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

BHORF-191022-C-1410

October 18, 2019

#5E27950-BG22

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

SUBJECT: Deferral Request Report for the Queenie 15 Federal #001H Release (1RP-5624), Lea County, New Mexico

Dear Mr. Mike Bratcher:

On behalf of Marathon Oil Permian LLC (Marathon), Souder, Miller & Associates (SMA) has prepared this Deferral Request Report that describes the activities of a release of liquids related to oil and gas production activities at the Queenie 15 Federal #001H site. The site is in Unit M, Section 14, Township 20S, Range 32E, Lea 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	Queenie 15 Federal #001H	Company	Marathon Oil Permian, LLC
API Number	30-025-40230	Location	32.5664978 -103.7428894
Incident Number	1RP-5624		
Estimated Date of Release	July 13, 2019	Date Reported to NMOCD	July 18, 2019
Landowner	Federal	Reported To	NMOCD
Source of Release	Overflow from produced water tank		
Released Volume	10 bbls	Released Material	Produced Water
Recovered Volume	10 bbls	Net Release	0
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	7/26-8/14/2019		

1.0 Background

On July 13, 2019, a release was discovered at the Queenie 15 Federal #001H site due a produced water tank overflowing. Initial response activities were conducted by Marathon that included source elimination and containment activities which recovered approximately 10 barrels of fluid. Figure 1 illustrates the vicinity and site location, Figures 2 and 3 illustrate the release location. The C-141 form is included in Appendix A.

2.0 Site Information and Closure Criteria

The Queenie 15 Federal #001H is located approximately 30 miles northeast of Carlsbad, New Mexico on Federal land at an elevation of approximately 3,535 feet above mean sea level (amsl).

The site is located within 4000 feet east of a proposed nuclear repository. In April of 2007, the Eddy Lea Energy Alliance (ELEA) submitted their Final Detailed Siting Report (https://www.nrc.gov/docs/ML1024/ML102440738.pdf) to the Department of Energy (DOE). This report includes extensive data collection on groundwater data, including monitoring wells that were drilled at the site to evaluate groundwater. The ELEA report concludes (2.4.2) that shallow water is found at about 35 feet, but this water exceeds 10,000 TDS. Protectable water is found at 300-400 feet bgs. Using this information depth to groundwater is estimated to be greater than 150 feet below ground surface (bgs). The nearest surface water is an unnamed intermittent stream feature located approximately 3,700 feet to the east. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

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

3.0 Release Characterization and Remediation Activities

From July to August, 2019, SMA personnel arrived on site in response to the release associated with Queenie 15 Federal #001H. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a calibrated MiniRAE 2000 photoionization detector (PID).

A total of two (2) sample locations (BHL1 and BH2) were investigated using a direct-push drill rig, to depths up to thirty-five (35) feet bgs. A total of twenty-seven (27) samples were collected for laboratory analysis for total chloride using EPA Method 300.0. Shallower samples were additionally analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Laboratory results indicate that hydrocarbon impacts remain from the surface to approximately 2 feet bgs. Chlorides exceeding 600 mg/kg exist to approximately twenty (20) feet bgs, but do not exceed the NMOCD closure standard of depth to groundwater greater than 100 feet bgs. Table 3 itemizes the samples and locations for all samples are depicted on Figure 3.

Due to active oil and gas operation, SMA is requesting a deferral of remediation for the release until equipment and pipelines can be reasonably moved. The release has been delineated and does not cause imminent risk to human, health, the environment or groundwater.

Figure 3 shows the extent of the release, sample locations and deferment area.

4.0 Scope and Limitations

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

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

Submitted by:
SOUDER, MILLER & ASSOCIATES

Ashley Maxwell
Project Scientist

Reviewed by:

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

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

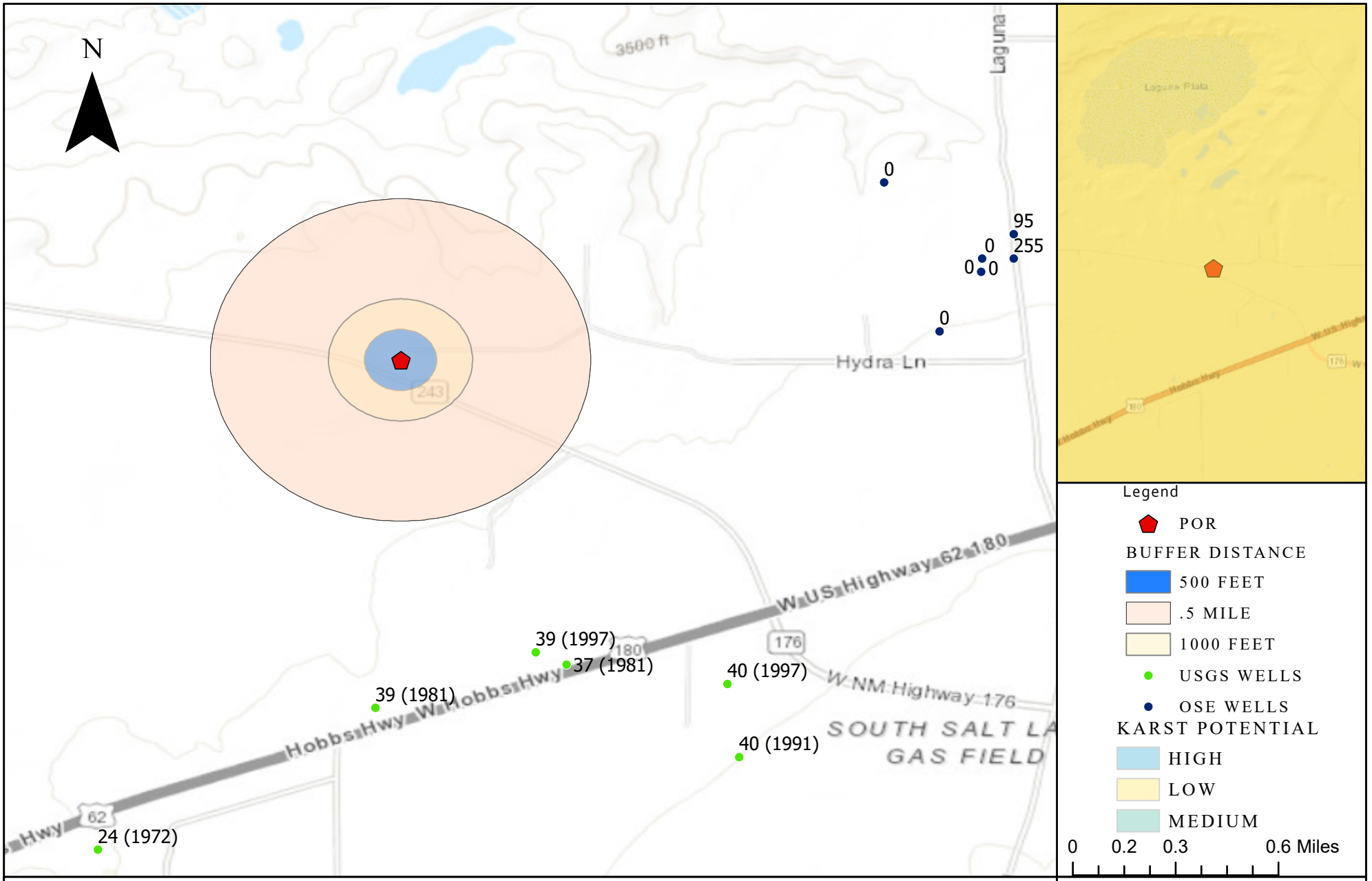
Tables:

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

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report
Appendix C: Sampling Protocol and Field Notes
Appendix D: Laboratory Analytical Reports

FIGURES



Regional Vicinity & Wellhead Protection Map
Queenie 15 Fed 1H - Marathon Oil
UL: M S: 14 T: 20S R: 32E Lea County, New Mexico

Figure 1

Date Saved: 10/18/2019

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

Drawn Lynn A. Acosta
Date 10/18/2019
Checked _____
Approved _____

SMA

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

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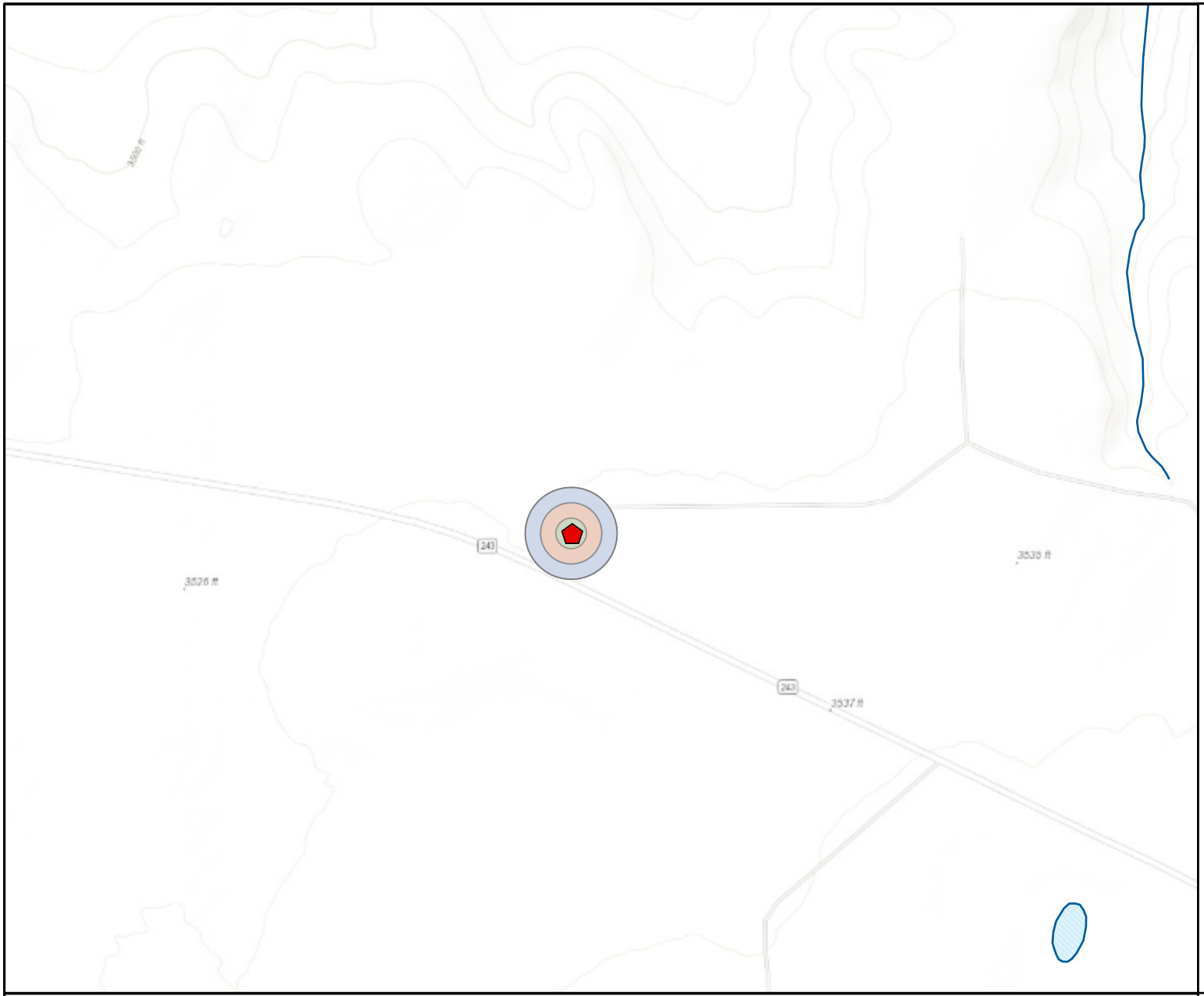

Legend

- Point of Release

Buffer Distance

- 100 Feet
- 200 Feet
- 300 Feet
- Streams Canals
- Rivers
- Flowlines_SENM
- NM Wetlands
- Lakes Playas
- FEMA Flood Zones 2011

N

0 300 600 1,200 US Feet

Surface Water Protection Map
Queenie 15 Fed 1H - Marathon Oil
UL: M S: 14 T: 20S R: 32E, Lea County, New Mexico

Figure 2

\\192.168.22.10\Projects\5-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

Date Saved: 10/18/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn Jonathan L. Ingram
Date 10/18/2019
Checked
Approved

SMA

201 South Halaguena Street
Carlsbad, New Mexico 88221
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LEGEND

- SAMPLE LOCATIONS
- POINT OF RELEASE
- PIPELINE
- DEFERMENT AREA
- CONTAINMENT
- STORAGE TANKS

N

0 13 26 52

Feet

Site and Sample Location Map
Queenie 15 Federal #001H - Marathon Oil LLC
UL: M S: 14 T: 20S R 32E Lea County, New Mexico

Figure 3

Date Saved: 9/23/2019

Revisions

By:_____ Date:_____ Descr:_____

By:_____ Date:_____ Descr:_____

Drawn *Lynn A. Acosta*
Date *9/27/2019*
Checked
Approved

SMA

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Carlsbad, New Mexico 88221
(575) 689-7040
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\\192.168.22.10\Projects\5-Marathon MSA 2019 (5E27950)\GIS\ARCGIS\MARATHON_MIT.aprx

TABLES

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	150	Eddy Lea Energy Alliance/Department of Energy Report
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	NA	USGS
Hortizontal Distance to Nearest Significant Watercourse (ft)	3700	USGS

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

Table 3:
Summary of Sample Results

Marathon Oil Permian, LLC
Queenie 15 Federal #001H (1RP-5624)

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria				50	10	1000			2500	20000
L1	7/26/2019	1'	Excavate	12.325	<0.025	860	8200	3400	12460	270
BHL1	7/26/2019	2'	Excavate	<2.6	0.12	170	3200	1300	4670	<60
	7/26/2019	4'	in-situ	<2.85	<0.025	11	690	480	1181	94
	7/26/2019	6'	in-situ	<0.244	<0.025	<5.0	100	93	198	190
	7/26/2019	10'	in-situ	<0.225	<0.025	<5.0	<10	<50	<65	2300
	8/14/2019	14'	in-situ	-	-	-	-	-	-	3000
	8/14/2019	20'	in-situ	-	-	-	-	-	-	1900
	8/14/2019	25'	in-situ	-	-	-	-	-	-	520
	8/14/2019	30'	in-situ	-	-	-	-	-	-	240
BHL2	7/26/2019	3'	in-situ	<0.635	<0.025	41	660	570	1271	7700
	7/26/2019	5'	in-situ	<0.222	<0.025	<4.9	51	50	101	10000
	7/26/2019	8'	in-situ	<0.224	<0.025	<5.0	14	<50	<69	11000
	7/26/2019	11'	in-situ	-	-	-	-	-	-	6000
	7/26/2019	15'	in-situ	-	-	-	-	-	-	1400
	7/26/2019	17'	in-situ	-	-	-	-	-	-	790
	8/14/2019	23'	in-situ	-	-	-	-	-	-	480
	8/14/2019	30'	in-situ	-	-	-	-	-	-	290
	8/14/2019	35'	in-situ	-	-	-	-	-	-	240
BG	7/26/2019	Surface	in-situ	-	-	-	-	-	-	<60
	7/26/2019	5'	in-situ	-	-	-	-	-	-	<60
	7/26/2019	8'	in-situ	-	-	-	-	-	-	410
	7/26/2019	10'	in-situ	-	-	-	-	-	-	450
	7/26/2019	12'	in-situ	-	-	-	-	-	-	310
	7/26/2019	14'	in-situ	-	-	-	-	-	-	280
	7/26/2019	17'	in-situ	-	-	-	-	-	-	380
	8/14/2019	25'	in-situ	-	-	-	-	-	-	390
	8/14/2019	33'	in-situ	-	-	-	-	-	-	240

"--" = Not Analyzed

* = per Reclamation Standard (19.15.29.13.D(1) NMAC)

APPENDIX A
FORM C141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NDHR1921342505
District RP	1RP-5624
Facility ID	
Application ID	pDHR1921342359

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Misti Johnson	Contact Telephone 210-430-9819
Contact email mjohnson4@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 5555 San Felipe Street, Houston, Texas 77056	

Location of Release Source

Latitude 32.5664978 Longitude -103.7428894
(NAD 83 in decimal degrees to 5 decimal places)

Site Name QUEENIE 15 FEDERAL #001H	Site Type Oil and gas drilling facility
Date Release Discovered 7/13/19	API# *(if applicable)* 30-025-40230

Unit Letter	Section	Township	Range	County
M	14	20S	32E	Lea

Surface Owner: ☐ State ☑ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

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

Cause of Release

Operator reported spill due to a water tank overflowing. This caused a release of approximately 10 bbls. All spillage is contained on location and inside the secondary containment. The event is being investigated.

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1921342505
District RP	1RP-5624
Facility ID	
Application ID	pDHR1921342359

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

Initial Response

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

- ☑ The source of the release has been stopped.
- ☑ The impacted area has been secured to protect human health and the environment.
- ☑ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☑ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: Misti Johnson Title: Environmental Supervisor

Signature: Misti Johnson Date: 7/18/2019

email: mjohnson4@marathonoil.com Telephone: 210-430-9819

OCD Only

Received by: Dylan Rose-Coss Date: 07/19/2019

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1921342505
District RP	1RP-5624
Facility ID	
Application ID	pDHR1921342359

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	150 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1921342505
District RP	1RP-5624
Facility ID	
Application ID	pDHR1921342359

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

Printed Name: Isaac Castro Title: Environmental Professional

Signature: Isaac Castro Date: 9-16-19

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

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1921342505
District RP	1RP-5624
Facility ID	
Application ID	pDHR1921342359

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☐ Detailed description of proposed remediation technique
☐ Scaled sitemap with GPS coordinates showing delineation points
☐ Estimated volume of material to be remediated
☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated.

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Isaac Castro Title: Environmental Professional

Signature: Isaac Castro Date: 9-16-19

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

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

APPENDIX B
NMOSE WELLS REPORT

New Mexico Office of the State Engineer
Wells with Well Log Information

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	Code	POD Subbasin	County	Source	q q q 6416 4	Sec	Twn	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
CP 00317		CP	LE	Shallow	3 4 3	05	20S	33E	623054	3607235*	6043	02/05/1966	02/17/1966	02/24/1966	680	325	ABBOTT, MURRIEL	46
L 07023		L	LE	Shallow	2 3 3	32	19S	33E	622840	3609047*	7062	11/12/1970	11/15/1970	11/19/1970	262	185	MURRELL ABBOTT	46
CP 00368		CP	LE	Shallow	2	36	20S	31E	610955	3600163*	7989	06/02/1966	06/10/1966	10/11/1966	303		BARRON, EMMETT	30
CP 00370		CP	LE	Shallow	1 1	36	20S	31E	609945	3600358*	8816	07/11/1966	07/14/1966	10/11/1966	120	80	BARRON, EMMETT	30
C 03151		CUB	ED	Shallow	4 1 4	07	21S	32E	621119	3595526*	8903	08/23/2005	09/10/2005	09/20/2005	1352		BROCKMAN, BERNARD J.	1184

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 618029.1 **Northing (Y):** 3603876.61 **Radius:** 9000

*UTM location was derived from PLSS - see Help

APPENDIX C
FIELD NOTES

Field Screening

Location Name: Queenie

Date: 7/26/19

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
BG-surface	1144	0.11	34.5		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-3'	1155	0.11 ~~0.10~~	33.6		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-5'	1201	0.16 ~~0.11~~	33.8		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-6'	1203	0.41	33.9		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-8'	~~1202~~ 1212	2.72 ~~2.63~~	33.6		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-10'	1217	2.62	33.6		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-12'	1221	2.35	33.4		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-14'	1226	1.72	33.9		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-16'	1228	1.44	33.1		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BG-17'	1229	1.56	33.0					

Field Screening

Location Name: Queenie

Date: 7/26/19

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
BHL1-2'	0820	0.21	27.4	544	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-3'	0825	0.18	27.6	300	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-4'	0833	0.23	29.0	225	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-5'	0835	0.29	28.6	186	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-6'	0840	0.4	30.1	123	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-8'	0845	0.68	27.9	41.2	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-9'	0850	1.2	27.5	34.6	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
BHL1-10'	0900	1.68	27.5	14.2	Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
					Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	

Field Screening

Location Name: Queenie

Date: 7/26/19

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
BHL2-3'	1005	4.73	27.7	466	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-4'	1015	5.64	27.7	140	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-5'	1018	7.39	29.2	82.1	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-6'	1030	8.33	31.7	40	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-8'	1035	8.39	31.1	67.7	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-11'	1041	4.91	30.8	33.6	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-13'	1044	3.3	30.9	40.3	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-15'	1113	1.73	31.6	34.8	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	
BHL2-17'	1118	0.96	30.2	36.2	Light Dark / Tan Brown / Gray Olive / Yellow Red	Gravel Rock / Sand Silt / Clay	Dry Moist Wet	

~~BHL2-18' 1123 1.18 31.1 73.2~~

SMA Field Screening

Location Name: Queenie

Date: 8/14/19

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
BH1-14'	Fine Sand	14'	1423	3.23	36.0		
BH1-16'	" "	16'	1433	2.52	34.5		
BH1-18'	" "	18'	1435	2.21	34.2		
BH1-20'	" "	20'	1440	1.75	33.2		
BH1-23'	" "	23'	1448	1.25	33.8		
BH1-25'	" "	25'	1450	0.76	33.3		
BH1-30'	Clay	30'	1516	0.97	31.8		
BH2-20'	Fine sand	20'	1732	1.14	32.4		
BH2-23'	" "	23'	1735	0.81	33.4		
BH2-25'	" "	25'	1739	0.72	32.3		
BH2-30'	" "	30'	1741	0.55	33.4		
BH2-33'	" "	33'	1748	0.53	32.5		
BH2-35'	" "	35'	1752	0.40	33.6		
BG-20'	" "	20'	1830	0.75	34.9		
BG-23	" "	23'	1834	0.65	33.6		
BG-28	" "	28	1838	0.65	33.8		
BG-28	" "	28	1842	0.63	34.1		
BG-30	" "	30	1846	0.59	33.1		
BG-33	" "	33	1850	0.47	32.9		

APPENDIX D

LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 06, 2019

Heather Patterson

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

RE: Queenie 15H OrderNo.: 1907E85

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/30/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL1-2
Project: Queenie 15H
Collection Date: 7/26/2019 8:20:00 AM
Lab ID: 1907E85-001 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	8/2/2019 9:27:22 PM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	3200	91		mg/Kg	10	8/5/2019 6:59:01 PM	46512
Motor Oil Range Organics (MRO)	1300	460		mg/Kg	10	8/5/2019 6:59:01 PM	46512
Surr: DNOP	0	70-130	S	%Rec	10	8/5/2019 6:59:01 PM	46512
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	170	49		mg/Kg	10	8/1/2019 3:28:09 PM	46496
Surr: BFB	222	73.8-119	S	%Rec	10	8/1/2019 3:28:09 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.12		mg/Kg	5	8/2/2019 5:43:50 PM	46496
Toluene	ND	0.24		mg/Kg	5	8/2/2019 5:43:50 PM	46496
Ethylbenzene	0.44	0.24		mg/Kg	5	8/2/2019 5:43:50 PM	46496
Xylenes, Total	1.8	0.49		mg/Kg	5	8/2/2019 5:43:50 PM	46496
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	5	8/2/2019 5:43:50 PM	46496
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	5	8/2/2019 5:43:50 PM	46496
Surr: Dibromofluoromethane	96.1	70-130		%Rec	5	8/2/2019 5:43:50 PM	46496
Surr: Toluene-d8	93.0	70-130		%Rec	5	8/2/2019 5:43:50 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL1-4
Project: Queenie 15H
Collection Date: 7/26/2019 8:33:00 AM
Lab ID: 1907E85-002 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	94	60		mg/Kg	20	8/2/2019 10:04:36 PM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	690	9.5		mg/Kg	1	8/3/2019 1:33:14 PM	46512
Motor Oil Range Organics (MRO)	480	47		mg/Kg	1	8/3/2019 1:33:14 PM	46512
Surr: DNOP	107	70-130		%Rec	1	8/3/2019 1:33:14 PM	46512
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	11	5.0		mg/Kg	1	8/1/2019 3:51:00 PM	46496
Surr: BFB	201	73.8-119	S	%Rec	1	8/1/2019 3:51:00 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 6:12:38 PM	46496
Toluene	ND	0.050		mg/Kg	1	8/2/2019 6:12:38 PM	46496
Ethylbenzene	ND	0.050		mg/Kg	1	8/2/2019 6:12:38 PM	46496
Xylenes, Total	0.16	0.10		mg/Kg	1	8/2/2019 6:12:38 PM	46496
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	8/2/2019 6:12:38 PM	46496
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	8/2/2019 6:12:38 PM	46496
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/2/2019 6:12:38 PM	46496
Surr: Toluene-d8	96.1	70-130		%Rec	1	8/2/2019 6:12:38 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL1-6
Project: Queenie 15H
Collection Date: 7/26/2019 8:40:00 AM
Lab ID: 1907E85-003 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	190	60		mg/Kg	20	8/2/2019 10:41:50 PM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	100	9.8		mg/Kg	1	8/3/2019 2:17:42 PM	46512
Motor Oil Range Organics (MRO)	93	49		mg/Kg	1	8/3/2019 2:17:42 PM	46512
Surr: DNOP	116	70-130		%Rec	1	8/3/2019 2:17:42 PM	46512
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/1/2019 6:08:18 PM	46496
Surr: BFB	138	73.8-119	S	%Rec	1	8/1/2019 6:08:18 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 6:41:24 PM	46496
Toluene	ND	0.050		mg/Kg	1	8/2/2019 6:41:24 PM	46496
Ethylbenzene	ND	0.050		mg/Kg	1	8/2/2019 6:41:24 PM	46496
Xylenes, Total	ND	0.099		mg/Kg	1	8/2/2019 6:41:24 PM	46496
Surr: 1,2-Dichloroethane-d4	97.2	70-130		%Rec	1	8/2/2019 6:41:24 PM	46496
Surr: 4-Bromofluorobenzene	79.6	70-130		%Rec	1	8/2/2019 6:41:24 PM	46496
Surr: Dibromofluoromethane	99.8	70-130		%Rec	1	8/2/2019 6:41:24 PM	46496
Surr: Toluene-d8	97.0	70-130		%Rec	1	8/2/2019 6:41:24 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL1-10
Project: Queenie 15H
Collection Date: 7/26/2019 9:00:00 AM
Lab ID: 1907E85-004 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	2300	150		mg/Kg	50	8/6/2019 1:38:11 AM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/3/2019 2:40:02 PM	46512
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/3/2019 2:40:02 PM	46512
Surr: DNOP	105	70-130		%Rec	1	8/3/2019 2:40:02 PM	46512
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/1/2019 6:31:10 PM	46496
Surr: BFB	109	73.8-119		%Rec	1	8/1/2019 6:31:10 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 7:10:11 PM	46496
Toluene	ND	0.050		mg/Kg	1	8/2/2019 7:10:11 PM	46496
Ethylbenzene	ND	0.050		mg/Kg	1	8/2/2019 7:10:11 PM	46496
Xylenes, Total	ND	0.10		mg/Kg	1	8/2/2019 7:10:11 PM	46496
Surr: 1,2-Dichloroethane-d4	95.5	70-130		%Rec	1	8/2/2019 7:10:11 PM	46496
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/2/2019 7:10:11 PM	46496
Surr: Dibromofluoromethane	101	70-130		%Rec	1	8/2/2019 7:10:11 PM	46496
Surr: Toluene-d8	96.9	70-130		%Rec	1	8/2/2019 7:10:11 PM	46496

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E85**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **MB-46573**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **46573**	RunNo: **61859**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098587**	Units: **mg/Kg**						

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

Sample ID: **LCS-46573**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **46573**	RunNo: **61859**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098588**	Units: **mg/Kg**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E85**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **LCS-46512** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46512** RunNo: **61831**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096582** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	101	63.9	124			
Surr: DNOP	4.0		5.000		79.1	70	130			

Sample ID: **MB-46512** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46512** RunNo: **61831**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096583** 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	8.8		10.00		87.8	70	130			

Sample ID: **LCS-46537** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46537** RunNo: **61864**
Prep Date: **8/1/2019** Analysis Date: **8/2/2019** SeqNo: **2097873** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		95.9	70	130			

Sample ID: **MB-46537** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46537** RunNo: **61864**
Prep Date: **8/1/2019** Analysis Date: **8/2/2019** SeqNo: **2097875** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		105	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E85**

06-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15H

Sample ID: **LCS-46496** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **46496** RunNo: **61847**

Prep Date: **7/30/2019** Analysis Date: **8/1/2019** SeqNo: **2097218** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.6	80.1	123			
Surr: BFB	1200		1000		122	73.8	119			S

Sample ID: **MB-46496** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **46496** RunNo: **61847**

Prep Date: **7/30/2019** Analysis Date: **8/1/2019** SeqNo: **2097219** 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	1000		1000		105	73.8	119			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E85**

06-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15H

Sample ID: **lcs-46496** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **LCSS** Batch ID: **46496** RunNo: **61873**

Prep Date: **7/30/2019** Analysis Date: **8/2/2019** SeqNo: **2097966** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	91.3	70	130			
Toluene	0.97	0.050	1.000	0	96.9	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.0	0.10	3.000	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.6	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.3	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.6	70	130			
Surr: Toluene-d8	0.48		0.5000		95.6	70	130			

Sample ID: **mb-46496** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **46496** RunNo: **61873**

Prep Date: **7/30/2019** Analysis Date: **8/2/2019** SeqNo: **2097968** 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: 1,2-Dichloroethane-d4	0.50		0.5000		99.3	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.6	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		99.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.9	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1907E85** RcptNo: **1**

Received By: Daniel M **7/30/2019 8:43:00 AM**

Completed By: **Leah Baca** **7/30/2019 10:53:10 AM** Leah Baca

Reviewed By: 7/30/19

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: DM 7/30/19

Special Handling (if applicable)

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

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Yes			
2	6.6	Good	Yes			
3	3.8	Good	Yes			

Chain-of-Custody Record

Client: SMA-CARLSBAD

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 DAY TURN

Project Name: QUEENIE 15H

Project #:

Project Manager: Heather Patterson

Sampler: LA/JI

On Ice: ☒ Yes ☐ No

# of Coolers: 3 Dm 7/29/19 see checklist

Cooler Temp(including CF): ~~3.6-3.5=3.~~ 3.6-0.1=3.5°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1907E85	(BTEX) / MTBE / TMB's (8021)	(TPH) 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl) F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
7/26/19	0820	SOIL	BHL1-2	4oz		-001	X	X					X									
|	0833	|	BHL1-4	|		-002	X	X					X									
|	0840	|	BHL1-6	|		-003	X	X					X									
|	0900	|	BHL1-10	|		-004	X	X					X									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/29/19	0900	[signature]	[signature]		7/29/19	7/29/19
7/29/19	1900	M.G.H.	Daniel Marquez	courier	7/30/19	8:43

Remarks: Marathon

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 06, 2019

Heather Patterson

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

RE: Queenie 15H OrderNo.: 1907E84

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 14 sample(s) on 7/30/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-Surface
Project: Queenie 15H
Collection Date: 7/26/2019 11:44:00 AM
Lab ID: 1907E84-001 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	8/2/2019 9:44:01 PM	46569

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-5
Project: Queenie 15H
Collection Date: 7/26/2019 12:01:00 PM
Lab ID: 1907E84-002 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	8/2/2019 10:46:04 PM	46569

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-8
Project: Queenie 15H
Collection Date: 7/26/2019 12:12:00 PM
Lab ID: 1907E84-003 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	410	60		mg/Kg	20	8/2/2019 10:58:29 PM	46569

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-10
Project: Queenie 15H
Collection Date: 7/26/2019 12:17:00 PM
Lab ID: 1907E84-004 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	450	60		mg/Kg	20	8/2/2019 6:21:13 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-12
Project: Queenie 15H
Collection Date: 7/26/2019 12:21:00 PM
Lab ID: 1907E84-005 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	310	60		mg/Kg	20	8/2/2019 6:33:37 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-14
Project: Queenie 15H
Collection Date: 7/26/2019 12:26:00 PM
Lab ID: 1907E84-006 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	280	60		mg/Kg	20	8/2/2019 7:35:42 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-17
Project: Queenie 15H
Collection Date: 7/26/2019 12:29:00 PM
Lab ID: 1907E84-007 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	380	60		mg/Kg	20	8/2/2019 7:48:06 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-3
Project: Queenie 15H
Collection Date: 7/26/2019 10:05:00 AM
Lab ID: 1907E84-008
Matrix: SOIL
Received Date: 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	7700	300		mg/Kg	100	8/6/2019 12:48:33 AM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	660	93		mg/Kg	10	8/3/2019 6:31:11 AM	46517
Motor Oil Range Organics (MRO)	570	470		mg/Kg	10	8/3/2019 6:31:11 AM	46517
Surr: DNOP	0	70-130	S	%Rec	10	8/3/2019 6:31:11 AM	46517
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	41	5.0		mg/Kg	1	8/1/2019 2:19:32 PM	46496
Surr: BFB	432	73.8-119	S	%Rec	1	8/1/2019 2:19:32 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 4:17:13 PM	46496
Toluene	0.084	0.050		mg/Kg	1	8/2/2019 4:17:13 PM	46496
Ethylbenzene	0.086	0.050		mg/Kg	1	8/2/2019 4:17:13 PM	46496
Xylenes, Total	0.44	0.10		mg/Kg	1	8/2/2019 4:17:13 PM	46496
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	8/2/2019 4:17:13 PM	46496
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/2/2019 4:17:13 PM	46496
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/2/2019 4:17:13 PM	46496
Surr: Toluene-d8	94.1	70-130		%Rec	1	8/2/2019 4:17:13 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-5
Project: Queenie 15H
Collection Date: 7/26/2019 10:18:00 AM
Lab ID: 1907E84-009 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	10000	600		mg/Kg	200	8/6/2019 1:00:57 AM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	51	9.4		mg/Kg	1	8/3/2019 7:15:31 AM	46522
Motor Oil Range Organics (MRO)	50	47		mg/Kg	1	8/3/2019 7:15:31 AM	46522
Surr: DNOP	97.8	70-130		%Rec	1	8/3/2019 7:15:31 AM	46522
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/1/2019 2:42:24 PM	46496
Surr: BFB	118	73.8-119		%Rec	1	8/1/2019 2:42:24 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 4:46:07 PM	46496
Toluene	ND	0.049		mg/Kg	1	8/2/2019 4:46:07 PM	46496
Ethylbenzene	ND	0.049		mg/Kg	1	8/2/2019 4:46:07 PM	46496
Xylenes, Total	ND	0.099		mg/Kg	1	8/2/2019 4:46:07 PM	46496
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	1	8/2/2019 4:46:07 PM	46496
Surr: 4-Bromofluorobenzene	88.8	70-130		%Rec	1	8/2/2019 4:46:07 PM	46496
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/2/2019 4:46:07 PM	46496
Surr: Toluene-d8	98.6	70-130		%Rec	1	8/2/2019 4:46:07 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-8
Project: Queenie 15H
Collection Date: 7/26/2019 10:35:00 AM
Lab ID: 1907E84-010 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	11000	600		mg/Kg	200	8/6/2019 1:13:22 AM	46573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	14	10		mg/Kg	1	8/3/2019 7:59:50 AM	46522
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/3/2019 7:59:50 AM	46522
Surr: DNOP	98.6	70-130		%Rec	1	8/3/2019 7:59:50 AM	46522
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/1/2019 3:05:15 PM	46496
Surr: BFB	113	73.8-119		%Rec	1	8/1/2019 3:05:15 PM	46496
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	8/2/2019 5:14:58 PM	46496
Toluene	ND	0.050		mg/Kg	1	8/2/2019 5:14:58 PM	46496
Ethylbenzene	ND	0.050		mg/Kg	1	8/2/2019 5:14:58 PM	46496
Xylenes, Total	ND	0.099		mg/Kg	1	8/2/2019 5:14:58 PM	46496
Surr: 1,2-Dichloroethane-d4	99.2	70-130		%Rec	1	8/2/2019 5:14:58 PM	46496
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	8/2/2019 5:14:58 PM	46496
Surr: Dibromofluoromethane	101	70-130		%Rec	1	8/2/2019 5:14:58 PM	46496
Surr: Toluene-d8	99.1	70-130		%Rec	1	8/2/2019 5:14:58 PM	46496

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-11
Project: Queenie 15H
Collection Date: 7/26/2019 10:41:00 AM
Lab ID: 1907E84-011
Matrix: SOIL
Received Date: 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	6000	300		mg/Kg	100	8/6/2019 1:25:47 AM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-15
Project: Queenie 15H
Collection Date: 7/26/2019 11:13:00 AM
Lab ID: 1907E84-012
Matrix: SOIL
Received Date: 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1400	60		mg/Kg	20	8/2/2019 8:50:09 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BHL2-17
Project: Queenie 15H
Collection Date: 7/26/2019 11:18:00 AM
Lab ID: 1907E84-013 **Matrix:** SOIL **Received Date:** 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	790	60		mg/Kg	20	8/2/2019 9:02:33 PM	46573

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1
Project: Queenie 15H
Collection Date: 7/26/2019 1:23:00 PM
Lab ID: 1907E84-014
Matrix: SOIL
Received Date: 7/30/2019 8:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	60		mg/Kg	20	8/2/2019 9:14:57 PM	46573
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	860	99		mg/Kg	20	8/2/2019 6:13:52 AM	46508
Surr: BFB	111	70-130		%Rec	20	8/2/2019 6:13:52 AM	46508
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	8200	99		mg/Kg	10	8/3/2019 8:22:01 AM	46522
Motor Oil Range Organics (MRO)	3400	500		mg/Kg	10	8/3/2019 8:22:01 AM	46522
Surr: DNOP	0	70-130	S	%Rec	10	8/3/2019 8:22:01 AM	46522
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	8/1/2019 3:31:32 PM	46508
Toluene	1.6	0.049		mg/Kg	1	8/1/2019 3:31:32 PM	46508
Ethylbenzene	1.7	0.049		mg/Kg	1	8/1/2019 3:31:32 PM	46508
Xylenes, Total	9.0	0.099		mg/Kg	1	8/1/2019 3:31:32 PM	46508
Surr: 1,2-Dichloroethane-d4	73.4	70-130		%Rec	1	8/1/2019 3:31:32 PM	46508
Surr: 4-Bromofluorobenzene	282	70-130	S	%Rec	1	8/1/2019 3:31:32 PM	46508
Surr: Dibromofluoromethane	80.9	70-130		%Rec	1	8/1/2019 3:31:32 PM	46508
Surr: Toluene-d8	112	70-130		%Rec	1	8/1/2019 3:31:32 PM	46508

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**

06-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15H

Sample ID: **MB-46569**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **46569**	RunNo: **61879**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098318**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46569**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **46569**	RunNo: **61879**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098319**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Sample ID: **MB-46573**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **46573**	RunNo: **61859**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098587**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46573**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **46573**	RunNo: **61859**							
Prep Date: **8/2/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098588**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **LCS-46522** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46522** RunNo: **61831**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096112** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	63.9	124			
Surr: DNOP	4.9		5.000		97.3	70	130			

Sample ID: **MB-46522** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46522** RunNo: **61831**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096114** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Sample ID: **LCS-46517** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46517** RunNo: **61832**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096284** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	63.9	124			
Surr: DNOP	4.3		5.000		85.4	70	130			

Sample ID: **MB-46517** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46517** RunNo: **61832**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096285** 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	8.9		10.00		89.2	70	130			

Sample ID: **LCS-46514** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46514** RunNo: **61832**
Prep Date: **7/31/2019** Analysis Date: **8/1/2019** SeqNo: **2096530** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.6		5.000		71.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **MB-46514**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46514**	RunNo: **61832**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2096531** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.8		10.00		78.4	70	130			

Sample ID: **LCS-46512**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46512**	RunNo: **61831**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2096582** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		79.1	70	130			

Sample ID: **MB-46512**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46512**	RunNo: **61831**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2096583** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.8		10.00		87.8	70	130			

Sample ID: **LCS-46537**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46537**	RunNo: **61864**
Prep Date: **8/1/2019**	Analysis Date: **8/2/2019**	SeqNo: **2097873** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		95.9	70	130			

Sample ID: **MB-46537**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46537**	RunNo: **61864**
Prep Date: **8/1/2019**	Analysis Date: **8/2/2019**	SeqNo: **2097875** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		105	70	130			

Sample ID: **LCS-46571**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46571**	RunNo: **61865**
Prep Date: **8/2/2019**	Analysis Date: **8/5/2019**	SeqNo: **2098678** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **MB-46571**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46571**	RunNo: **61865**
Prep Date: **8/2/2019**	Analysis Date: **8/5/2019**	SeqNo: **2098679** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		94.3	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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**

06-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15H

Sample ID: **LCS-46496**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46496**	RunNo: **61847**
Prep Date: **7/30/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097218** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.6	80.1	123			
Surr: BFB	1200		1000		122	73.8	119			S

Sample ID: **MB-46496**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46496**	RunNo: **61847**
Prep Date: **7/30/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097219** 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	1000		1000		105	73.8	119			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**

06-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15H

Sample ID: **mb-46508**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **46508**	RunNo: **61841**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097042** 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: 1,2-Dichloroethane-d4	0.44		0.5000		87.8	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.0	70	130			
Surr: Dibromofluoromethane	0.44		0.5000		88.9	70	130			
Surr: Toluene-d8	0.48		0.5000		95.8	70	130			

Sample ID: **lcs-46508**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **46508**	RunNo: **61841**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097059** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	70	130			
Toluene	0.96	0.050	1.000	0	95.7	70	130			
Ethylbenzene	0.93	0.050	1.000	0	93.4	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.44		0.5000		88.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.7	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.1	70	130			
Surr: Toluene-d8	0.46		0.5000		92.9	70	130			

Sample ID: **lcs-46496**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **46496**	RunNo: **61873**
Prep Date: **7/30/2019**	Analysis Date: **8/2/2019**	SeqNo: **2097966** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	91.3	70	130			
Toluene	0.97	0.050	1.000	0	96.9	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.0	0.10	3.000	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.6	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.3	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.6	70	130			
Surr: Toluene-d8	0.48		0.5000		95.6	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **mb-46496** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **46496** RunNo: **61873**
Prep Date: **7/30/2019** Analysis Date: **8/2/2019** SeqNo: **2097968** 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: 1,2-Dichloroethane-d4	0.50		0.5000		99.3	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.6	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		99.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E84**
06-Aug-19

Client: Souder, Miller & Associates
Project: Queenie 15H

Sample ID: **mb-46508**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **46508**	RunNo: **61841**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097170** 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	450		500.0		89.3	70	130			

Sample ID: **lcs-46508**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46508**	RunNo: **61841**
Prep Date: **7/31/2019**	Analysis Date: **8/1/2019**	SeqNo: **2097171** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.5	70	130			
Surr: BFB	460		500.0		92.5	70	130			

Sample ID: **mb-46540**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **46540**	RunNo: **61884**
Prep Date: **8/1/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098698** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	450		500.0		90.0	70	130			

Sample ID: **lcs-46540**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46540**	RunNo: **61884**
Prep Date: **8/1/2019**	Analysis Date: **8/2/2019**	SeqNo: **2098699** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	480		500.0		95.1	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **G61884**	RunNo: **61884**
Prep Date:	Analysis Date: **8/3/2019**	SeqNo: **2098732** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	460		500.0		91.5	70	130			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G61884**	RunNo: **61884**
Prep Date:	Analysis Date: **8/3/2019**	SeqNo: **2098733** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	480		500.0		95.8	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1907E84** RcptNo: 1

Received By: Daniel M. **7/30/2019 8:43:00 AM**

Completed By: **Leah Baca** **7/30/2019 10:48:40 AM** Leah Baca

Reviewed By: 7/30/19 YG

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: DM 7/19 7/30/19

DM 7/30/19

Special Handling (if applicable)

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

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Yes			
2	6.6	Good	Yes			
3	3.8	Good	Yes			

Chain-of-Custody Record

Client: SMA – CARLSBAD

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 DAY TURN

Project Name: QUEENIE 15H

Project #:

Project Manager: HEATHER PATTERSON

Sampler: LA/JI

On Ice: ☑ Yes ☐ No

# of Coolers: 3 See checklist

Cooler Temp(including CF): 3.6-0.1=3.5°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY
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Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1907E84	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/26/19	1144	SOIL	BG-SURFACE	4oz		-001							X			
	1201		BG-5			-002							X			
	1212		BG-8			-003							X			
	1217		BG-10			-004							X			
	1221		BG-12			-005							X			
	1226		BG-14			-006							X			
	1229		BG-17			-007							X			
	1005		BHL2-3			-008	X	X					X			
	1018		BHL2-5			-009	X	X					X			
	1035		BHL2-8			-010	X	X					X			
	1041		BHL2-11			-011							X			
	1113		BHL2-15			-012							X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/29/19	0900				7/29/19	0900
7/29/19	1800			Courier	7/30/19	0843

Remarks: MARATHON

1 of 2

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

Chain-of-Custody Record

Client: SMA - CARLSBAD

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 DAY TURN

Project Name: Queenie 15H

Project #:

Project Manager: Heather Patterson

Sampler: LA/JI

On Ice: ☑ Yes ☐ No

# of Coolers: 3 See checklist

Cooler Temp(including CF): 3.6-0.1=3.5°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1907E84	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/26/19	1118	SOIL	BHL2-17	4oz		-013							X			
7/26/19	1323	SOIL	L1-1	4oz		-014	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/29/19	0900				7/29/19	0900
7-27-19	1100		Sonia Marquez	courier	7/30/19	8:43

Remarks: Marathon

2 of 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 28, 2019

Heather Patterson

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

RE: Queenie 15 OrderNo.: 1908964

Dear Heather Patterson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/17/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Lab Order:** 1908964
Project: Queenie 15

Lab ID: 1908964-001 **Collection Date:** 8/14/2019 2:23:00 PM
Client Sample ID: BH1-14' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	3000	150		mg/Kg	50	8/26/2019 12:26:59 PM	47025

Lab ID: 1908964-002 **Collection Date:** 8/14/2019 2:40:00 PM
Client Sample ID: BH1-20' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	1900	60		mg/Kg	20	8/24/2019 1:41:31 AM	47025

Lab ID: 1908964-003 **Collection Date:** 8/14/2019 2:50:00 PM
Client Sample ID: BH1-25' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	520	60		mg/Kg	20	8/24/2019 1:53:55 AM	47025

Lab ID: 1908964-004 **Collection Date:** 8/14/2019 3:16:00 PM
Client Sample ID: BH1-30' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	240	60		mg/Kg	20	8/24/2019 2:31:09 AM	47025

Lab ID: 1908964-005 **Collection Date:** 8/14/2019 5:35:00 PM
Client Sample ID: BH2-23' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	480	60		mg/Kg	20	8/24/2019 2:43:34 AM	47025

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Lab Order:** 1908964
Project: Queenie 15

Lab ID: 1908964-006 **Collection Date:** 8/14/2019 5:41:00 PM
Client Sample ID: BH2-30' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	290	60		mg/Kg	20	8/24/2019 2:55:58 AM	47025

Lab ID: 1908964-007 **Collection Date:** 8/14/2019 5:52:00 PM
Client Sample ID: BH2-35' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	240	60		mg/Kg	20	8/24/2019 3:08:22 AM	47025

Lab ID: 1908964-008 **Collection Date:** 8/14/2019 6:38:00 PM
Client Sample ID: BG-25' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	390	60		mg/Kg	20	8/24/2019 3:20:46 AM	47025

Lab ID: 1908964-009 **Collection Date:** 8/14/2019 6:50:00 PM
Client Sample ID: BG-33' **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	240	60		mg/Kg	20	8/24/2019 3:33:11 AM	47025

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908964**

28-Aug-19

Client: Souder, Miller & Associates

Project: Queenie 15

Sample ID: **MB-47025**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **47025**	RunNo: **62388**
Prep Date: **8/23/2019**	Analysis Date: **8/24/2019**	SeqNo: **2121577** Units: **mg/Kg**

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

Sample ID: **LCS-47025**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **47025**	RunNo: **62388**
Prep Date: **8/23/2019**	Analysis Date: **8/24/2019**	SeqNo: **2121579** 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
P	Sample pH Not In Range
RL	Reporting Limit

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Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1908964** RcptNo: **1**

Received By: **Erin Melendrez** **8/17/2019 2:25:00 PM**

Completed By: **Erin Melendrez** **8/17/2019 3:12:05 PM**

Reviewed By: JO 8/19/19

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: ENM 8/17/19

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good	Yes			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

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

Project Name: Queenie - #15

Project #:

Project Manager: Heather Patterson

Sampler: LA/JI

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 5.1 + 0.1 (CF) = 5.2°C

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1908968	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/14/19	1423	Soil	BH1-14'	4oz		-001 ENH 8/17/19							X			
	1440		BH1-20'			-002							X			
	1450		BH1-25'			-003							X			
	1516		BH1-30'			-004							X			
	1735		BH2-23'			-005							X			
	1741		BH2-30'			-006							X			
	1752		BH2-35'			-007							X			
	1838		BG2-25'			-008							X			
	1850		BG-33'			-009							X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					8/16/19	0930
8/16/19	1210			Courier	8/17/19	1425

Remarks: Marathon

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