	SeqNo: **2089025** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		111	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#: **1907A67**

02-Aug-19

Client: Souder, Miller & Associates

Project: Mohawk State 1

Sample ID: **MB-46308**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46308**	RunNo: **61588**
Prep Date: **7/22/2019**	Analysis Date: **7/23/2019**	SeqNo: **2087823** 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	950		1000		95.1	73.8	119			

Sample ID: **LCS-46308**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46308**	RunNo: **61588**
Prep Date: **7/22/2019**	Analysis Date: **7/23/2019**	SeqNo: **2087824** 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	92.2	80.1	123			
Surr: BFB	1000		1000		104	73.8	119			

Sample ID: **MB-46343**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46343**	RunNo: **61629**
Prep Date: **7/23/2019**	Analysis Date: **7/24/2019**	SeqNo: **2088935** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		106	73.8	119			

Sample ID: **LCS-46343**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46343**	RunNo: **61629**
Prep Date: **7/23/2019**	Analysis Date: **7/24/2019**	SeqNo: **2088936** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1200		1000		118	73.8	119			

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#: **1907A67**

02-Aug-19

Client: Souder, Miller & Associates

Project: Mohawk State 1

Sample ID: **MB-46308**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **46308**	RunNo: **61588**
Prep Date: **7/22/2019**	Analysis Date: **7/23/2019**	SeqNo: **2087848** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Sample ID: **LCS-46308**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **46308**	RunNo: **61588**
Prep Date: **7/22/2019**	Analysis Date: **7/23/2019**	SeqNo: **2087849** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	80	120			
Toluene	1.1	0.050	1.000	0	105	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.0	80	120			

Sample ID: **MB-46343**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **46343**	RunNo: **61629**
Prep Date: **7/23/2019**	Analysis Date: **7/24/2019**	SeqNo: **2088963** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.5	80	120			

Sample ID: **LCS-46343**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **46343**	RunNo: **61629**
Prep Date: **7/23/2019**	Analysis Date: **7/24/2019**	SeqNo: **2088964** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.96		1.000		96.4	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1907A67** RcptNo: **1**

Received By: **Desiree Dominguez** **7/20/2019 9:40:00 AM** DD

Completed By: **Desiree Dominguez** **7/20/2019 11:39:23 AM** DD

Reviewed By: LB 7/22/19

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: YG 7/22/19

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	3.3	Good	Not Present			

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 5day

Project Name: Mohawk State #1

Project #:

Project Manager: Heather Patterson

Sampler: HAP

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.2+0.1=3.3°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. 1907A67	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/17/19	1515	SOIL	CL3 @ 1'	4oz		-001		X					X			
↓	1515	↓	CSW 1	↓		-002		X					X			
↓	1520	↓	CSW 2	↓		-003		X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/18/19	1605	Henrietta Price			7/19/19	1400
7/19/19	1900			Courier	7/20/19	9:40

Remarks: email copy to: henrietta.price@sondermiller.com

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.