

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, 2RF	P-4404, 2RP-442	28, 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, Produc	ed 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											

Shugart West 19 Federal #2 Remediation Closure Report (2RP-4403,4404,4428,1540) Page 2 of 4 January 23, 2019

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-

Shugart West 19 Federal #2 Remediation Closure Report (2RP-4403,4404,4428,1540) Page 3 of 4 January 23, 2019

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

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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

rauna Chubbuck

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:

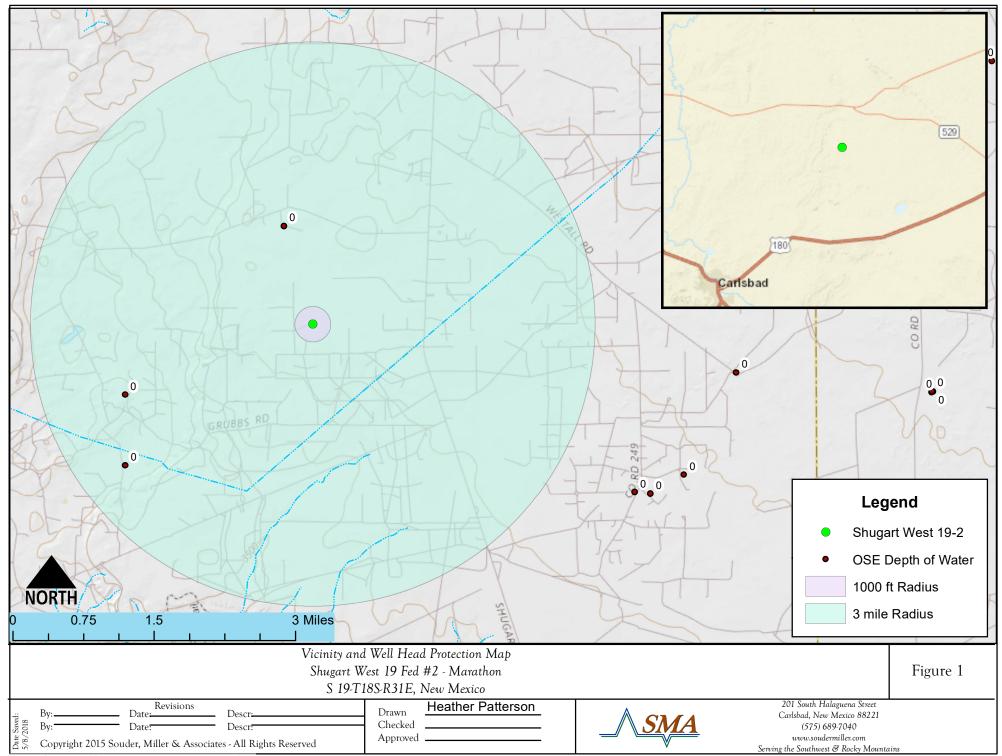
Appendix A: Form C141

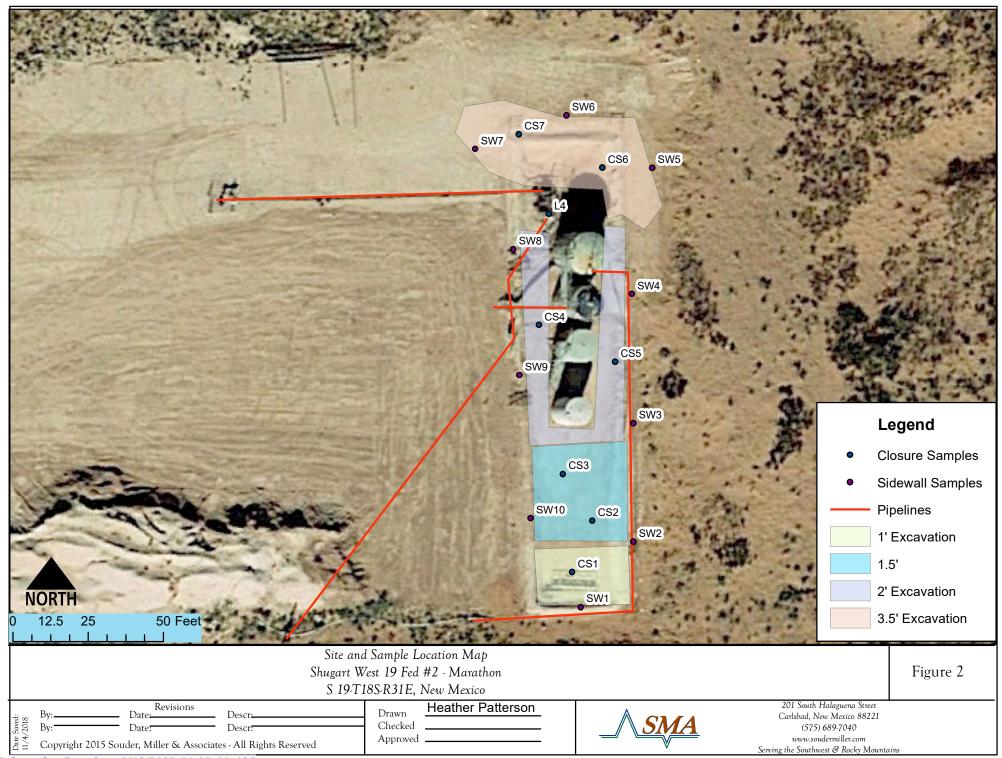
Appendix B: NMOSE Wells Report

Appendix C: Photo Documentation and Field Notes

Appendix D: Laboratory Analytical Reports

FIGURES





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				
ТРН	5000 PPM	1000 PPM	100 PPM				
Depth to Groundwater	NMO	CD Numeric Ra	nk				
< 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			BTEX	Benzene	GRO	DRO	MRO	Total TPH	CI-
Number on Figure 2	Sample Date	Depth (fee	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Laboratory mg/Kg
N	MOCD Closure Criteri	а	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
LZ	4/26/2018	1	4.91	<0.12	52	7300	7200	14,552	3,000
	4/26/2018	0.5	<0.221	<0.025	<4.9	36	64	100	2,400
L3	4/26/2018	1	<0.217	<0.024	<4.8	310	520	830	910
LS	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
L4	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			BTEX	Benzene	GRO	DRO	MRO	Total TPH	CI-
Number on Figure 2	Sample Date	Depth (fee bgs)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Laboratory mg/Kg
NI	MOCD Closure Criteri	а	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

[&]quot;--" = Not Analyzed

APPENDIX A FORM C141

Page 12 of 99 **NM OIL CONSERVATION**

Form C-141

State of New Mexico **Energy Minerals and Natural Resources**

OCT 04 2017 Revised April 3, 2017

ARTESIA DISTRICT

Submit 1 Copy to appropriate District Office in **RECEIVED** ance with 19.15.29 NMAC.

<u>District 1</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 District III Oil Conservation Division 1000 Rio Brazos Road, Aztec, NM 87410 1220 South St. Francis Dr. District IV

1220 S. St. Fran	cis Dr., Santa	a re, NWI 8/503)	Sa	nta F	Fe, NM 875	05					
			Rele	ease Notific	atio	n and Co	rrective A	ction				
NABI	12785	66881				OPERA'	ГOR	\bowtie	Initial	Report	П	Final Repo
Name of Co			Company	372098	8		nifer Van Cure			r		
		elipe St., Ho		77056			No.: 713-296-25	00				
Facility Nar	ne: Shuga	rt West 19 F	ederal 2 S	SWD		Facility Typ	e: SWD					
Surface Ow	ner: Feder	al		Mineral O	wner:	Federal			API No.:	30-015-3	30501	
				LOCA	TIO	N OF RE	LEASE			-	***	
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	East/Wes	t Line		Cour	nty
О	19	185	31E	660		FSL	1930	FEL	. [EDD	ΟY
	1			-414 - 1-20 70754			2 00/5552 NAT	L	L			
			L	atitude <u>32.7275;</u> NAT		ongitude <u>-10.</u> E OF REL l		783				
Type of Rele	ase: Produc	ed water					Release: 27.62 b			covered: (
Source of Re	lease: flare						Iour of Occurrence		ate and H 300 hrs	our of Dis	cover	y: 9/22/2017:
Was Immedia	ate Notice (Given?				9/22/17: 03 If YES, To			oo iirs			
		_	Yes 🗵	No 🗌 Not Re	quired		r (OCD) and Shel	ly Tucker (BLM)			
By Whom? J							Hour: 9/25/2017; (
Was a Water	course Read	ched?	Yes ⊠	1 No		If YES, Vo	olume Impacting t	the Waterco	urse.			
	···	pacted, Descr										
Upon arrival leg on the gu	at the Shug n barrel har	nd been left sh), the pum ut, the liq	n Taken.* per noticed that thuids equalized and ontainment. Clean	l overf	lowed the skin	n tank. Approxim	ately 27.62	bbls (.9b			
		and Cleanup 26' X 94' area		cen.* truck was called	out to	pick up standi	ng fluid.	<u></u>				
regulations a public health should their of or the environ	Il operators or the envioperations had not in a	are required to ronment. The nave failed to	o report and acceptant adequately OCD accept	e is true and comp nd/or file certain rece of a C-141 repo investigate and re otance of a C-141	elease ort by t emedia	notifications a he NMOCD mate contaminat	nd perform correct parked as "Final Ricon that pose a thr	ctive action eport" does reat to groun	s for relea not relie nd water,	uses which we the ope surface w	n may e erator c ater, h	endanger of liability uman health
					2		OIL CON	SERVA'	TION I	DIVISIO	<u>NC</u>	
Signature:							O.:	D. #1		g Salananananan		
Printed Name	e: Jennifer \	Van Curen		A	Approved by Environmental Specialist:							
			·				101-1.0	T		1 +	IN	
Title: Sr. Reg	gulatory Co	mpliance Rep				Approval Da	te: Ub '	_ Exp	oiration E	ate: N	111_	
E-mail Addre	ess: jvancur	ren@marathor	noil.com			Conditions o	f Approval:		ŀ	Attached	i . \Box	
Date: 0/25/	2017	Phone: 7	12 206 25	00		Sea) attached Attached 280-4428						

^{*} 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 200428 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 <u>division-approved corrective action</u> 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 $\frac{2}{2}$ office in $\frac{ARTESIA}{ARTESIA}$ on or before $\frac{11/4/2017}{2017}$. 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

Responsible Party Marathon Oil Permian

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

OGRID 372098

Contact Name Callie Karrigan						Telephone 405-202-1028 (cell) 575-297-0956 (office)			
Contact ema	il cnkarrig	an@marathonoil.	com		Incident # (assigned by OCD) nAB1727856881				
Contact mail 77056	ling address	5555 San Felipe S	St, Houston Texas	s					
			Location	n of R	elease S	Source			
Latitude 32.7	7275543		(NAD 83 in a		Longitude grees to 5 deci	e -103.9065552			
Site Name S	hugart West	19 Fed #2			Site Type	e SWD			
Date Release	Discovered	9/22/2017			API# (if ap	applicable) 30-015-30501			
Unit Letter	Section	Township	Range		Cou	unty			
0	19	18S	31E	Edd					
Crude Oi		Volume Released		ch calculati	ons or specifi	Volume Recovered (bbls)			
Crude Oi				cii caicuiati	ons or specific				
Produced	Water	Volume Release	ed (bbls) 28			Volume Recovered (bbls) 0			
		Is the concentra produced water	tion of dissolved >10,000 mg/l?	chloride	in the	⊠ Yes □ No			
Condensa	ate	Volume Release				Volume Recovered (bbls)			
Natural C	Gas	Volume Release	ed (Mcf)			Volume Recovered (Mcf)			
Other (de	escribe)	Volume/Weight	Released (provi	de units)		Volume/Weight Recovered (provide units)			
Cause of Rel	ease								
Release v	within batt	ery due to skin	n tank overflov	w.					

Received by OCD: 2/28/2023 10:57:24 AM Form C-141 State of New Mexico Oil Conservation Division Page 2

	Page 16 of 9	99
Incident ID	nAB1727856881	
District RP	2RP-4428	
Facility ID		
Application ID		

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	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	Was this a major	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)? Not according to available records.	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 scoured 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 fire 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 dute. 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. Thereby 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 fle 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 containation that pose at 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. Title:HES Professional	release as defined by 19.15.29.7(A) NMAC?	Amount of fluid loss.
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email:cnkarrigan@marathonoil.com Telephone:575-297-0956	email:cnkarrigan@marathonoil.com	Printed Name:Callie K	Carrigan Title:HES Professional
	OCD Only	Signature: _Callie Kan	<u>rrigan</u> Date: <u>1/23/2019</u>
		email:cnkarrigan@m	arathonoil.com Telephone:575-297-0956
OCD Only	Received by: Date:	OCD Only	
Received by: Date:		Received by:	Date:

e of New Mexico

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.

Note: Appropriate OCD District office must be notified 2 days prior to liner inspection) Note: Appropriate OCD District office must be notified 2 days prior to liner inspection)
☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
□ Description of remediation activities
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OCD Only
Received by: Date: 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

ARTESIA DISTRICT

NM OIL CONSERVATION

Form C-141 Revised April 3, 2017

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Stubmit 3020170 appropriate District Office in accordance with 19.15.29 NMAC.

RECEIVED

Release Notification and Corrective Action													
NAB11	24352	918					OPERA	ΓOR		Initial	al Report		Final Report
Name of Co	mpany Ma	arathon Oil	Permian	LLC	31204	8	Contact Jeni	nifer Van Curen					
Address 555	55 San Fel	ipe Street, H	louston,	Texas			Telephone N	No. 713-296-250	00 (offi	ce)			
Facility Nan	ne Shugar	West 19 Fe	ederal#	2]	Facility Typ	e Salt water disp	posal w	vell			
Surface Ow	ner BLM				Mineral Ow	ner B	LM			API No	. 30-015-3	0501	
					LOCAT	IOI	OF REI	LEASE					
Unit Letter	Section	Township	Range	Feet			South Line	Feet from the	East/V	Vest Line		Coun	ty
0	19	18S	31E		660	,	South	1930	1	East		Edd	y
	Latitude 32.7275543 Longitude -103.9065552 NAD83												
Type of Relea	ase Produce	d water			NATU	KE	OF RELI	Release 55 bbls		Volume I	Recovered 1	5 bblc	
Source of Re								our of Occurrence	e		Hour of Dis		
							9/11/2017				7 8:40 PM C		
Was Immedia	ate Notice (Yes	□ No	☐ Not Requ	iired	If YES, To Shelly Tuc NMOCD	Whom? ker with BLM not	tified vi	a email &	C. Weaver a	nd M.	Bratcher with
By Whom? V	Vendy Gran	n						our 9/11/2017 ap	proxima	ately 2:45 l	PM CDST		
Was a Watero	course Reac	hed?	l Yes	⊠ No	•		If YES, Vo	lume Impacting the	he Wate	ercourse.			
If a Watergay							<u> </u>					- 35-	
If a Watercou	iise was iii	pacted, Desci	nde Fun	y. ·									
allowing fluid	ly 55 bbls s I to be push	pilled from the	ne injecti ne systen	on pump n and out	with a bad babad ball valv	e on i	njection pum	were shut in from p. This occurred a ick up standing fl	at the Sh	nugart Wes	t 19 Federal	1 well	site on
	arthen bern	n held fluid w	ith no br	eaches.				urated soil will in ed to the NMOCE				sposed	at a NMOCD
regulations al public health should their o	I operators or the environment. In a	are required ronment. The ave failed to ddition, NMG	to report e accepta adequate OCD acc	and/or fi ince of a cally invest eptance of	le certain rele C-141 report igate and rem	ease no by the nediate	otifications and NMOCD made contamination	knowledge and und perform corrector arked as "Final Room that pose a three the operator of the corrector of	tive act eport" d eat to gi	ions for rel loes not rel round wate	eases which ieve the ope r, surface w	may en erator of ater, hu	ndanger f liability man health
Jennífer Van Curen Signature:					OIL CONSERVATION DIVISION								
Printed Name	e: Jennifer V	Van Curen					Approved by	Environ Richard	Pecialis	W/4 £) KANTULE	<u> </u>	
Title: Sr. Reg							Approval Da	e: 9/19/11	7	Expiration	Date: ///	4	407
E-mail Addre	ess: jvancur	en@maratho	noil.com				Conditions of	f Approval:					
Date: Septem			06 2500	(office)				Sep atto	ache	ed	Attached	P- Z	14n4

* 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 310-4444 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 <u>division-approved corrective action</u> 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

Responsible Party Marathon Oil Permian

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	nAB1726352969
District RP	2RP-4404
Facility ID	
Application ID	

Release Notification

Responsible Party

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 mail 77056	ing address	5555 San Felipe S	St, Houston Texas	s				
			Location	n of R	elease S	Source		
Latitude 32.7	275543		(NAD 83 in a		Longitude grees to 5 deci	e -103.9065552		
Site Name Si	hugart West	19 Fed #2			Site Type	e SWD		
Date Release	Discovered	9/11/2017			API# (if ap	pplicable) 30-015-30501		
Unit Letter	Section	Township	Range		Cou	unty		
0	19	18S	31E	Edo				
Crude Oil		Volume Release		ch calculat	ions or specific	Volume Recovered (bbls)		
Crude Oil				ch calculat	ions or specific			
Produced	Water	Volume Release	ed (bbls) 55			Volume Recovered (bbls) 15		
		Is the concentra produced water	tion of dissolved >10,000 mg/l?	chloride	in the Yes No			
Condensa	ite	Volume Release				Volume Recovered (bbls)		
Natural G	ias	Volume Release	ed (Mcf)			Volume Recovered (Mcf)		
Other (describe) Volume/Weight Released (provide units					Volume/Weight Recovered (provide units)			
Cause of Rel	ease					<u> </u>		
Release v	within batt	ery due to a va	lve failure in t	the inje	ction pum	np.		

Received by OCD: 2/28/2023 10:57:24 AM Form C-141 State of New Mexico Page 2

Oil Conservation Division

	Page 22 of 99
Incident ID	nAB1726352969
District RP	2RP-4404
Facility ID	
Application ID	

Was this a major	If YES, for what reason(s) does the responsible party consider this a major release?
release as defined by 19.15.29.7(A) NMAC?	Amount of fluid loss.
, ,	
⊠ Yes □ No	
If VEC in diete	this since to the OCD2 December 2 To subser 2 When and he substances (above and 1 44)2
	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? ystal Weaver, and Mike Bratcher by Wendy Gram on 9/11/2017 at 2:45 pm.
,	
	Initial Response
The responsible p	party must undertake the following actions immediately unless they could create a safety hazard that would result in injury
The source of the rele	ease has been stopped.
<u> </u>	s been secured to protect human health and the environment.
Released materials ha	eve been contained via the use of berms or dikes, absorbent pads, or other containment devices.
All free liquids and re	ecoverable materials have been removed and managed appropriately.
	d above have <u>not</u> been undertaken, explain why:
	AC the responsible party may commence remediation immediately after discovery of a release. If remediation
U 1	a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred at area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
	· · · · · · · · · · · · · · · · · · ·
	rmation given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and required to report and/or file certain release notifications and perform corrective actions for releases which may endanger
	nent. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have
addition, OCD acceptance of	ate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In f 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 K	Carrigan Title:HES Professional
Signature: Callie Kar	<u>rígan</u> Date: _1/23/2019
Signature. <u>-everee 3 corr</u>	7 bytotie
email:cnkarrigan@m	arathonoil.com Telephone:575-297-0956
OCD Only	
Received by:	Date:

of New Mexico

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.

OCD Only	Closure Report Attachment Checklist: Each of the following	ng items must be included in the closure report.				
Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling) ☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling) ☑ Description of remediation activities ☐ Thereby 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:CallieKarrigan Date:	A scaled site and sampling diagram as described in 19.15.	29.11 NMAC				
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: Date: Telephone: 575-297-0956 OCD Only Received by: Date: Date:						
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: Date:	☐ Laboratory analyses of final sampling (Note: appropriate €	ODC District office must be notified 2 days prior to final sampling)				
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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:	and regulations all operators are required to report and/or file ce may endanger public health or the environment. The acceptance should their operations have failed to adequately investigate and human health or the environment. In addition, OCD acceptance compliance with any other federal, state, or local laws and/or represtore, reclaim, and re-vegetate the impacted surface area to the accordance with 19.15.29.13 NMAC including notification to the Printed Name:Callie Karrigan Title	ertain release notifications and perform corrective actions for releases which e of a C-141 report by the OCD does not relieve the operator of liability distributed remediate contamination that pose a threat to groundwater, surface water, to of a C-141 report does not relieve the operator of responsibility for gulations. The responsible party acknowledges they must substantially econditions that existed prior to the release or their final land use in the OCD when reclamation and re-vegetation are complete. Let a complete contamination of the complete complete contamination and complete complete complete complete contamination. Date:1/23/2019				
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:	OCD Only					
	remediate contamination that poses a threat to groundwater, surfa-	arty of liability should their operations have failed to adequately investigate and ace water, human health, or the environment nor does not relieve the responsible				
Printed Name: Title:	Closure Approved by:	Date:				
	Printed Name:	Title:				

District 1

NM OIL CONSERVATION

State of New Mexico **Energy Minerals and Natural Resources**

ARTESIA DISTRICT Form C-141 Revised April 3, 2017 SEP 1 3 2017

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

RECEIVED

1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III Oil Conservation Division 1000 Rio Brazos Road, Aztec, NM 87410 1220 South St. Francis Dr. District IV

220 S. St. Francis Dr., Santa Fo	e, NM 87505		Sa	anta Fe	, NM 875	05				
	R	elease	Notific	cation	and Co	rrective A	ction			
					OPERA	ΓOR	Б	Initial	Report	Final Repor
Name of Company Mara	athon Oil Permi	an LLC	3720			nifer Van Curen	-			
Address 5555 San Felipe			77056	7		No. 713-296-250				
Facility Name Shugart V				I	acility Typ	e Salt water dis	posal wel	1		
Surface Owner BLM	·		Mineral C	Owner B	LM			API No.	30-015-3	0501
			LOCA	ATION	OF REI	LEASE			·_ *** ·	
Unit Letter Section	Township Ran	ge Fee	et from the		South Line	Feet from the	East/We	st Line		County
O 19	18S 311	E [660	<u> </u>	South	1930	Ea	st [Eddy
		Latit	ude 32.727:	5543 Lo i	ngitude -10	3.9065552 NAD	83			
			NAT	TURE	OF RELI					- Lance
Type of Release Produced						Release 5 barrel			covered 0	
Source of Release Injection	ı pump				Date and F. 9/8/2017	Iour of Occurrenc			lour of Dis :40 PM CI	
Was Immediate Notice Giv	en?				If YES, To					,
	☐ Yes	☐ No	Not R	equired	Shelly Tuc NMOCD	ker with BLM no	tified via e	email & C.	. Weaver a	and M. Bratcher with
By Whom?						Iour 9/11/2017 ap	proximate	ly 2:45 PN	A CDST	
Was a Watercourse Reache		⊠ No			If YES, Vo	olume Impacting t	he Watero	ourse.		
If a Watercourse was Impa	cted, Describe Fu	lly.*		*****		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 				
D " G - CD 11						Mar.		5-4-4-		
Describe Cause of Problem A 5 bbl spill occurred at the through pump are shut in u	e Shugart West 19	9 Federal		on Friday	, September	8th caused by a ho	ole in the i	njection po	ımp drain.	The wells going
Describe Area Affected and	d Cleanup Action	Taken.*								
20' area around pump was	affected. Impacte	d soils w	ill be remov	ed and di	isposed at NI	MOCD approved	facility.			
I hereby certify that the inf	ormation given a	bove is tr	ue and comp	olete to th	ne best of my	knowledge and u	nderstand	that pursu	ant to NM	OCD rules and
regulations all operators are										
public health or the environ										
should their operations hav or the environment. In add	e tailed to adequa	ately inve	stigate and i	remediate	e contaminati	on that pose a three the operator of	eat to grot responsibi	ina water, lity for co	Surrace was	ater, numan neattn
federal, state, or local laws			01 a C-141	report ut	Jes not renev	e the operator of	responsibi	inty for co	inpriance v	with they other
	<u> </u>					OIL CON	SERVA	TION	DIVISIO	<u>ON</u>
Jennifer Van Curer	ν						ø	,		
Signature:					Ammorrad hy	Environmental's	The S	A Land	*****	
Printed Name: Jennifer Va	n Curen				Approved by	Environmentar 8	pecialist.	70304	TONC ST	
Title: Sr. Regulatory Comp	oliance				Approval Da	te: 4/19/19) _{Ex}	piration D	ate: N	<u>'A</u>
E-mail Address: jvancuren	@marathonoil.co	m			Conditions o	f Approval:				

See attached

Phone: 832-480-1740 (cell) 713-296-2500 (office)

Date: September 13, 2017

^{*} Attach Additional Sheets If Necessary

Operator/Responsible Party,

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 <u>division-approved corrective action</u> 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 $\frac{2}{2}$ office in $\frac{ARTESIA}{ARTESIA}$ on or before $\frac{10/13/2017}{2}$. 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

Responsible Party Marathon Oil Permian

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	
District RP	2RP-4403
Facility ID	
Application ID	

Release Notification

Responsible Party

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 mail 77056	ing address	5555 San Felipe S	t, Houston Texas					
			T4!	f D	-1 C	2		
			Location	i oi K	eiease S	Source		
Latitude 32.7	275543					-103.9065552		
			(NAD 83 in de	ecimal deg				
Site Name Si	hugart West	19 Fed #2			Site Type	SWD		
Date Release	Discovered	9/8/2017			API# (if ap)	pplicable) 30-015-30501		
Unit Letter	Section	Township	Range		Cour	inty		
O	19	18S	31E	Edd		mty		
Surface Owner	r: State	⊠ Federal □ Tr	ribal 🔲 Private (Name: _)		
			Noture on	J 17al	o o f	Delegge		
			Nature and	u voi	ume or .	Release		
Crude Oi				h calculati	ions or specific	Volume Recovered (bbls)		
		Volume Release			` '			
Produced	Water	Volume Release	` '			Volume Recovered (bbls)		
		Is the concentrate produced water	tion of dissolved of >10.000 mg/1?	chloride	in the	⊠ Yes □ No		
Condensa	ite	Volume Release				Volume Recovered (bbls)		
Natural G	ias	Volume Release	d (Mcf)			Volume Recovered (Mcf)		
Other (describe) Volume/Weight Released (provide units			le units)	Volume/Weight Recovered (provide units)				
Cause of Rel	ease	•						
Release v	within hatt	ery due to a hol	le in the injecti	ion nu	mn drain			
Release	within batt	ery due to a nor	ie in the injecti	ion pui	np uram.	,		

Received by OCD: 2/28/2023 10:57:24 AM Form C-141 State of New Mexico Page 2 Oil Conservation Division

Page 28 of 99

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

Was this a major release as defined by	If YES, for what reason(s) does the responsible party consider this a major release?
19.15.29.7(A) NMAC?	
☐ Yes ⊠ No	
If YES, was immediate no	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
1 1 25, 1, 45 11111001410 11	sace given to une c e.z. v. z.j. whom. To whom, when and e.j. whoms (prione, email, etc).
	Initial Response
The responsible p	party must undertake the following actions immediately unless they could create a safety hazard that would result in injury
The source of the rele	ease has been stopped.
☐ The impacted area ha	s been secured to protect human health and the environment.
Released materials ha	we been contained via the use of berms or dikes, absorbent pads, or other containment devices.
All free liquids and re	ecoverable materials have been removed and managed appropriately.
If all the actions described	d above have <u>not</u> been undertaken, explain why:
has begun, please attach	AC the responsible party may commence remediation immediately after discovery of a release. If remediation a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred at area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
regulations all operators are public health or the environr failed to adequately investig	rmation given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and required to report and/or file certain release notifications and perform corrective actions for releases which may endanger nent. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have at and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In f a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws
Printed Name:Callie K	Carrigan Title:HES Professional
Signature: _Callie Kar	<u>rrigan</u> Date: _1/23/2019
email:cnkarrigan@m	arathonoil.com Telephone:575-297-0956
OCD Only	
Received by:	Date:

Page 29 of 99

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 Title:HES Professional 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

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3 JAN 2 8 2013

Form C-141 Revised August 8, 2011

Page 30 of 99

NMOCD ARTEGORAGE with 19.15.29 NMAC.

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

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Surface Ow	mer BLM			Minera	i Owner E	SLiVI			API No			
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						OF REL			-			
Type of Rele		uce water				Volume of	Release 12-15 b			Recovered ap		
Source of Re	elease From	frac tank beir	ng fed by i	njection well		1	lour of Occurren			Hour of Dis	covery	
Was Immed	inta Notice	Given?				1-28-13 If YES, To	Whom?	1	1-28-18	6:40 A.M.		
was immedi	iate motice (☐ Yes	□ No □ N	ot		o wnom? les Amos/Terry C	Gregston				
Required		Α.Α.	~	<u>_</u>	~-		ke Bratcher	2.050.011				
By Whom?	Chris Flores					Date and F	Hour 1-28-2013 !	st call 7·42	a.m. 2 ^{nc}	call 808 a n	n. 3 rd call 8	19 a.m
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N.A.				•			i					
				!								
Describe Co	use of Probl	em and Reme	edial Actio	n Taken *								
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				ninated dirt to p			٠. '	-	. ,			
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I hereby cert	ify that the	information g	iven abov	e is true and co	mplete to the	he best of my	knowledge and	understand	that pur	suant to NM	OCD rules	and
regulations a	all operators	are required	to report a	nd/or file certai	in release n	otifications a	and perform corre	ective action	ns for re	leases which	nay endar	iger
							narked as "Final I					
							ion that pose a the ve the operator of					
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							JIP COL			1010		
Signature: C	Chris Flores			<u> </u>						الأراب	1 1	
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				:					_	Attached	· □	
E-mail Addı	ress: <u>chris.fl</u>	ores@meriter	nergy.co			Conditions of				l	_	
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eleased to 1	maging: 3	/15/2023 11	:28:10 A	M		PROPOSAI	L NO LATER TI	HAN:				

March

Responsible Party Marathon Oil Permian

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	nJMW1303834128
District RP	2RP-1540
Facility ID	
Application ID	

Release Notification

Responsible Party

OGRID 372098

Contact Name Callie Karrigan					Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)					
Contact ema	il cnkarrig	an@marathonoil.	com		Incident # (assigned by OCD) nJMW1303834128					
Contact mail 77056	ling address	5555 San Felipe S	St, Houston Texas	S	1					
			Location	n of R	elease S	Source				
Latitude 32.7	7275543		(NAD 83 in d		Longitude grees to 5 deci	e -103.9065552				
Site Name S	hugart West	19 Fed #2			Site Type	e SWD				
Date Release	Discovered	1/28/2013			API# (if ap	applicable) 30-015-30501				
Unit Letter	Section	Township	Range		Cou	ounty				
0	19	18S	31E	Edo						
Crude Oi		Volume Released		ch calculat	ions or specific	Volume Recovered (bbls)				
Crude Oi				cii caicuiai	ions or specific					
Produced	Water	Volume Release	ed (bbls) 15			Volume Recovered (bbls) 8				
		Is the concentra produced water	tion of dissolved >10,000 mg/l?	chloride	in the	⊠ Yes □ No				
Condensa	ate	Volume Release				Volume Recovered (bbls)				
Natural C	Gas	Volume Release	ed (Mcf)			Volume Recovered (Mcf)				
Other (de	escribe)	Volume/Weight	Released (providence)	de units)		Volume/Weight Recovered (provide units)				
Cause of Rel	ease									
Release f	from stora	ge tank, caused	by human err	or.						

Received by OCD: 2/28/2023 10:57:24 AM Form C-141 State of New Mexico Oil Conservation Division Page 2

	Page 32 of 99
Incident ID	nJMW1303834128
District RP	2RP-1540
Facility ID	
Application ID	

Was this a major release? If YES, for what reason(s) does the responsible party consider this a major release?
19.15.29.7(A) NMAC?
☐ Yes ☒ No
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
<u> </u>
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 <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation
has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and
regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have
failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws
and/or regulations.
Printed Name: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:

ate of New Mexico

Incident ID nIMW1303834128

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.
A scaled site and sampling diagram as described in 19.15.29.11 NMAC
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:

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)

J ,			•				• , ,		•	•	•
	POD										
	Sub-		QQC)						Depth	Depth Water
POD Number	Code basin	County	64 16 4	Sec	Tws	Rng	Х	Υ	Distance	Well	Water Column
CP 00818 POD1	СР	LE	1 4	1 26	18S	30E	599289	3620364* 🌍	3420	240	
CP 00767 POD1	СР	ED	3 2	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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

APPENDIX C PHOTO DOCUMENTATION & FIELD NOTES

Photo Log
Photo Taken October 19, 2018
Facing southeast
32.727453°, -103.743220

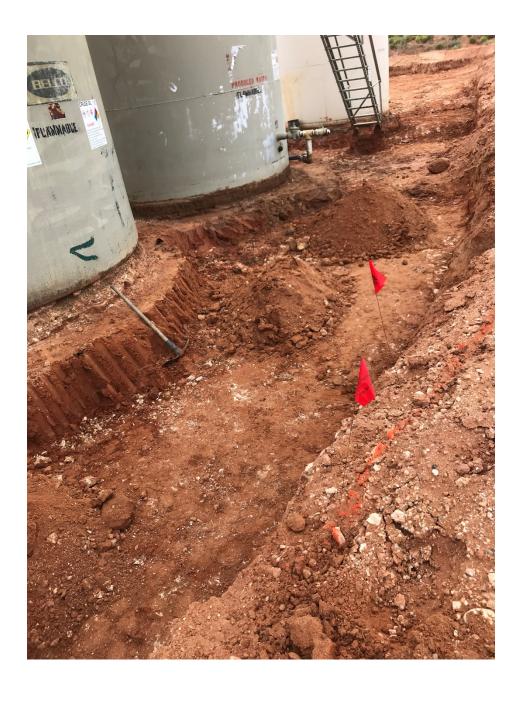


Photo Taken October 19, 2018 Facing east 32.727585°, -103.906225°



Photo Taken October 19, 2018
Facing north
32.727111°, -103.906055°



		F	ield Sci	reening							
	Loc	ation N	Name:			Date					
Shoz	,A					(0/18/	18/10/14/1				
Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF				
SM	Seul Rest	1-0-1	9:01	0.46	8.60						
Sur	Surch	0-1.5	9:28	0.01	8.80						
5 W 2	5,	0-1	9:42	0.23	S.2°						
SWY	Sund,	0-1,	9:50	0.45	9.50						
	Sund	0-3	9:55	0.41	9.40						
sus Sul	Spel	0-3.	9:59	0.23	10.80						
SW#7	Sand	0-35	10:03	0.29	10.80						
548	Same	0-22	10:20	0.05	10.80						
51.15	Sun.	0-	10:45								
5W1	San	0-	11:50								
			112/	/							
			WILA	18							
C56	Rorele	Jan	8:30	0.15	10.70						
657	lose	101 3.5	8:35		10.90						
C35	Roll	2	9:47	0.50	11.10	 					
(54	1/	2	9:59	0.63	11.30						
<i>(5 3</i>	11	2	10:12								
(32	1/	1.5	10.28								
<u>(53</u> <u>(52</u> <u>(51</u>	N	1	11:15								

APPENDIX D LABORATORY ANALYTICAL REPORTS



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

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

Indest

4901 Hawkins NE

Albuquerque, NM 87109

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	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 RAN	IGE 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 RA	NGE					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.

- * 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 Page 1 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al 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 RAM	IGE ORGANICS	3			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 RA	NGE				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.

- 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 Page 2 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Q	ual Units	DF	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 RAM	IGE ORGANICS	i			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 RA	NGE				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.

- 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 Page 3 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al 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 RA	NGE ORGANICS	3			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 RA	ANGE				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.

- 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 Page 4 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Ç	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 RANG	GE 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 RAN	IGE					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.

- * 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 Page 5 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	PQL Qual Units		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 RAM	NGE ORGANICS	3			Analyst	том
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 RA	NGE				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.

- * 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 Page 6 of 10
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

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

Page 7 of 10

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: Ics 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.

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

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 O 96.4 50.00 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 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.

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

Page 8 of 10

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805022**

10-May-18

Client: Souder, Miller & Associates

Project: Shuzart 19-2

Surr: BFB

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

1000

Prep Date: 5/1/2018 Analysis Date: 5/2/2018 SeqNo: 1655671 Units: mg/Kg

1000

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

102

15

316

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

Page 9 of 10

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1805022

10-May-18

Client: Souder, Miller & Associates

Project: Shuzart 19-2

Sample ID MB-37890	TestCode: EPA Method 8021B: Volatiles										
Client ID: PBS	Batch	n ID: 37	890	F	RunNo: 5	0982					
Prep Date: 5/1/2018	Analysis D	ate: 5/	2/2018	S	SeqNo: 1	655710	Units: mg/K	(g			
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	SampT	ype: LC	s	Tes												
Client ID: LCSS	ent ID: LCSS Batch ID: 37890						RunNo: 50982									
Prep Date: 5/1/2018	Analysis D	oate: 5/	2/2018	S	SeqNo: 1	655711	Units: mg/k	(g								
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	3.000	0	102	81.6	129											
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120									

Qualifiers:

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

Value exceeds Maximum Contaminant Level. В

Page 10 of 10



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

(Note discrepancies on chain of custody) 12. Are matrices correctly identified on Chain of Custody? 13. Is it clear what analyses were requested? 14. Were all holding times able to be met? (If no, notify customer for authorization.)	$F_{0}(0)$	
Chain of Custody 1. Is Chain of Custody 2. How was the sample delivered? Log In 3. Was an attempt made to cool the samples? 4. Were all samples received at a temperature of >0° C to 6.0° C 5. Sample(s) in proper container(s)? 6. Sufficient sample volume for indicated test(s)? 7. Are samples (except VOA and ONG) properly preserved? 8. Was preservative added to bottles? 9. VOA vials have zero headspace? 10. Were any sample containers received broken? 11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) 12. Are matrices correctly identified on Chain of Custody? 13. Is it clear what analyses were requested? 14. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) 15. Was client notified of all discrepancies with this order? Person Notified: By Whom: Regarding: Client instructions: 16. Additional remarks: 17. Cooler Information Cooler No Temp *C Condition Seal Initact Seal No Seal Date Signed By	$F_{0}(0)$	
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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

Indest

4901 Hawkins NE

Albuquerque, NM 87109

CLIENT: Souder, Miller & Associates

Analytical Report

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

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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 RAI	NGE ORGANICS	3			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 RA	ANGE				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.

- 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 Page 1 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al 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 RA	NGE ORGANICS	3			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 RA	ANGE				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.

- 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 Page 2 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analys	: MRA
Chloride	4100	150	mg/Kg	100	0 5/24/2018 3:47:16 PM	38282
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS	}			Analys	: 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 RA	NGE				Analys	: 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					Analys	: 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.

- 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 Page 3 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

CLIENT: Souder, Miller & Associates

Analytical Report

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

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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 RA	NGE ORGANICS	3			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 RA	ANGE				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.

- * 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 Page 4 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	: MRA
Chloride	3800	150	mg/Kg	100	0 5/24/2018 4:36:54 PM	38282
EPA METHOD 8015M/D: DIESEL RAM	IGE 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 RA	NGE				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.

- * 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 Page 5 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 RAN	GE 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 RAM	NGE					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.

- * 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 Page 6 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

CLIENT: Souder, Miller & Associates

Analytical Report

Lab Order **1805A37**

Date Reported: 5/29/2018

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF Date Analyzed	Batch
EPA METHOD 300.0: ANIONS				Analy	yst: MRA
Chloride	3300	150	mg/Kg	100 5/24/2018 5:01:42 P	M 38282

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

- * 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 Page 7 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

CLIENT: Souder, Miller & Associates

Analytical Report

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

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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 RA	NGE ORGANICS	3			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 RA	ANGE				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.

- 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 Page 8 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al 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 RA	NGE 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 RA	ANGE				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.

- * 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 Page 9 of 16
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Qu	al 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 RAI	NGE 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 RA	ANGE				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.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 10 of 16 J
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

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

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 11 of 16 J
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

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: Ics 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.

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

Sample pH Not In Range

RL Reporting Detection Limit

P

W Sample container temperature is out of limit as specified

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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 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

SPK value SPK Ref Val %REC Analyte Result LowLimit HighLimit %RPD **RPDLimit** Qual

Surr: DNOP 9.9 10.00 98.6 130

TestCode: EPA Method 8015M/D: Diesel Range Organics Sample ID 1805A37-001AMS SampType: MS

Batch ID: 38269 Client ID: L4-3.5 RunNo: 51394

Analysis Date: 5/23/2018 Prep Date: 5/22/2018 SeqNo: 1676928 Units: mg/Kg

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result POL LowLimit HighLimit Qual Diesel Range Organics (DRO) 100 10 134.1 -67.7 62 49.90 120 Surr: DNOP 4.990 70 5.4 109 130

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

%REC Analyte Result **PQL** SPK value SPK Ref Val 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

Sample ID LCS-38269 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS RunNo: 51394 Batch ID: 38269

Prep Date: Analysis Date: 5/23/2018 SeqNo: 1676949 5/22/2018 Units: mg/Kg

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 10 0 96.2 70 48 50.00 130 Surr: DNOP 5.3 5.000 105 70 130

SampType: MBLK 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 ND 50 Motor Oil Range Organics (MRO)

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Sample ID MB-38269

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

TestCode: EPA Method 8015M/D: Diesel Range Organics

Page 13 of 16

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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.
- 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

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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.
- 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1805A37**

29-May-18

Client: Souder, Miller & Associates

Project: Shugart 19-2

Sample ID MB-38224	SampT	уре: МЕ	BLK	TestCode: EPA Method			8021B: Volat	3: Volatiles			
Client ID: PBS	Batch	n ID: 38	224	RunNo: 51433							
Prep Date: 5/21/2018	Analysis D	Date: 5/	22/2018	SeqNo: 1674648			8 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	SampT	ype: LC	s	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batcl	n ID: 38	224	F	RunNo: 5	1433				
Prep Date: 5/21/2018	Analysis Date: 5/22/2018			SeqNo: 1674649			Units: mg/h	(g		
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.
- 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

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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

abelled by bolished abelled by abell	Is Chain of Custody Is Chain	
Is Chain of Custody Is Chain of Custody complete? How was the sample delivered? Couner. Were all samples received at a temperature of >0° C to 6.0°C Yes No No NA NA NA NA NA NA NA NA	Is Chain of Custody Is Chain	
Is Chain of Custody Is Chain of Custody complete? How was the sample delivered? Couner. Was an attempt made to cool the samples? Were all samples received at a temperature of >0° C to 6.0°C Yes V No No NA Sample(s) in proper container(s)? Yes V No No NA Sufficient sample volume for indicated test(s)? Are samples (except VOA and ONG) property preserved? Was preservative added to bottles? Yes No No No NA Wood vials have zero headspace? Were any sample containers received broken? Yes No	Is Chain of Custody Is Chain	
Is Chain of Custody complete? How was the sample delivered? Courier. Oci In Was an attempt made to cool the samples? Were all samples received at a temperature of >0° C to 6.0°C Yes V No No NA Sample(s) in proper container(s)? Sufficient sample volume for indicated test(s)? Are samples (except VOA and ONG) properly preserved? Was preservative added to bottlea? VOA vials have zero headspace? Were any sample containers received broken? Were any sample to be met? Where all holding times able to be met? Yes V No Checked by: Checked by: Person Notified: By Whom: Regarding: Cleint Instructions: Additional remarks: Cooler Information Scooler No Temp? Seal No Seal Date: Signed By Signed By Signed By	Is Chain of Custody complete? How was the sample delivered? Courier. No NA Respanding. Client Instructions: Additional remarks:	
Og In Was an attempt made to cool the samples? Were all samples received at a temperature of >0" C to 6.0" C Yes No NA NA Were all samples received at a temperature of >0" C to 6.0" C Sample(s) in proper container(s)? Yes No NA Sample(s) in proper container(s)? Yes No NA Are samples (except VOA and ONG) properly preserved? Yes No NO NA Was preservative added to bottles? Yes NO NO NO VOA Vials Were any sample containers received broken? Yes NO NO NO VOA Vials Were any sample containers received broken? Yes NO NO NO VOA Vials Were any sample containers received broken? Yes NO NO NO COA Vials Were any sample containers received broken? Yes NO NO NO COA Vials Were match bottle labels? Yes NO NO NO COA Vials Were match bottle labels? Yes NO NO NO COA Vials Were match analyses were requested? Yes NO NO NO NO NO NO NO NO NO N	How was the sample delivered? Og fin Was an attempt made to cool the samples? Yes No No NA	
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Chain-of-Custody Record		Δ.		٥			<u>a</u>		☐ Level 4 (Full Validation)			Š	Sample Request ID	-	64-3.5	L3-2	IMS	5W2	65-3	1-87	11-1.5	16-3	1735	7-37	13-2,5- B	100		No h		If necessary, samples ubmitted to Hall Environmental may be subcontracted to other
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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

Indest

4901 Hawkins NE

Albuquerque, NM 87109

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 ORG	ANICS				Analyst: Irm
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.

- * 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 Page 1 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 ORGA	ANICS				Analyst: Irm
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.

 $\textbf{Qualifiers:} \quad \ \ ^*$

- 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
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 2 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 ORGA	ANICS				Analyst: Irm
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.

- 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 Page 3 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 1810C91-004 Lab ID: 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	t: MRA
Chloride	510	30	mg/Kg	20	10/26/2018 2:01:37 PM	1 41206
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	t: Irm
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	10/26/2018 3:00:11 PM	1 41199
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	10/26/2018 3:00:11 PM	1 41199
Surr: DNOP	95.5	50.6-138	%Rec	1	10/26/2018 3:00:11 PM	1 41199
EPA METHOD 8015D: GASOLINE RANGE					Analyst	t: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/26/2018 12:09:21 Pl	M 41197
Surr: BFB	97.5	15-316	%Rec	1	10/26/2018 12:09:21 Pl	M 41197

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

Holding times for preparation or analysis exceeded

Н ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit % Recovery outside of range due to dilution or matrix Analyte detected in the associated Method Blank

Е Value above quantitation range

Analyte detected below quantitation limits Page 4 of 21 J

P Sample pH Not In Range

RLReporting Detection Limit

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	l 41206
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	:: Irm
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	10/26/2018 3:22:18 PM	l 41199
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/26/2018 3:22:18 PM	l 41199
Surr: DNOP	89.4	50.6-138	%Rec	1	10/26/2018 3:22:18 PM	l 41199
EPA METHOD 8015D: GASOLINE RANGE					Analyst	:: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/26/2018 12:32:10 Pl	M 41197
Surr: BFB	95.7	15-316	%Rec	1	10/26/2018 12:32:10 Pl	M 41197

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

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 Page 5 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

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	l 41206
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	:: Irm
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	10/26/2018 3:44:34 PM	l 41199
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/26/2018 3:44:34 PM	l 41199
Surr: DNOP	89.3	50.6-138	%Rec	1	10/26/2018 3:44:34 PM	l 41199
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	10/26/2018 12:54:55 Pl	M 41197
Surr: BFB	96.4	15-316	%Rec	1	10/26/2018 12:54:55 Pl	M 41197

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

- * 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 Page 6 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 ORG	SANICS				Analyst	: Irm
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.

- 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 Page 7 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Unit	s DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analys	t: MRA
Chloride	44	30	mg/K	g 20	10/26/2018 2:51:16 PM	1 41206
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analys	t: Irm
Diesel Range Organics (DRO)	ND	9.6	mg/K	g 1	10/26/2018 4:29:10 PM	1 41199
Motor Oil Range Organics (MRO)	ND	48	mg/K	g 1	10/26/2018 4:29:10 PM	1 41199
Surr: DNOP	96.2	50.6-138	%Re	1	10/26/2018 4:29:10 PM	1 41199
EPA METHOD 8015D: GASOLINE RANGE					Analys	t: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/K	g 1	10/26/2018 1:40:28 PM	1 41197
Surr: BFB	93.3	15-316	%Re	1	10/26/2018 1:40:28 PM	1 41197

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

Qualifiers: * V

- 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 Page 8 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 ORG	ANICS				Analyst	: Irm
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.

- * 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 Page 9 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 ORGA	ANICS				Analyst	: Irm
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.

- * 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 Page 10 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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					Analys	: MRA
Chloride	31	30	mg/Kg	20	10/26/2018 3:28:30 PM	1 41206
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	:: Irm
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	10/26/2018 5:36:11 PM	1 41199
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/26/2018 5:36:11 PM	1 41199
Surr: DNOP	94.3	50.6-138	%Rec	1	10/26/2018 5:36:11 PM	1 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	1 41197
Surr: BFB	97.8	15-316	%Rec	1	10/26/2018 4:18:54 PM	1 41197

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

- * 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 Page 11 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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					Analysi	t: MRA
Chloride	61	30	mg/Kg	20	10/26/2018 4:05:43 PM	1 41206
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst	t: Irm
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	10/26/2018 5:58:33 PM	1 41199
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/26/2018 5:58:33 PM	1 41199
Surr: DNOP	109	50.6-138	%Rec	1	10/26/2018 5:58:33 PM	1 41199
EPA METHOD 8015D: GASOLINE RANGE					Analyst	t: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	10/26/2018 4:41:45 PM	1 41197
Surr: BFB	92.9	15-316	%Rec	1	10/26/2018 4:41:45 PM	1 41197

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

- 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 Page 12 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 Bate	ch
EPA METHOD 300.0: ANIONS					Analyst: MRA	A
Chloride	3100	150	mg/Kg	100	10/30/2018 12:53:51 AM 4120	06
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: Irm	
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	10/26/2018 6:20:43 PM 4119	99
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/26/2018 6:20:43 PM 4119	99
Surr: DNOP	90.3	50.6-138	%Rec	1	10/26/2018 6:20:43 PM 4119	99
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB	3
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	10/26/2018 5:04:16 PM 4119	97
Surr: BFB	97.7	15-316	%Rec	1	10/26/2018 5:04:16 PM 4119	97

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

Qualifiers: * V

- * 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 Page 13 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Sample container temperature is out of limit as specified

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 ORG	SANICS					Analyst	: Irm
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. Analyte detected in the associated Method Blank D Sample Diluted Due to Matrix Е Value above quantitation range Analyte detected below quantitation limits Page 14 of 21 Н Holding times for preparation or analysis exceeded J ND Not Detected at the Reporting Limit P Sample pH Not In Range PQL Practical Quanitative Limit RL Reporting Detection Limit

% Recovery outside of range due to dilution or matrix

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 ORGA	ANICS				Analyst	: Irm
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.

- * 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 Page 15 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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 1810C91-016 Lab ID: 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 ORG	ANICS					Analyst: Irm
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. D Sample Diluted Due to Matrix Е Н Holding times for preparation or analysis exceeded J

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits Page 16 of 21

P Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

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 ORG	SANICS					Analyst	: Irm
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. Analyte detected in the associated Method Blank D Sample Diluted Due to Matrix Е Value above quantitation range Analyte detected below quantitation limits Page 17 of 21 Н Holding times for preparation or analysis exceeded J ND Not Detected at the Reporting Limit P Sample pH Not In Range PQL Practical Quanitative Limit RL Reporting Detection Limit

% Recovery outside of range due to dilution or matrix

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: Ics 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.

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

Page 18 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

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 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 10 41 50.00 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 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 LowLimit %RPD **RPDLimit** Result PQI SPK value SPK Ref Val %REC HighLimit 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.

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

Page 19 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

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) 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

%REC %RPD **RPDLimit** Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit Qual Gasoline Range Organics (GRO) 29 4.9 24.56 118 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

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 26 4.7 23.52 111 77.8 128 10.1 20 Λ Surr: BFB 1100 940.7 117 15 316 0 0

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

Page 20 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

OC 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 **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual 0.025 1.000 0 77.3 128 Benzene 0.98 98.4 Toluene 1.0 0.050 1.000 0 99.8 79.2 125 Ethylbenzene 0.96 0.050 0 96.4 80.7 1.000 127 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

Prep Date: 10/25/2018	rep Date: 10/25/2018 Analysis Da		0/26/2018	S	SeqNo: 1	836194	Units: mg/k	(g		
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: Analysis Date: 10/26/2018 SeqNo: 1836195 10/25/2018 Units: mg/Kg %REC **RPDLimit** Analyte Result **PQL** SPK value SPK Ref Val LowLimit HighLimit %RPD Qual Benzene 1.1 0.024 0.9662 0.003489 110 68.5 133 8.74 20 Toluene 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 0 0 120

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

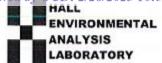
P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 21 of 21

Released to Imaging: 3/15/2023 11:28:10 AM



Hall Environmental Analysis Laborator, 4901 Hawkins NE Albuqverque, NM 87105 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 ReptNo: 1 una. Received By: Erin Melendrez 10/24/2018 8:50:00 AM Completed By: 10/25/2018 8:48:57 AM **Ashley Gallegos** 10/25/18 labeled by DAD 10/25/18 Reviewed By: Chain of Custody Yes V No 🗌 Not Present 1. Is Chain of Custody complete? 2. How was the sample delivered? Client Log In Yes V No NA 🗌 3. Was an attempt made to cool the samples? No 🗌 NA 🗌 Yes V Were all samples received at a temperature of >0° C to 6.0°C 5. Sample(s) in proper container(s)? Yes V No 🗌 No Sufficient sample volume for indicated test(s)? Yes V Yes 🗸 7. Are samples (except VOA and ONG) properly preserved? No _ No V NA 🗌 8. Was preservative added to bottles? Yes No [No VOA Vials 9. VOA vials have zero headspace? Yes Yes No V 10. Were any sample containers received broken? # of preserved Yes V No 🗌 for pH: 11. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 12. Are matrices correctly identified on Chain of Custody? No 🗌 13. Is it clear what analyses were requested? Checked by: DIAD 10/25/18 14. Were all holding times able to be met? Yes V No L (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗌 NA V 15. Was client notified of all discrepancies with this order? Person Notified: Date By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person Regarding: Client Instructions: 16. Additional remarks: 17. Cooler Information Ccoler No Temp °C Condition Seal Intact Seal No Seal Date Good

Page 1 of 1

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Client	Phone #: email or Fax#: aviac Package: avia	Date: Time: Relinque Date: Time: Relinque Mayle (1999)

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

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 191452

CONDITIONS

Operator:	OGRID:
MARATHON OIL PERMIAN LLC	372098
990 Town & Country Blvd.	Action Number:
Houston, TX 77024	191452
	Action Type:
	[IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Crea	ated By		Condition Date
jha	rimon	None	3/15/2023