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

January 23, 2019

#5E27499-BG6

NMOCD District 2
Maria Pruett
811 S First St.
Artesia, New Mexico 88210

SUBJECT: Remediation Closure Report for the Shugart West 19 Federal #2 Release (2RP-4403,4404,4428,1540), Eddy County, New Mexico

Dear Ms. Pruett:

On behalf of Marathon Oil Permian LLC, Souder, Miller & Associates (SMA) has prepared this Remediation Closure Report that describes the remediation of a release of liquids related to oil and gas production activities at the Shugart West 19 Federal #2 site. The site is in Unit O, Section 19, Township 18S, Range 31E, Eddy County, New Mexico, on Federal 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	Shugart West 19 Federal #2	Company	Marathon Oil Permian LLC
API Number	30-015-30501	Location	32.7275543, -103.9065552
Incident Number	2RP-4403, 2RP-4404, 2RP-4428, 2RP-1540		
Estimated Date of Release	Various dates	Date Reported to NMOCD	Various dates
Land Owner	BLM	Reported To	NMOCD District II
Source of Release	Injection Pump, Skim Tank, Produced Water Tank		
Released Volume	Various totaling 103 bbls	Released Material	Produced Water
Recovered Volume	Various totaling 23 bbls	Net Release	80 bbls
NMOCD Site Rank	0		

1.0 Background

On September 8, 2017, a 5 bbl produced water release (2RP-4403) occurred at the Shugart West 19 Federal #2. The cause of the release was due to a hole in the injection pump drain. The surface impact was confined to within the boundaries of the location, in an approximately 20-foot radius from the injection pump.

On September 11, 2017, a 55 bbl produced water release (2RP-4404) occurred. The wells associated with the location had been shut in from the initial 5 bbl release reported in 2RP-4403. However, the tanks were not isolated, allowing fluid to be pushed through the system and out of a failed ball valve on the injection pump. The surface impact was again confined to within the boundaries of the location and remained within the earthen berm with no breaches.

On September 22, 2017, a 28 bbl produced water release (2RP-4428) occurred. The cause of the release was a water leg on the gun barrel that had been left shut, allowing the liquids to equalize and resulting in the overflow of the skim tank. The surface impact was once again confined to the location and remained within the secondary containment.

On January 28, 2013, a 15 bbl produced water release (2RP-1540) occurred. Driver inattention caused a release from a produced water tank that was not emptied.

Figure 1 illustrates the vicinity and site location, Figure 2 illustrates the release location. The final C-141 forms are included in Appendix A.

2.0 Site Information and Closure Criteria

The release site is located approximately 7.5 miles southeast of Loco Hills, New Mexico with an elevation of approximately 3,629 feet above sea level. SMA searched the New Mexico State Engineer's Office (NMOSE) online water well database for water wells in the vicinity of the release. Three groundwater wells are located within a three-mile radius of the site, but none have data regarding depth to water. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be greater than 400 feet below ground surface (bgs).

Based on the information presented herein, the applicable NMOCD total site ranking score for this site is zero (0). Table 2 demonstrates the total site ranking score applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

On April 26, 2018, SMA field personnel assessed the release area, which was primarily inside the bermed tank battery, which is unlined. SMA performed site delineation activities by collecting soil samples around the visibly surface stained area. Soil samples were field-screened for chloride using a mobile EC meter. Four locations (L1-L4) were sampled, using a hand-auger, to depths up to one foot bgs. A total of six samples were collected for laboratory analysis for benzene and total BTEX (benzene, toluene, ethylbenzene and total xylenes) using EPA Method 8021B; MRO, DRO, and GRO (motor, diesel and gasoline range organics, respectively) by EPA Method 8015D; and total chloride using EPA Method 300.0.

On May 16, 2018 after approval from area utilities via 811, SMA field personnel returned to the location to further delineate the release area with a backhoe service. Additional samples were collected from locations L1, L3 and L5 (to 1.5, 2.5, and 3.5 feet bgs, respectively) and five more sample locations (L5-

L9) were added in an attempt to define the impacted area. Two samples (L6 and L7) were collected to the north of the berm. Samples were field-screened and analyzed for the analytical suite as listed above. At all locations, the backhoe met refusal at depths between 1 to 3.5 feet bgs. Further investigation using the USDS soil survey website (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) indicates several rocky outcrops in the area and "cemented material" (likely bedrock) at around 10 inches bgs. Rock samples taken from the site were reviewed by a geologist and identified as lime rock.

For both field events, laboratory samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix C). All laboratory results are summarized in Table 3. Laboratory reports are included in Appendix C.

Analytical results indicate that the entire area has been impacted by chlorides, ranging from 440-4,700 mg/Kg. Two sample locations resulted in total petroleum hydrocarbons (TPH; combined MRO, DRO and GRO) exceeding the NMOCD RRAL of 5,000 mg/Kg (L2-1' at 14,552 mg/Kg and L8-1 at 10,110 mg/Kg).

In the workplan dated August 13, 2018 , SMA proposed excavating and removing contaminated soil in the impacted area to bedrock, or up to 3.5 feet bgs. On August 28, 2018, NMOCD approved the workplan.

4.0 Soil Remediation Summary

In accordance with the approved workplan, from October 15-19, 2018, SMA returned to the site to guide the excavation of contaminated soil. 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. The walls and base were excavated until field screening results indicated that the NMOCD closure criteria would be met, or until bedrock was reached. NMOCD was notified on October 16, 2018 that closure samples were expected to be collected in two (2) business days.

On October 18, 2019, SMA conducted confirmation sampling of the walls and base of the excavation, which measured approximately 170 feet by 50 feet. The area around CS1 was excavated to a depth of 1 foot bgs, CS2 and CS3 were excavated to a depth of 1.5 feet bgs, in the area surrounding tanks, CS4 and CS5, was excavated to a depth of 2 feet bgs, and the area north of the berm, CS6 and CS7, were excavated to a depth of 3.5 feet bgs. All excavation depths were taken to the bed rock layer and excavated until refusal was met. Confirmation samples were composed of five-point composites of the base (CS1-CS7) and walls (SW1-SW10).

Figure 2 shows the extent of the excavation and confirmation sample locations. All 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. SMA recommends no further action for releases 2RP-4403, 4404, 4428, and 1540.

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 Austin Weyant at 575-689-8801 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Heather Patterson
Staff Scientist

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Site and Sample Location Map

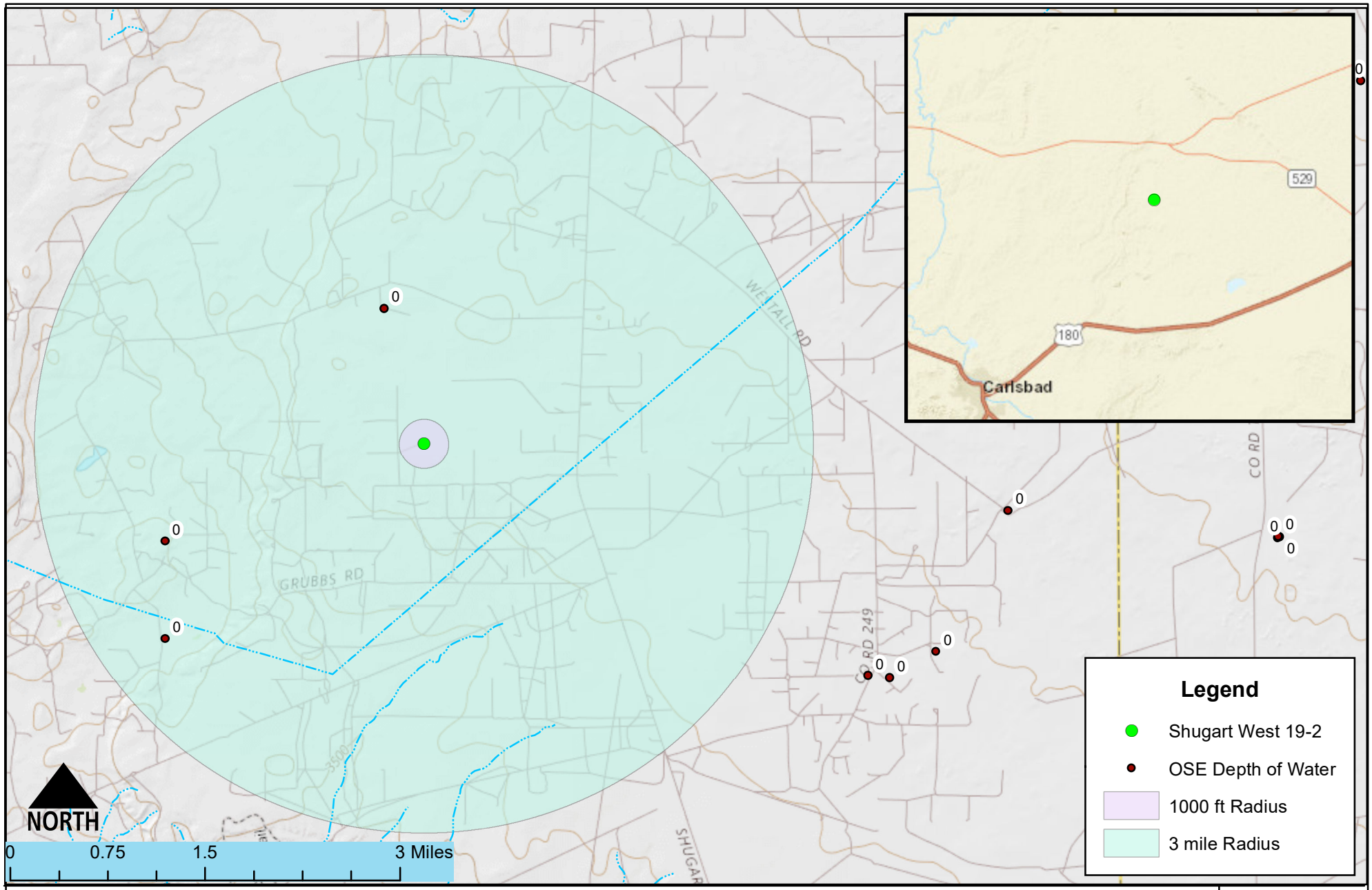
Tables:

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 Documentation and Field Notes
Appendix D: Laboratory Analytical Reports

FIGURES



Vicinity and Well Head Protection Map
Shugart West 19 Fed #2 - Marathon
S 19-T18S-R31E, New Mexico

Figure 1

Date Saved: 5/8/2018

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

Drawn Heather Patterson
Checked
Approved

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

Site and Sample Location Map
Shugart West 19 Fed #2 - Marathon
S 19-T18S-R31E, New Mexico

Figure 2

Date Saved: 11/4/2018

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

Drawn Heather Patterson
Checked
Approved

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TABLES

NMOCD SITE RANKING

Table 2.

Soil Remediation Standards	0 to 9	10 to 19	>19
Benzene	10 PPM	10 PPM	10 PPM
BTEX	50 PPM	50 PPM	50 PPM
TPH	5000 PPM	1000 PPM	100 PPM
Depth to Groundwater	**NMOCD Numeric Rank**		
< 50 BGS = 20			
50' to 99' = 10			
>100' = 0	0		
Distance to Nearest Surface Water	**NMOCD Numeric Rank**		
< 200' = 20			
200' - 1000' = 10			
>1000' = 0	0		
Well Head Protection	**NMOCD Numeric Rank**		
<1000' (or <200' domestic) = 20			
> 1000' = 0	0		
Total Site Ranking	**0**		

Shugart West 19 Federal #2 Sample Summary

Table 3. Initial Samples

Sample Number on Figure 2	Sample Date	Depth (fee bgs)	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Laboratory mg/Kg
NMOCD Closure Criteria			50 mg/Kg	10 mg/Kg				5000 mg/Kg	
L1	4/26/2018	0.5	0.836	<0.024	7.3	220	460	687.3	4,700
	5/16/2018	1.5	--	--	--	--	--	--	3,300
L2	4/26/2018	0.5	0.46	<0.023	<4.7	45	86	131	4,300
	4/26/2018	1	4.91	<0.12	52	7300	7200	**14,552**	3,000
L3	4/26/2018	0.5	<0.221	<0.025	<4.9	36	64	100	2,400
	4/26/2018	1	<0.217	<0.024	<4.8	310	520	830	910
	5/16/2018	2	<0.23	<0.023	<4.6	88	100	188	2,800
	5/16/2018	2.5	<0.23	<0.024	<4.8	19	<50	19	2,800
L4	4/26/2018	0.5	0.274	<0.024	5.7	58	160	223.7	2,600
	5/16/2018	3.5	<0.23	<0.024	<4.8	130	170	300	3,100
L5	5/16/2018	3	<0.23	<0.025	<5.0	<9.9	<49	<64	3,800
L6	5/16/2018	3	<0.23	<0.024	<4.8	<9.8	<49	<64	440
L7	5/16/2018	3.5	<0.23	<0.023	<4.6	<10	<50	<65	1800
L8	5/16/2018	1	18.86	<0.11	310	6900	2900	**10110**	2400
L9	5/16/2018	2	<0.23	<0.024	<4.8	48	<49	48	3500

Table 3. Closure Samples

Sample Number on Figure 2	Sample Date	Depth (fee bgs)	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Laboratory mg/Kg
NMOCD Closure Criteria			50 mg/Kg	10 mg/Kg				5000 mg/Kg	
CS1	10/19/2018	1	6.9	<0.024	83	1700	790	2573	330
CS2	10/19/2018	1.5	--	--	67	570	230	867	250
CS3	10/19/2018	2	--	--	<4.9	<9.3	<46	<61	3,600
CS4	10/19/2018	2	--	--	17	2600	1400	4,017	900
CS5	10/19/2018	2	--	--	<4.6	<9.7	<49	<64	3,100
CS6	10/19/2018	3.5	--	--	<4.6	<9.7	<48	<63	31
CS7	10/19/2018	3.5	--	--	<4.7	<9.9	<49	<64	61
SW1	10/18/2018	0-1	<0.23	<0.023	<4.6	<10	<50	<65	540
SW2	10/18/2018	0-1.5	--	--	<4.9	<9.6	<48	<63	<30
SW3	10/18/2018	0-1	<0.23	<0.023	<4.7	<9.7	<48	<63	95
SW4	10/18/2018	0-1.5	--	--	<4.9	<10	<50	<65	510
SW5	10/18/2018	0-3	--	--	<4.8	<9.7	<48	<63	480
SW6	10/18/2018	0-3.5	--	--	<5.0	<9.8	<49	<64	160
SW7	10/18/2018	0-3.5	--	--	<4.8	<9.6	<48	<63	350
SW8	10/18/2018	0-2	--	--	<4.9	<9.6	<48	<63	44
SW9	10/18/2018	0-2	<0.23	<0.023	<4.6	<9.8	<49	<64	110
SW10	10/18/2018	0-1.5	<0.23	<0.023	<4.7	<10	<50	<65	54

"--" = Not Analyzed

APPENDIX A
FORM C141

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 04 2017
RECEIVED

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1727856881

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Company 372098	Contact: Jennifer Van Curen
Address: 5555 San Felipe St., Houston, TX 77056	Telephone No.: 713-296-2500
Facility Name: Shugart West 19 Federal 2 SWD	Facility Type: SWD

Surface Owner: Federal	Mineral Owner: Federal	API No.: 30-015-30501

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	18S	31E	660	FSL	1930	FEL	EDDY

Latitude32.7275543 **Longitude**-103.9065552 NAD83

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release: 27.62 bbls	Volume Recovered: 0 bbls
Source of Release: flare	Date and Hour of Occurrence: 9/22/17: 0800 hrs	Date and Hour of Discovery: 9/22/2017: 0800 hrs
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? M Bratcher (OCD) and Shelly Tucker (BLM)	
By Whom? Jennifer Van Curen	Date and Hour: 9/25/2017; 0800 hrs	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Upon arrival at the Shugart 19-2 SWD, the pumper noticed that the skim tank had overflowed. After further investigation it was determined that the water leg on the gun barrel hand been left shut, the liquids equalized and overflowed the skim tank. Approximately 27.62 bbls (.9bbls oil 26.72 bbls water) of produced fluid was spilled into the secondary containment. Clean up of fluid in secondary containment is underway.

Describe Area Affected and Cleanup Action Taken.*
The area affected was a 26' X 94' area. Vacuum truck was called out to pick up standing fluid.

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

Signature:	OIL CONSERVATION DIVISION Signed By Mike Bratcher	
Printed Name: Jennifer Van Curen	Approved by Environmental Specialist:	
Title: Sr. Regulatory Compliance Rep	Approval Date: 10/5/17	Expiration Date: N/A
E-mail Address: jvancuren@marathonoil.com	Conditions of Approval: See attached	Attached ☐ 2RP-4428
Date: 9/25/2017 Phone: 713-296-2500		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 10/4/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4428 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 11/4/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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	nAB1727856881
District RP	2RP-4428
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)* nAB1727856881
Contact mailing address 5555 San Felipe St, Houston Texas 77056	

Location of Release Source

Latitude 32.7275543 Longitude -103.9065552
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Shugart West 19 Fed #2	Site Type SWD
Date Release Discovered 9/22/2017	API# *(if applicable)* 30-015-30501

Unit Letter	Section	Township	Range	County
O	19	18S	31E	Eddy

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) 28	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Release within battery due to skim tank overflow.

State of New Mexico
Oil Conservation Division

Incident ID	nAB1727856881
District RP	2RP-4428
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? Amount of fluid loss.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Not according to available records.

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: __Callie Karrigan_____ Title: _____HES Professional_____

Signature: _*Callie Karrigan*_____ Date: _1/23/2019_____

email: ___cnkarrigan@marathonoil.com_____ Telephone: __575-297-0956_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1727856881
District RP	2RP-4428
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____Callie Karrigan_____ Title: _____HES Professional_____

Signature: Callie Karrigan Date: __1/23/2019_____

email: __cnkarrigan@marathonoil.com_____ Telephone: _____575-297-0956_____

OCD Only

Received by: Jocelyn Harimon Date: 03/15/2023

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: 03/15/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist

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

State of New Mexico
Energy Minerals and Natural Resources

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

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 13 2017
RECEIVED

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1726352918

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Marathon Oil Permian LLC 372098	Contact Jennifer Van Curen
Address 5555 San Felipe Street, Houston, Texas 77056	Telephone No. 713-296-2500 (office)
Facility Name Shugart West 19 Federal #2	Facility Type Salt water disposal well

Surface Owner BLM	Mineral Owner BLM	API No. 30-015-30501

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	18S	31E	660	South	1930	East	Eddy

Latitude 32.7275543 **Longitude** -103.9065552 NAD83

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 55 bbls	Volume Recovered 15 bbls
Source of Release Injection pump	Date and Hour of Occurrence 9/11/2017	Date and Hour of Discovery 9/11/2017 8:40 PM CDST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Shelly Tucker with BLM notified via email & C. Weaver and M. Bratcher with NMOCD	
By Whom? Wendy Gram	Date and Hour 9/11/2017 approximately 2:45 PM CDST	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Approximately 55 bbls spilled from the injection pump with a bad ball valve. The wells were shut in from initial 5 bbl release, but tanks were not isolated, allowing fluid to be pushed through the system and out bad ball valve on injection pump. This occurred at the Shugart West 19 Federal 1 well site on Friday, September 11th. The tanks were isolated and a vacuum truck was contacted to pick up standing fluid with 15 bbls were recovered with the vacuum truck.

Describe Area Affected and Cleanup Action Taken.*
The facility earthen berm held fluid with no breaches. This is an unlined facility, so saturated soil will immediately be removed and disposed at a NMOCD approved facility. The area will not be backfilled. A corrective action plan will submitted to the NMOCD and BLM for approval.

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

Jennifer Van Curen
Signature:

Printed Name: Jennifer Van Curen

Title: Sr. Regulatory Compliance

E-mail Address: jvancuren@marathonoil.com

Date: September 13, 2017
Phone: 832-480-1740 (cell) 713-296-2500 (office)

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By

Approval Date: 9/19/17 Expiration Date: N/A

Conditions of Approval:
See attached

Attached ☐
2RP-4404

* Attach Additional Sheets If Necessary

9/14/17AB

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 9/13/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 3RP-4404 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 10/13/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

District I
1625 N. French Dr., Hobbs, NM 88240
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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	nAB1726352969
District RP	2RP-4404
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)* nAB1726352969
Contact mailing address 5555 San Felipe St, Houston Texas 77056	

Location of Release Source

Latitude 32.7275543 Longitude -103.9065552

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Shugart West 19 Fed #2	Site Type SWD
Date Release Discovered 9/11/2017	API# *(if applicable)* 30-015-30501

Unit Letter	Section	Township	Range	County
O	19	18S	31E	Eddy

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) 55	Volume Recovered (bbls) 15
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Release within battery due to a valve failure in the injection pump.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAB1726352969
District RP	2RP-4404
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? Amount of fluid loss.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, to Shelly Tucker, Crystal Weaver, and Mike Bratcher by Wendy Gram on 9/11/2017 at 2:45 pm.	

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: __Callie Karrigan_____ Title: _____HES Professional_____

Signature: _*Callie Karrigan*_____ Date: _1/23/2019_____

email: ___cnkarrigan@marathonoil.com_____ Telephone: __575-297-0956_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1726352969
District RP	2RP-4404
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____Callie Karrigan_____ Title: _____HES Professional_____

Signature: Callie Karrigan _____ Date: __1/23/2019_____

email: __cnkarrigan@marathonoil.com_____ Telephone: _____575-297-0956_____

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: _____
__

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

State of New Mexico
Energy Minerals and Natural Resources

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

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 13 2017
RECEIVED

Form C-141
Revised April 3, 2017
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Marathon Oil Permian LLC 372098	Contact Jennifer Van Curen
Address 5555 San Felipe Street, Houston, Texas 77056	Telephone No. 713-296-2500
Facility Name Shugart West 19 Federal #2	Facility Type Salt water disposal well

Surface Owner BLM	Mineral Owner BLM	API No. 30-015-30501

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	18S	31E	660	South	1930	East	Eddy

Latitude 32.7275543 **Longitude** -103.9065552 NAD83

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 5 barrels	Volume Recovered 0
Source of Release Injection pump	Date and Hour of Occurrence 9/8/2017	Date and Hour of Discovery 9/8/2017 8:40 PM CDST
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Shelly Tucker with BLM notified via email & C. Weaver and M. Bratcher with NMOCD	
By Whom?	Date and Hour 9/11/2017 approximately 2:45 PM CDST	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A 5 bbl spill occurred at the Shugart West 19 Federal 1 well site on Friday, September 8th caused by a hole in the injection pump drain. The wells going through pump are shut in until repair can be made.

Describe Area Affected and Cleanup Action Taken.*
20' area around pump was affected. Impacted soils will be removed and disposed at NMOCD approved facility.

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

Jennifer Van Curen Signature:	OIL CONSERVATION DIVISION Approved by Environmental Specialist: Signed By	
Printed Name: Jennifer Van Curen		
Title: Sr. Regulatory Compliance	Approval Date: 9/19/17	Expiration Date: N/A
E-mail Address: jvancuren@marathonoil.com	Conditions of Approval: See Attached	Attached ☐ 2RP-4403
Date: September 13, 2017 Phone: 832-480-1740 (cell) 713-296-2500 (office)		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 9/13/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4403 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 10/13/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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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	
District RP	2RP-4403
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 5555 San Felipe St, Houston Texas 77056	

Location of Release Source

Latitude 32.7275543 Longitude -103.9065552

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Shugart West 19 Fed #2	Site Type SWD
Date Release Discovered 9/8/2017	API# *(if applicable)* 30-015-30501

Unit Letter	Section	Township	Range	County
O	19	18S	31E	Eddy

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

Cause of Release

Release within battery due to a hole in the injection pump drain.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4403
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: __Callie Karrigan_____ Title: _____HES Professional_____

Signature: _*Callie Karrigan*_____ Date: _1/23/2019_____

email: ___cnkarrigan@marathonoil.com_____ Telephone: __575-297-0956_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4403
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____Callie Karrigan_____ Title: _____HES Professional_____

Signature: Callie Karrigan _____ Date: __1/23/2019_____

email: __cnkarrigan@marathonoil.com_____ Telephone: _____575-297-0956_____

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: _____
__

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

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED
JAN 28 2013
NMOCD ARTESIA

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nJMW1303834128

OPERATOR

x x☐ Initial Report ☐ Final Report

Name of Company Merit Energy Company 14591	Contact Chris Flores
Address 2004 Ave. O Eunice N.M. 88210	Telephone No. 575 – 420-5506
Facility Name ~~WSU~~ 19-2 SWD Shugart West 19 Fed #002	Facility Type -SWD Water Station

Surface Owner BLM	Mineral Owner BLM	API No.
		Nm.Nm.093772

LOCATION OF RELEASE

API# 30-015-30501

Unit Letter	Section	Township	Range	Feet from	North/South Line	Feet from the	East/West Line	County
	19	18-S	31-E	660	SOUTH	1930	EAST	Eddy

Latitud_32.7247_____ **Longitude**_-103.9063_____

NATURE OF RELEASE

Type of Release Produce water	Volume of Release 12-15 bls.	Volume Recovered approx 8 +-
Source of Release From frac tank being fed by injection well	Date and Hour of Occurrence 1-28-13	Date and Hour of Discovery 1-28-18 /6:40 A.M.
Was Immediate Notice Given? x x☐ Yes ☐ No ☐ Not Required	If YES, To Whom? BLM /James Amos/Terry Gregston OCD / Mike Bratcher	
By Whom? Chris Flores	Date and Hour 1-28-2013 !st call 7:42 a.m. 2nd call 808 a.m. 3rd call 8:19 a.m.	
Was a Watercourse Reached? ☐ Yes xx☐ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.*

N.A.

Describe Cause of Problem and Remedial Action Taken.*

Trucking Company inattention, driver quit and relief was not sent in for replacement. Stress importance of communication.

Describe Area Affected and Cleanup Action Taken.*
Area approximately 70 ft x15 ft wide On location only, around frac tanks. Pick –up water that pooled up . Will scrape up all dirt down to clean surface and bring in clean caliche to replace. To haul contaminated dirt to proper disposal.

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

Signature: Chris Flores

Printed Name: Chris Flores

Title: Production Foreman

E-mail Address: chris.flores@meritenergy.co

OIL CONSERVATION DIVISION

Approved by Environmental Specialis Signed By Mike Bratcher

Approval Date: FEB 07 2013

Expiration Date:

Conditions of Approval:
Remediation per OCD Rule & Guidelines. SUBMIT REMEDIATION PROPOSAL NO LATER THAN: March 201

Attached ☐

2RP-1540

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	nJMW1303834128
District RP	2RP-1540
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)* nJMW1303834128
Contact mailing address 5555 San Felipe St, Houston Texas 77056	

Location of Release Source

Latitude 32.7275543 Longitude -103.9065552
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Shugart West 19 Fed #2	Site Type SWD
Date Release Discovered 1/28/2013	API# *(if applicable)* 30-015-30501

Unit Letter	Section	Township	Range	County
O	19	18S	31E	Eddy

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) 15	Volume Recovered (bbls) 8
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Release from storage tank, caused by human error.

State of New Mexico
Oil Conservation Division

Incident ID	nJMW1303834128
District RP	2RP-1540
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: __Callie Karrigan_____ Title: _____HES Professional_____

Signature: _*Callie Karrigan*_____ Date: _1/23/2019_____

email: ___cnkarrigan@marathonoil.com_____ Telephone: __575-297-0956_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nJMW1303834128
District RP	2RP-1540
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

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☒ 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)

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☒ 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: _____Callie Karrigan_____ Title: _____HES Professional_____

Signature: Callie Karrigan _____ Date: __1/23/2019_____

email: __cnkarrigan@marathonoil.com_____ Telephone: _____575-297-0956_____

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

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

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00818 POD1	CP	LE	1	4		26	18S	30E	599289	3620364*	3420	240		
CP 00767 POD1	CP	ED	3	2		35	18S	30E	599300	3619158*	4001	500		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 602487.51 **Northing (Y):** 3621577.39 **Radius:** 5000

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

APPENDIX C
PHOTO DOCUMENTATION & FIELD NOTES

Photo Log

Photo Taken October 19, 2018

Facing southeast

32.727453°, -103.743220

Photo Taken October 19, 2018

Facing east

32.727585°, -103.906225°

Photo Taken October 19, 2018

Facing north

32.727111°, -103.906055°

Field Screening

Location Name: Shugart

Date: 10/18/18/10/19/18

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
SW1	Sand/Rock	0-1	9:01	0.46	8.6°		
SW2	Sand	0-1.5	9:28	0.09	8.8°		
SW3	Sand	0-1	9:42	0.23	9.2°		
SW4	Sand	0-1.5'	9:50	0.45	9.5°		
SW5	Sand	0-3	9:55	0.41	9.4°		
SW6	Sand	0-3.5'	9:59	0.23	10.8°		
SW7	Sand	0-3.5'	10:03	0.29	10.8°		
SW8	Sand	0-3.5'	10:20	0.05	10.8°		
SW9	Sand	0-	10:45'				
SW10	Sand	0-	11:50				
			10/19/18				
CS6	Rock	0-3.5'	8:30	0.15	10.7°		
CS7	Rock	0-3.5'	8:35	0.18	10.9°		
CS5	Rock	2	9:47	0.50	11.1°		
CS4	"	2	9:59	0.63	11.3°		
CS3	"	2	10:12				
CS2	"	1.5	10:25				
CS1	"	1	11:15				

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

May 10, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Shuzart 19-2 OrderNo.: 1805022

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 6 sample(s) on 5/1/2018 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-0.5
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:03:00 PM
Lab ID: 1805022-001 **Matrix:** SOIL **Received Date:** 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	4700	300		mg/Kg	200	5/9/2018 12:07:33 AM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	220	91		mg/Kg	10	5/4/2018 10:00:02 PM	37939
Motor Oil Range Organics (MRO)	460	460		mg/Kg	10	5/4/2018 10:00:02 PM	37939
Surr: DNOP	0	70-130	S	%Rec	10	5/4/2018 10:00:02 PM	37939
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	7.3	4.8		mg/Kg	1	5/4/2018 3:40:07 PM	37890
Surr: BFB	150	15-316		%Rec	1	5/4/2018 3:40:07 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	5/3/2018 7:41:47 PM	37890
Benzene	ND	0.024		mg/Kg	1	5/3/2018 7:41:47 PM	37890
Toluene	0.076	0.048		mg/Kg	1	5/3/2018 7:41:47 PM	37890
Ethylbenzene	0.30	0.048		mg/Kg	1	5/3/2018 7:41:47 PM	37890
Xylenes, Total	0.46	0.095		mg/Kg	1	5/3/2018 7:41:47 PM	37890
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	5/3/2018 7:41:47 PM	37890

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-0.5
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:05:00 PM
Lab ID: 1805022-002 **Matrix:** SOIL **Received Date:** 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	4300	300		mg/Kg	200	5/9/2018 12:19:58 AM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	45	9.8		mg/Kg	1	5/4/2018 10:22:13 PM	37939
Motor Oil Range Organics (MRO)	86	49		mg/Kg	1	5/4/2018 10:22:13 PM	37939
Surr: DNOP	80.6	70-130		%Rec	1	5/4/2018 10:22:13 PM	37939
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/4/2018 4:03:22 PM	37890
Surr: BFB	125	15-316		%Rec	1	5/4/2018 4:03:22 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	5/3/2018 8:28:43 PM	37890
Benzene	ND	0.023		mg/Kg	1	5/3/2018 8:28:43 PM	37890
Toluene	ND	0.047		mg/Kg	1	5/3/2018 8:28:43 PM	37890
Ethylbenzene	0.17	0.047		mg/Kg	1	5/3/2018 8:28:43 PM	37890
Xylenes, Total	0.29	0.093		mg/Kg	1	5/3/2018 8:28:43 PM	37890
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	5/3/2018 8:28:43 PM	37890

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-1
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:10:00 PM
Lab ID: 1805022-003
Matrix: SOIL
Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	3000	150		mg/Kg	100	5/9/2018 12:32:22 AM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	7300	960		mg/Kg	100	5/4/2018 10:44:20 PM	37939
Motor Oil Range Organics (MRO)	7200	4800		mg/Kg	100	5/4/2018 10:44:20 PM	37939
Surr: DNOP	0	70-130	S	%Rec	100	5/4/2018 10:44:20 PM	37939
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	52	24		mg/Kg	5	5/4/2018 8:19:42 PM	37890
Surr: BFB	142	15-316		%Rec	5	5/4/2018 8:19:42 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.48		mg/Kg	5	5/3/2018 8:52:03 PM	37890
Benzene	ND	0.12		mg/Kg	5	5/3/2018 8:52:03 PM	37890
Toluene	0.71	0.24		mg/Kg	5	5/3/2018 8:52:03 PM	37890
Ethylbenzene	1.5	0.24		mg/Kg	5	5/3/2018 8:52:03 PM	37890
Xylenes, Total	2.7	0.48		mg/Kg	5	5/3/2018 8:52:03 PM	37890
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	5	5/3/2018 8:52:03 PM	37890

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 Detection Limit
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-0.5
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:12:00 PM
Lab ID: 1805022-004 **Matrix:** SOIL **Received Date:** 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	2400	150		mg/Kg	100	5/9/2018 12:44:47 AM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	36	10		mg/Kg	1	5/4/2018 11:06:24 PM	37939
Motor Oil Range Organics (MRO)	64	50		mg/Kg	1	5/4/2018 11:06:24 PM	37939
Surr: DNOP	84.2	70-130		%Rec	1	5/4/2018 11:06:24 PM	37939
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2018 9:06:12 PM	37890
Surr: BFB	94.2	15-316		%Rec	1	5/4/2018 9:06:12 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	5/3/2018 9:38:15 PM	37890
Benzene	ND	0.025		mg/Kg	1	5/3/2018 9:38:15 PM	37890
Toluene	ND	0.049		mg/Kg	1	5/3/2018 9:38:15 PM	37890
Ethylbenzene	ND	0.049		mg/Kg	1	5/3/2018 9:38:15 PM	37890
Xylenes, Total	ND	0.098		mg/Kg	1	5/3/2018 9:38:15 PM	37890
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	5/3/2018 9:38:15 PM	37890

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-1
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:15:00 PM
Lab ID: 1805022-005 **Matrix:** SOIL **Received Date:** 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	910	30		mg/Kg	20	5/7/2018 5:01:48 PM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	310	100		mg/Kg	10	5/4/2018 11:28:36 PM	37939
Motor Oil Range Organics (MRO)	520	500		mg/Kg	10	5/4/2018 11:28:36 PM	37939
Surr: DNOP	0	70-130	S	%Rec	10	5/4/2018 11:28:36 PM	37939
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/4/2018 9:29:33 PM	37890
Surr: BFB	87.0	15-316		%Rec	1	5/4/2018 9:29:33 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	5/3/2018 10:01:27 PM	37890
Benzene	ND	0.024		mg/Kg	1	5/3/2018 10:01:27 PM	37890
Toluene	ND	0.048		mg/Kg	1	5/3/2018 10:01:27 PM	37890
Ethylbenzene	ND	0.048		mg/Kg	1	5/3/2018 10:01:27 PM	37890
Xylenes, Total	ND	0.097		mg/Kg	1	5/3/2018 10:01:27 PM	37890
Surr: 4-Bromofluorobenzene	99.5	80-120		%Rec	1	5/3/2018 10:01:27 PM	37890

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 Detection Limit
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805022**
Date Reported: **5/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-0.5
Project: Shuzart 19-2
Collection Date: 4/26/2018 12:20:00 PM
Lab ID: 1805022-006
Matrix: SOIL
Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	2600	150		mg/Kg	100	5/9/2018 12:57:11 AM	37967
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	58	9.7		mg/Kg	1	5/4/2018 11:50:33 PM	37940
Motor Oil Range Organics (MRO)	160	48		mg/Kg	1	5/4/2018 11:50:33 PM	37940
Surr: DNOP	84.6	70-130		%Rec	1	5/4/2018 11:50:33 PM	37940
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5.7	4.8		mg/Kg	1	5/4/2018 9:53:00 PM	37890
Surr: BFB	142	15-316		%Rec	1	5/4/2018 9:53:00 PM	37890
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	5/3/2018 10:24:45 PM	37890
Benzene	ND	0.024		mg/Kg	1	5/3/2018 10:24:45 PM	37890
Toluene	ND	0.048		mg/Kg	1	5/3/2018 10:24:45 PM	37890
Ethylbenzene	0.084	0.048		mg/Kg	1	5/3/2018 10:24:45 PM	37890
Xylenes, Total	0.19	0.096		mg/Kg	1	5/3/2018 10:24:45 PM	37890
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	5/3/2018 10:24:45 PM	37890

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805022**

10-May-18

Client: Souder, Miller & Associates

Project: Shuzart 19-2

Sample ID	**MB-37967**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**37967**	RunNo:	**51083**					
Prep Date:	**5/7/2018**	Analysis Date:	**5/7/2018**	SeqNo:	**1659638**	Units:	**mg/Kg**			

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

Sample ID	**LCS-37967**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**37967**	RunNo:	**51083**					
Prep Date:	**5/7/2018**	Analysis Date:	**5/7/2018**	SeqNo:	**1659639**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.0	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805022**

10-May-18

Client: Souder, Miller & Associates

Project: Shuzart 19-2

Sample ID	**LCS-37940**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**37940**		RunNo:	**51045**				
Prep Date:	**5/3/2018**	Analysis Date:	**5/4/2018**		SeqNo:	**1657933**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.4	70	130			
Surr: DNOP	5.2		5.000		105	70	130			

Sample ID	**MB-37940**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**37940**		RunNo:	**51045**				
Prep Date:	**5/3/2018**	Analysis Date:	**5/4/2018**		SeqNo:	**1657934**	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		119	70	130			

Sample ID	**LCS-37939**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**37939**		RunNo:	**51045**				
Prep Date:	**5/3/2018**	Analysis Date:	**5/4/2018**		SeqNo:	**1658642**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.7	70	130			
Surr: DNOP	4.7		5.000		93.6	70	130			

Sample ID	**MB-37939**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**37939**		RunNo:	**51045**				
Prep Date:	**5/3/2018**	Analysis Date:	**5/4/2018**		SeqNo:	**1658643**	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	9.9		10.00		99.3	70	130			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805022**

10-May-18

Client: Souder, Miller & Associates

Project: Shuzart 19-2

Sample ID	**MB-37890**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**37890**	RunNo:	**50982**					
Prep Date:	**5/1/2018**	Analysis Date:	**5/2/2018**	SeqNo:	**1655670**	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	910		1000		91.2	15	316			

Sample ID	**LCS-37890**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**37890**	RunNo:	**50982**					
Prep Date:	**5/1/2018**	Analysis Date:	**5/2/2018**	SeqNo:	**1655671**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	75.9	131			
Surr: BFB	1000		1000		102	15	316			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1805022**
10-May-18

Client: Souder, Miller & Associates
Project: Shuzart 19-2

Sample ID	**MB-37890**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**PBS**	Batch ID:	**37890**	RunNo:	**50982**
Prep Date:	**5/1/2018**	Analysis Date:	**5/2/2018**	SeqNo:	**1655710** Units: **mg/Kg**

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

Sample ID	**LCS-37890**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**37890**	RunNo:	**50982**
Prep Date:	**5/1/2018**	Analysis Date:	**5/2/2018**	SeqNo:	**1655711** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.96	0.10	1.000	0	95.5	70.1	121			
Benzene	0.98	0.025	1.000	0	97.9	77.3	128			
Toluene	0.99	0.050	1.000	0	99.4	79.2	125			
Ethylbenzene	0.99	0.050	1.000	0	99.2	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	102	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

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

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: 1805022 RcptNo: 1

Received By: Isaiah Ortiz 5/1/2018 9:15:00 AM IO

Completed By: Erin Melendrez 5/1/2018 12:03:55 PM

Reviewed By: ENM 5/1/18

LB: 2.0

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 (<2 or >12 unless noted)

Adjusted? 5/1

Checked by:

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	0.8	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 days turn
☐ Standard ☐ Rush

Project Name: Shugart 19-2

Project #:

Project Manager: Austin Weygant

Sampler: Heather Patterson

On Ice: ☐ Yes ☐ No

Sample Temperature: 0.8

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1805022	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F^-,Cl^-,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
4/26/18	12:03	Soil	L1-0.5	40z		-001	X		X					X								
	12:05		L2-0.5			-002	X		X					X								
	12:10		L2-1			-003	X		X					X								
	12:12		L3-0.5			-004	X		X					X								
	12:15		L3-1			-005	X		X					X								
	12:20		L4-0.5			-006	X		X					X								

Date	Time	Relinquished by	Received by	Date	Time
4/30/18	0830	Heather Patterson		4/30/18	0830
4/30/18	1500		Courier	5/1/18	915

Remarks: Matthew

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

May 29, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Shugart 19-2 OrderNo.: 1805A37

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/18/2018 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 **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-3.5
Project: Shugart 19-2
Collection Date: 5/16/2018 9:59:00 AM
Lab ID: 1805A37-001 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3100	150		mg/Kg	100	5/24/2018 3:22:27 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	130	9.9		mg/Kg	1	5/23/2018 5:56:53 PM	38269
Motor Oil Range Organics (MRO)	170	50		mg/Kg	1	5/23/2018 5:56:53 PM	38269
Surr: DNOP	111	70-130		%Rec	1	5/23/2018 5:56:53 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Surr: BFB	87.1	15-316		%Rec	1	5/23/2018 1:33:29 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Benzene	ND	0.024		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Toluene	ND	0.048		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Ethylbenzene	ND	0.048		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Xylenes, Total	ND	0.097		mg/Kg	1	5/23/2018 1:33:29 AM	38224
Surr: 4-Bromofluorobenzene	96.2	80-120		%Rec	1	5/23/2018 1:33:29 AM	38224

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-2
Project: Shugart 19-2
Collection Date: 5/16/2018 10:09:00 AM
Lab ID: 1805A37-002 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2800	150		mg/Kg	100	5/24/2018 3:34:51 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	88	9.8		mg/Kg	1	5/23/2018 7:09:51 PM	38269
Motor Oil Range Organics (MRO)	100	49		mg/Kg	1	5/23/2018 7:09:51 PM	38269
Surr: DNOP	113	70-130		%Rec	1	5/23/2018 7:09:51 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Surr: BFB	86.5	15-316		%Rec	1	5/23/2018 1:57:04 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Benzene	ND	0.023		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Toluene	ND	0.046		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Ethylbenzene	ND	0.046		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Xylenes, Total	ND	0.092		mg/Kg	1	5/23/2018 1:57:04 AM	38224
Surr: 4-Bromofluorobenzene	95.0	80-120		%Rec	1	5/23/2018 1:57:04 AM	38224

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 Detection Limit
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: Shugart 19-2
Collection Date: 5/16/2018 10:43:00 AM
Lab ID: 1805A37-003 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	4100	150		mg/Kg	100	5/24/2018 3:47:16 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/23/2018 7:34:15 PM	38269
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/23/2018 7:34:15 PM	38269
Surr: DNOP	115	70-130		%Rec	1	5/23/2018 7:34:15 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Surr: BFB	91.0	15-316		%Rec	1	5/23/2018 2:20:30 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Benzene	ND	0.023		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Toluene	ND	0.046		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Ethylbenzene	ND	0.046		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Xylenes, Total	ND	0.092		mg/Kg	1	5/23/2018 2:20:30 AM	38224
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	5/23/2018 2:20:30 AM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: Shugart 19-2
Collection Date: 5/16/2018 10:46:00 AM
Lab ID: 1805A37-004 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2700	150		mg/Kg	100	5/24/2018 4:24:30 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	31	10		mg/Kg	1	5/23/2018 7:58:32 PM	38269
Motor Oil Range Organics (MRO)	56	50		mg/Kg	1	5/23/2018 7:58:32 PM	38269
Surr: DNOP	115	70-130		%Rec	1	5/23/2018 7:58:32 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Surr: BFB	93.3	15-316		%Rec	1	5/23/2018 2:43:57 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Benzene	ND	0.025		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Toluene	ND	0.050		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Ethylbenzene	ND	0.050		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Xylenes, Total	ND	0.10		mg/Kg	1	5/23/2018 2:43:57 AM	38224
Surr: 4-Bromofluorobenzene	99.7	80-120		%Rec	1	5/23/2018 2:43:57 AM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L5-3
Project: Shugart 19-2
Collection Date: 5/16/2018 11:55:00 AM
Lab ID: 1805A37-005 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3800	150		mg/Kg	100	5/24/2018 4:36:54 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/23/2018 8:22:52 PM	38269
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/23/2018 8:22:52 PM	38269
Surr: DNOP	114	70-130		%Rec	1	5/23/2018 8:22:52 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Surr: BFB	90.0	15-316		%Rec	1	5/23/2018 3:07:22 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Benzene	ND	0.025		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Toluene	ND	0.050		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Ethylbenzene	ND	0.050		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Xylenes, Total	ND	0.099		mg/Kg	1	5/23/2018 3:07:22 AM	38224
Surr: 4-Bromofluorobenzene	98.7	80-120		%Rec	1	5/23/2018 3:07:22 AM	38224

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 Detection Limit
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L8-1
Project: Shugart 19-2
Collection Date: 5/16/2018 12:45:00 PM
Lab ID: 1805A37-006 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2400	75		mg/Kg	50	5/24/2018 4:49:18 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	6900	200		mg/Kg	20	5/23/2018 8:47:10 PM	38269
Motor Oil Range Organics (MRO)	2900	990		mg/Kg	20	5/23/2018 8:47:10 PM	38269
Surr: DNOP	0	70-130	S	%Rec	20	5/23/2018 8:47:10 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	310	23		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Surr: BFB	494	15-316	S	%Rec	5	5/23/2018 3:30:45 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.46		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Benzene	ND	0.11		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Toluene	0.26	0.23		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Ethylbenzene	8.7	0.23		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Xylenes, Total	9.9	0.46		mg/Kg	5	5/23/2018 3:30:45 AM	38224
Surr: 4-Bromofluorobenzene	152	80-120	S	%Rec	5	5/23/2018 3:30:45 AM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1.5
Project: Shugart 19-2
Collection Date: 5/16/2018 12:52:00 PM
Lab ID: 1805A37-007
Matrix: SOIL
Received Date: 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3300	150		mg/Kg	100	5/24/2018 5:01:42 PM	38282

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L6-3
Project: Shugart 19-2
Collection Date: 5/16/2018 1:16:00 PM
Lab ID: 1805A37-008 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	440	30		mg/Kg	20	5/23/2018 10:23:31 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/23/2018 9:35:36 PM	38269
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/23/2018 9:35:36 PM	38269
Surr: DNOP	121	70-130		%Rec	1	5/23/2018 9:35:36 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Surr: BFB	90.8	15-316		%Rec	1	5/23/2018 3:54:13 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Benzene	ND	0.024		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Toluene	ND	0.048		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Ethylbenzene	ND	0.048		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Xylenes, Total	ND	0.095		mg/Kg	1	5/23/2018 3:54:13 AM	38224
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	5/23/2018 3:54:13 AM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L7-3.5
Project: Shugart 19-2
Collection Date: 5/16/2018 1:21:00 PM
Lab ID: 1805A37-009
Matrix: SOIL
Received Date: 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1800	75		mg/Kg	50	5/24/2018 5:14:06 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/23/2018 9:59:54 PM	38269
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/23/2018 9:59:54 PM	38269
Surr: DNOP	112	70-130		%Rec	1	5/23/2018 9:59:54 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Surr: BFB	91.0	15-316		%Rec	1	5/23/2018 4:17:39 AM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Benzene	ND	0.023		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Toluene	ND	0.046		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Ethylbenzene	ND	0.046		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Xylenes, Total	ND	0.093		mg/Kg	1	5/23/2018 4:17:39 AM	38224
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	5/23/2018 4:17:39 AM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L9-2
Project: Shugart 19-2
Collection Date: 5/16/2018 12:55:00 PM
Lab ID: 1805A37-010 **Matrix:** SOIL **Received Date:** 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3500	150		mg/Kg	100	5/24/2018 5:26:30 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	48	9.8		mg/Kg	1	5/23/2018 10:24:03 PM	38269
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/23/2018 10:24:03 PM	38269
Surr: DNOP	103	70-130		%Rec	1	5/23/2018 10:24:03 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Surr: BFB	89.6	15-316		%Rec	1	5/23/2018 12:16:07 PM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Benzene	ND	0.024		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Toluene	ND	0.048		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Ethylbenzene	ND	0.048		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Xylenes, Total	ND	0.097		mg/Kg	1	5/23/2018 12:16:07 PM	38224
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	5/23/2018 12:16:07 PM	38224

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 Detection Limit
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1805A37**
Date Reported: **5/29/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-2.5
Project: Shugart 19-2
Collection Date: 5/16/2018 11:58:00 AM
Lab ID: 1805A37-011
Matrix: SOIL
Received Date: 5/18/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2800	150		mg/Kg	100	5/24/2018 5:38:55 PM	38282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	19	9.9		mg/Kg	1	5/23/2018 10:48:27 PM	38269
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/23/2018 10:48:27 PM	38269
Surr: DNOP	111	70-130		%Rec	1	5/23/2018 10:48:27 PM	38269
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Surr: BFB	86.4	15-316		%Rec	1	5/23/2018 12:39:24 PM	38224
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Benzene	ND	0.024		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Toluene	ND	0.048		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Ethylbenzene	ND	0.048		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Xylenes, Total	ND	0.096		mg/Kg	1	5/23/2018 12:39:24 PM	38224
Surr: 4-Bromofluorobenzene	97.6	80-120		%Rec	1	5/23/2018 12:39:24 PM	38224

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**
29-May-18

Client: Souder, Miller & Associates
Project: Shugart 19-2

Sample ID	**MB-38282**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**38282**	RunNo:	**51462**					
Prep Date:	**5/23/2018**	Analysis Date:	**5/23/2018**	SeqNo:	**1677418**	Units:	**mg/Kg**			

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

Sample ID	**LCS-38282**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**38282**	RunNo:	**51462**					
Prep Date:	**5/23/2018**	Analysis Date:	**5/23/2018**	SeqNo:	**1677419**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**
29-May-18

Client: Souder, Miller & Associates
Project: Shugart 19-2

Sample ID	**LCS-38208**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**38208**		RunNo:	**51394**				
Prep Date:	**5/18/2018**	Analysis Date:	**5/22/2018**		SeqNo:	**1673851**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		93.9	70	130			

Sample ID	**MB-38208**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**38208**		RunNo:	**51394**				
Prep Date:	**5/18/2018**	Analysis Date:	**5/21/2018**		SeqNo:	**1673852**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.9		10.00		98.6	70	130			

Sample ID	**1805A37-001AMS**	SampType:	**MS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**L4-3.5**	Batch ID:	**38269**		RunNo:	**51394**				
Prep Date:	**5/22/2018**	Analysis Date:	**5/23/2018**		SeqNo:	**1676928**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	100	10	49.90	134.1	-67.7	62	120			S
Surr: DNOP	5.4		4.990		109	70	130			

Sample ID	**1805A37-001AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**L4-3.5**	Batch ID:	**38269**		RunNo:	**51394**				
Prep Date:	**5/22/2018**	Analysis Date:	**5/23/2018**		SeqNo:	**1676929**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	89	9.9	49.70	134.1	-91.7	62	120	12.5	20	S
Surr: DNOP	5.3		4.970		108	70	130	0	0	

Sample ID	**LCS-38269**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**38269**		RunNo:	**51394**				
Prep Date:	**5/22/2018**	Analysis Date:	**5/23/2018**		SeqNo:	**1676949**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.2	70	130			
Surr: DNOP	5.3		5.000		105	70	130			

Sample ID	**MB-38269**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**38269**		RunNo:	**51394**				
Prep Date:	**5/22/2018**	Analysis Date:	**5/23/2018**		SeqNo:	**1676950**	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								

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**
29-May-18

Client: Souder, Miller & Associates
Project: Shugart 19-2

Sample ID	**MB-38269**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**38269**	RunNo:	**51394**					
Prep Date:	**5/22/2018**	Analysis Date:	**5/23/2018**	SeqNo:	**1676950**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		116	70	130			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**

29-May-18

Client: Souder, Miller & Associates

Project: Shugart 19-2

Sample ID	**MB-38224**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**38224**	RunNo:	**51433**					
Prep Date:	**5/21/2018**	Analysis Date:	**5/22/2018**	SeqNo:	**1674612**	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	910		1000		90.6	15	316			

Sample ID	**LCS-38224**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**38224**	RunNo:	**51433**					
Prep Date:	**5/21/2018**	Analysis Date:	**5/22/2018**	SeqNo:	**1674613**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	118	75.9	131			
Surr: BFB	1000		1000		104	15	316			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**

29-May-18

Client: Souder, Miller & Associates

Project: Shugart 19-2

Sample ID **MB-38224**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **38224**	RunNo: **51433**
Prep Date: **5/21/2018**	Analysis Date: **5/22/2018**	SeqNo: **1674648** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **LCS-38224**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **38224**	RunNo: **51433**
Prep Date: **5/21/2018**	Analysis Date: **5/22/2018**	SeqNo: **1674649** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.93	0.10	1.000	0	92.5	70.1	121			
Benzene	0.95	0.025	1.000	0	94.6	77.3	128			
Toluene	0.96	0.050	1.000	0	96.2	79.2	125			
Ethylbenzene	0.95	0.050	1.000	0	95.4	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	97.7	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

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

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: 1805A37 RcptNo: 1

Received By: **Michelle Garcia** 5/18/2018 9:30:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 5/18/2018 12:44:47 PM Michelle Garcia

Reviewed By: 05/18/18 labeled by: 05/18/18

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: 0 (<2 or >12 unless noted)
Adjusted? 05/18/18
Checked by:

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	2.8	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day turn
☐ Standard ☐ Rush

Project Name: Shugart 19-2

Project #:

Project Manager: Austin Weygant

Sampler: SH/HmP

On Ice: ☐ Yes ☐ No

Sample Temperature: 2.8

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1805137	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F^-,Cl^-,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
5/16/18	9:59	Soil	L4-3.5	4oz		001	X		X					X								
	10:09		L3-2			002	X		X					X								
	10:43		SW1			003	X		X					X								
	10:46		SW2			004	X		X					X								
	11:55		L5-3			005	X		X					X								
	12:45		L8-1			006	X		X					X								
	12:52		L1-1.5			007								X								
	1:16		L6-3			008	X		X					X								
	1:21		L7-3.5			009	X		X					X								
	12:55		L9-2			010	X		X					X								
	11:58	Rock	L3-2.5	Qt Bag		011																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/17/18	1310			5/17/18	1310
5/17/18	1900			05/18/18	0930

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

October 31, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Shugart OrderNo.: 1810C91

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 17 sample(s) on 10/24/2018 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 **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: Shugart
Collection Date: 10/18/2018 9:01:00 AM
Lab ID: 1810C91-001 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	540	30		mg/Kg	20	10/26/2018 12:34:44 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/26/2018 12:47:02 PM	41199
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/26/2018 12:47:02 PM	41199
Surr: DNOP	89.3	50.6-138		%Rec	1	10/26/2018 12:47:02 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/26/2018 9:30:14 AM	41197
Surr: BFB	98.7	15-316		%Rec	1	10/26/2018 9:30:14 AM	41197
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/26/2018 9:30:14 AM	41197
Toluene	ND	0.046		mg/Kg	1	10/26/2018 9:30:14 AM	41197
Ethylbenzene	ND	0.046		mg/Kg	1	10/26/2018 9:30:14 AM	41197
Xylenes, Total	ND	0.092		mg/Kg	1	10/26/2018 9:30:14 AM	41197
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	10/26/2018 9:30:14 AM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: Shugart
Collection Date: 10/18/2018 9:28:00 AM
Lab ID: 1810C91-002 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/26/2018 12:47:08 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/26/2018 1:53:37 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 1:53:37 PM	41199
Surr: DNOP	83.2	50.6-138		%Rec	1	10/26/2018 1:53:37 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/26/2018 10:38:25 AM	41197
Surr: BFB	94.9	15-316		%Rec	1	10/26/2018 10:38:25 AM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW3
Project: Shugart
Collection Date: 10/18/2018 9:42:00 AM
Lab ID: 1810C91-003 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	95	30		mg/Kg	20	10/26/2018 12:59:33 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/26/2018 2:15:51 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 2:15:51 PM	41199
Surr: DNOP	94.2	50.6-138		%Rec	1	10/26/2018 2:15:51 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/26/2018 11:46:39 AM	41197
Surr: BFB	97.8	15-316		%Rec	1	10/26/2018 11:46:39 AM	41197
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/26/2018 11:46:39 AM	41197
Toluene	ND	0.047		mg/Kg	1	10/26/2018 11:46:39 AM	41197
Ethylbenzene	ND	0.047		mg/Kg	1	10/26/2018 11:46:39 AM	41197
Xylenes, Total	ND	0.094		mg/Kg	1	10/26/2018 11:46:39 AM	41197
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	10/26/2018 11:46:39 AM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW4
Project: Shugart
Collection Date: 10/18/2018 9:50:00 AM
Lab ID: 1810C91-004 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	510	30		mg/Kg	20	10/26/2018 2:01:37 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/26/2018 3:00:11 PM	41199
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/26/2018 3:00:11 PM	41199
Surr: DNOP	95.5	50.6-138		%Rec	1	10/26/2018 3:00:11 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/26/2018 12:09:21 PM	41197
Surr: BFB	97.5	15-316		%Rec	1	10/26/2018 12:09:21 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW5
Project: Shugart
Collection Date: 10/18/2018 9:55:00 AM
Lab ID: 1810C91-005 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	480	30		mg/Kg	20	10/26/2018 2:14:01 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/26/2018 3:22:18 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 3:22:18 PM	41199
Surr: DNOP	89.4	50.6-138		%Rec	1	10/26/2018 3:22:18 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/26/2018 12:32:10 PM	41197
Surr: BFB	95.7	15-316		%Rec	1	10/26/2018 12:32:10 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW6
Project: Shugart
Collection Date: 10/18/2018 9:59:00 AM
Lab ID: 1810C91-006 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	160	30		mg/Kg	20	10/26/2018 2:26:26 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/26/2018 3:44:34 PM	41199
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/26/2018 3:44:34 PM	41199
Surr: DNOP	89.3	50.6-138		%Rec	1	10/26/2018 3:44:34 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/26/2018 12:54:55 PM	41197
Surr: BFB	96.4	15-316		%Rec	1	10/26/2018 12:54:55 PM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW7
Project: Shugart
Collection Date: 10/18/2018 10:03:00 AM
Lab ID: 1810C91-007 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	350	30		mg/Kg	20	10/26/2018 2:38:51 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/26/2018 4:06:52 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 4:06:52 PM	41199
Surr: DNOP	99.3	50.6-138		%Rec	1	10/26/2018 4:06:52 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/26/2018 1:17:45 PM	41197
Surr: BFB	98.2	15-316		%Rec	1	10/26/2018 1:17:45 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW8
Project: Shugart
Collection Date: 10/18/2018 10:20:00 AM
Lab ID: 1810C91-008 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	44	30		mg/Kg	20	10/26/2018 2:51:16 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/26/2018 4:29:10 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 4:29:10 PM	41199
Surr: DNOP	96.2	50.6-138		%Rec	1	10/26/2018 4:29:10 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/26/2018 1:40:28 PM	41197
Surr: BFB	93.3	15-316		%Rec	1	10/26/2018 1:40:28 PM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW9
Project: Shugart
Collection Date: 10/18/2018 10:45:00 AM
Lab ID: 1810C91-009 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	110	30		mg/Kg	20	10/26/2018 3:03:41 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/26/2018 4:51:28 PM	41199
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/26/2018 4:51:28 PM	41199
Surr: DNOP	101	50.6-138		%Rec	1	10/26/2018 4:51:28 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/26/2018 2:03:10 PM	41197
Surr: BFB	94.6	15-316		%Rec	1	10/26/2018 2:03:10 PM	41197
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/26/2018 2:03:10 PM	41197
Toluene	ND	0.046		mg/Kg	1	10/26/2018 2:03:10 PM	41197
Ethylbenzene	ND	0.046		mg/Kg	1	10/26/2018 2:03:10 PM	41197
Xylenes, Total	ND	0.093		mg/Kg	1	10/26/2018 2:03:10 PM	41197
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	10/26/2018 2:03:10 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW10
Project: Shugart
Collection Date: 10/18/2018 10:50:00 AM
Lab ID: 1810C91-010 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	54	30		mg/Kg	20	10/26/2018 3:16:06 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/26/2018 5:13:53 PM	41199
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/26/2018 5:13:53 PM	41199
Surr: DNOP	99.2	50.6-138		%Rec	1	10/26/2018 5:13:53 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/26/2018 2:25:52 PM	41197
Surr: BFB	92.3	15-316		%Rec	1	10/26/2018 2:25:52 PM	41197
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/26/2018 2:25:52 PM	41197
Toluene	ND	0.047		mg/Kg	1	10/26/2018 2:25:52 PM	41197
Ethylbenzene	ND	0.047		mg/Kg	1	10/26/2018 2:25:52 PM	41197
Xylenes, Total	ND	0.094		mg/Kg	1	10/26/2018 2:25:52 PM	41197
Surr: 4-Bromofluorobenzene	96.7	80-120		%Rec	1	10/26/2018 2:25:52 PM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS6
Project: Shugart
Collection Date: 10/19/2018 8:30:00 AM
Lab ID: 1810C91-011 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	31	30		mg/Kg	20	10/26/2018 3:28:30 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/26/2018 5:36:11 PM	41199
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/26/2018 5:36:11 PM	41199
Surr: DNOP	94.3	50.6-138		%Rec	1	10/26/2018 5:36:11 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/26/2018 4:18:54 PM	41197
Surr: BFB	97.8	15-316		%Rec	1	10/26/2018 4:18:54 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS7
Project: Shugart
Collection Date: 10/19/2018 8:35:00 AM
Lab ID: 1810C91-012 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	61	30		mg/Kg	20	10/26/2018 4:05:43 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	10/26/2018 5:58:33 PM	41199
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/26/2018 5:58:33 PM	41199
Surr: DNOP	109	50.6-138		%Rec	1	10/26/2018 5:58:33 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/26/2018 4:41:45 PM	41197
Surr: BFB	92.9	15-316		%Rec	1	10/26/2018 4:41:45 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS5
Project: Shugart
Collection Date: 10/19/2018 9:47:00 AM
Lab ID: 1810C91-013 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3100	150		mg/Kg	100	10/30/2018 12:53:51 AM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/26/2018 6:20:43 PM	41199
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/26/2018 6:20:43 PM	41199
Surr: DNOP	90.3	50.6-138		%Rec	1	10/26/2018 6:20:43 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/26/2018 5:04:16 PM	41197
Surr: BFB	97.7	15-316		%Rec	1	10/26/2018 5:04:16 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS4
Project: Shugart
Collection Date: 10/19/2018 9:59:00 AM
Lab ID: 1810C91-014 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	900	30		mg/Kg	20	10/26/2018 4:30:33 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	2600	99		mg/Kg	10	10/26/2018 6:43:07 PM	41199
Motor Oil Range Organics (MRO)	1400	490		mg/Kg	10	10/26/2018 6:43:07 PM	41199
Surr: DNOP	0	50.6-138	S	%Rec	10	10/26/2018 6:43:07 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	17	4.9		mg/Kg	1	10/26/2018 5:27:01 PM	41197
Surr: BFB	221	15-316		%Rec	1	10/26/2018 5:27:01 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS3
Project: Shugart
Collection Date: 10/19/2018 10:12:00 AM
Lab ID: 1810C91-015 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3600	150		mg/Kg	100	10/30/2018 1:06:16 AM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	10/26/2018 8:11:53 PM	41199
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/26/2018 8:11:53 PM	41199
Surr: DNOP	85.8	50.6-138		%Rec	1	10/26/2018 8:11:53 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/26/2018 6:12:28 PM	41197
Surr: BFB	96.3	15-316		%Rec	1	10/26/2018 6:12:28 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS2
Project: Shugart
Collection Date: 10/19/2018 10:25:00 AM
Lab ID: 1810C91-016 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	250	30		mg/Kg	20	10/26/2018 4:55:23 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	570	10		mg/Kg	1	10/26/2018 11:08:27 PM	41199
Motor Oil Range Organics (MRO)	230	52		mg/Kg	1	10/26/2018 11:08:27 PM	41199
Surr: DNOP	104	50.6-138		%Rec	1	10/26/2018 11:08:27 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	67	4.9		mg/Kg	1	10/26/2018 6:35:08 PM	41197
Surr: BFB	646	15-316	S	%Rec	1	10/26/2018 6:35:08 PM	41197

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1810C91**
Date Reported: **10/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: CS1
Project: Shugart
Collection Date: 10/19/2018 11:15:00 AM
Lab ID: 1810C91-017 **Matrix:** SOIL **Received Date:** 10/24/2018 8:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	330	30		mg/Kg	20	10/26/2018 5:07:47 PM	41206
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	1700	99		mg/Kg	10	10/26/2018 9:40:19 PM	41199
Motor Oil Range Organics (MRO)	790	490		mg/Kg	10	10/26/2018 9:40:19 PM	41199
Surr: DNOP	0	50.6-138	S	%Rec	10	10/26/2018 9:40:19 PM	41199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	83	4.9		mg/Kg	1	10/26/2018 7:20:42 PM	41197
Surr: BFB	647	15-316	S	%Rec	1	10/26/2018 7:20:42 PM	41197
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/26/2018 7:20:42 PM	41197
Toluene	ND	0.049		mg/Kg	1	10/26/2018 7:20:42 PM	41197
Ethylbenzene	1.7	0.049		mg/Kg	1	10/26/2018 7:20:42 PM	41197
Xylenes, Total	5.2	0.098		mg/Kg	1	10/26/2018 7:20:42 PM	41197
Surr: 4-Bromofluorobenzene	179	80-120	S	%Rec	1	10/26/2018 7:20:42 PM	41197

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810C91**

31-Oct-18

Client: Souder, Miller & Associates

Project: Shugart

Sample ID	**MB-41206**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**41206**	RunNo:	**55191**					
Prep Date:	**10/26/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835866**	Units:	**mg/Kg**			

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

Sample ID	**LCS-41206**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**41206**	RunNo:	**55191**					
Prep Date:	**10/26/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835867**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.8	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1810C91**
31-Oct-18

Client: Souder, Miller & Associates
Project: Shugart

Sample ID	**MB-41199**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**41199**	RunNo:	**55190**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835508**	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	8.4		10.00		84.2	50.6	138			

Sample ID	**LCS-41199**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**41199**	RunNo:	**55190**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835526**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.3	70	130			
Surr: DNOP	4.1		5.000		81.3	50.6	138			

Sample ID	**1810C91-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**SW1**	Batch ID:	**41199**	RunNo:	**55190**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835529**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	9.9	49.50	0	81.3	53.5	126			
Surr: DNOP	4.6		4.950		92.2	50.6	138			

Sample ID	**1810C91-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**SW1**	Batch ID:	**41199**	RunNo:	**55190**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1835530**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	49.85	0	79.0	53.5	126	2.15	21.7	
Surr: DNOP	4.5		4.985		89.5	50.6	138	0	0	

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810C91**

31-Oct-18

Client: Souder, Miller & Associates

Project: Shugart

Sample ID	**MB-41197**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836165**	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		96.1	15	316			

Sample ID	**LCS-41197**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836166**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	75.9	131			
Surr: BFB	1000		1000		105	15	316			

Sample ID	**1810C91-002AMS**	SampType:	**MS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**SW2**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836169**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.56	0	118	77.8	128			
Surr: BFB	1100		982.3		117	15	316			

Sample ID	**1810C91-002AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**SW2**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836170**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.7	23.52	0	111	77.8	128	10.1	20	
Surr: BFB	1100		940.7		117	15	316	0	0	

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810C91**

31-Oct-18

Client: Souder, Miller & Associates

Project: Shugart

Sample ID	**MB-41197**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836191**	Units:	**mg/Kg**			

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

Sample ID	**LCS-41197**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836192**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.4	77.3	128			
Toluene	1.0	0.050	1.000	0	99.8	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.4	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	94.6	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID	**1810C91-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**SW1**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836194**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.023	0.9174	0.003489	106	68.5	133			
Toluene	0.99	0.046	0.9174	0	108	75	130			
Ethylbenzene	0.97	0.046	0.9174	0	106	79.4	128			
Xylenes, Total	2.9	0.092	2.752	0	104	77.3	131			
Surr: 4-Bromofluorobenzene	0.94		0.9174		103	80	120			

Sample ID	**1810C91-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**SW1**	Batch ID:	**41197**	RunNo:	**55194**					
Prep Date:	**10/25/2018**	Analysis Date:	**10/26/2018**	SeqNo:	**1836195**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9662	0.003489	110	68.5	133	8.74	20	
Toluene	1.1	0.048	0.9662	0	112	75	130	9.53	20	
Ethylbenzene	1.1	0.048	0.9662	0	110	79.4	128	9.38	20	
Xylenes, Total	3.1	0.097	2.899	0	108	77.3	131	9.04	20	
Surr: 4-Bromofluorobenzene	0.97		0.9662		100	80	120	0	0	

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: 1810C91 RcptNo: 1

Received By: Erin Melendrez 10/24/2018 8:50:00 AM

Completed By: Ashley Gallegos 10/25/2018 8:48:57 AM

Reviewed By: ENM 10/25/18 labeled by: DAD 10/25/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. 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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted) Adjusted?
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 ☐	Checked by: DAD 10/25/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good	Yes			

Chain-of-Custody Record

Client: SMA - Chad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day turn
☐ Standard ☐ Rush

Project Name: E Shugart

Project #:

Project Manager: Austin Weyant

Sampler: Heather Patterson

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.8 4

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 Request ID	Container Type and #	Preservative Type	ENM 10/24/18 HEAL No. 1810C91	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
10/18	9:01	Soil	SW1			-001	X	X	X					X								
	9:24		SW2			-002			X					X								
	9:42		SW3			-003	X		X					X								
	9:50		SW4			-004			X					X								
	9:55		SW5			-005			X					X								
	9:59		SW6			-006			X					X								
	10:03		SW7			-007			X					X								
	10:20		SW8			-008			X					X								
	10:45		SW9			-009	X		X					X								
	10:50		SW10			-010	X		X					X								
						~~-011~~																

Date: Time: Relinquished by:

Received by: Date Time 10/23/18 1400

Date: 10/23/18 Time: 1900 Relinquished by:

Received by: Courier ENM 10/24/18 Date 10/24/18 Time 0850

Remarks: Manifest PS 1 of 2

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

Chain-of-Custody Record

Client: SMA - Chevron

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 turn
☐ Standard ☐ Rush

Project Name: Shugart

Project #:

Project Manager: Bryan Wesnit

Sampler: Heather Patterson

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.4

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. 1810C91	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)
10/9/18	8:30	Soil	CS6	4oz		-012		X					X			
	8:35		CS7			-013		X					X			
	9:47		CS5			-014		X					X			
	9:54		CS4			-015		X					X			
	10:12		CS3			-016		X					X			
	10:25		CS2			-017		X					X			
	10:15		CS1			-018	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
					10/23/18	1400
10/23/18	1900			courier	10/24/18	0850

Remarks: Page 2 of 2

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

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 191440

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 191440
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	3/15/2023