

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Melodie Sanjari Title: Environmental Professional


Signature: M. Sanjari Date: 7/24/2023

email: msanjari@marathonoil.com Telephone: 575-988-8352

### OCD Only

Received by: Jocelyn Harimon Date: 07/24/2023

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 07/31/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist



## CLOSURE REQUEST REPORT ADDENDUM

Site Location:

**Shugart West 19 Fed #8 & #9**  
**Eddy County, New Mexico**  
**Incident Numbers**  
**nAB1527326452 & NAB1601157221**  
June 21, 2023  
Ensolum Project No. 03A2040004

Prepared for:

**Marathon Oil Permian, LLC**  
**4111 South Tidwell Road**  
**Carlsbad, New Mexico 88220**  
**Attention: Melodie Sanjari**

Prepared by:

Ashley N. Giovengo  
Senior Engineer

Daniel R. Moir, PG  
Senior Managing Geologist

## TABLE OF CONTENTS

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Background.....</b>	<b>1</b>
<b>2.0 SITE CHARACTERIZATION.....</b>	<b>1</b>
<b>3.0 DELINEATION ACTIVITIES.....</b>	<b>2</b>
<b>4.0 CLOSURE REQUEST.....</b>	<b>2</b>

## REFERENCE MATERIALS

### FIGURES

**Figure 1:** Site Receptor Map

**Figure 2:** Site & Sampling Locations

**Figure 3:** Delineation Soil Sample Locations

### TABLES

**Table 1:** Delineation Soil Sample Analytical Results

### APPENDICES

**Appendix A:** C-141 Forms

**Appendix B:** Lithologic Soil Sampling Logs

**Appendix C:** Photographic Log

**Appendix D:** Laboratory Analytical Reports & Chain-of-Custody Documentation

## 1.0 INTRODUCTION

Ensolum, LLC (Ensolum) has prepared this *Closure Request Report Addendum* (CRRRA) on behalf of Marathon Oil Permian, LLC, hereafter referred to as Marathon, regarding the crude oil and produced water releases at the Shugart West 19 Fed #8 & #9 (Site), located in Unit B, Section 19, Township 18 South, Range 31 East, in Eddy County, New Mexico (**Figure 1**). Global Positioning System (GPS) coordinates for the Site are as follows: North 32.734617 and West -103.907571. Surface owner of the Site is Federal Land managed by the Bureau of Land Management (BLM).

On October 24, 2019, A *Closure Request* (CR), authored by Souder, Miller & Associates (SMA), was submitted to the New Mexico Oil Conservation Division (NMOCD) for the releases associated with Incident Numbers nAB1527326452 & nAB1601157221; however, the request was denied. The original CR was submitted prior to the release of NMOCD's *Procedures for Implementation of the Spill Rule*, dated September 6, 2019, and as a result, it was determined lateral and vertical delineation to the strictest closure criteria per NMOCD Table I Closure Criteria would be required. This CRRRA addresses additional delineation sampling to the strictest Closure Criteria associated with the crude oil and produced water releases (nAB1527326452 & nAB1601157221). Based on laboratory analytical results, Marathon respectfully requests no further action (NFA) for Incident Numbers nAB1527326452 & nAB1601157221. The original CR and other supporting documents can be viewed on the NMOCD web portal.

### 1.1 Background

On September 29, 2015, a release was discovered at Site due to internal corrosion of a 2x4 swage on an oil circulating line, approximately 40 barrels (bbls) of produced water was released inside the earthen containment. A total of 35 bbls was recovered during the initial response activities. The incident was reported to NMOCD by the previous operator Merit Energy Company (Merit) and assigned Incident Number nAB1527326452.

On January 11, 2016, a leaking tank bottom resulted in the release of 10 bbls of produced water and 6 bbls of crude oil at the Shugart West 19 Federal #9 Site. A total of 2 bbls of produced water and 1 bbl of crude oil was recovered from the earthen containment. The release was reported to the NMOCD and assigned Incident Number nAB1601157221.

## 2.0 SITE CHARACTERIZATION

The Site was assessed for applicability of Table I, Closure Criteria for Soils Impacted by a Release, from Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) during the original CR. Results from the characterization desktop review were presented in the October 2019 CR and are presented on page 3 of Form C-141 (**Appendix A**), Site Assessment/Characterization. Potential Site receptors are identified on **Figure 1**.

Based on the desktop review of nearby receptors and depth to groundwater determination at the Site, the following NMOCD Table I Closure Criteria (Closure Criteria) was applied:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total Petroleum Hydrocarbon (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- Total Petroleum Hydrocarbon (TPH): 2500 mg/kg

- Chloride: 20,000 mg/kg

### 3.0 DELINEATION ACTIVITIES

Beginning on May 17, 2023, Ensolum personnel arrived onsite to perform delineation soil sampling in the vicinity of sample locations CS3 and CS4 and SW4 through SW9, see **Figure 2**. Ensolum personnel collected 10 surface soil samples (SS01 through 10) to determine the lateral extent of the spill area's in accordance with the strictest Closure Criteria.

In order to determine the vertical extent of the releases, a pothole was advanced as the surface soil sample location SS09 via hand auger to a depth of 2 feet below ground surface (bgs).

Delineation soil samples were field screened for TPH using a PetroFLAG® analyzer system and for chloride utilizing the Mohr method titration. Field screening results and observations from the pothole were recorded on lithologic/soil sampling logs (**Appendix B**) and photographic documentation is included in **Appendix C**.

Delineation soil samples were properly packaged, preserved, and transported to Hall Environmental Analysis Laboratory, following proper chain-of-custody procedures and were analyzed for the following constituents of concern (COCs): TPH following United States Environmental Protection Agency (EPA) Method 8015D, BTEX following EPA Method 8021B, and chloride following EPA Method 300.0.

Laboratory analytical results indicated COC concentrations for all delineation samples associated with Incident Numbers nAB1527326452 & nAB1601157221 were in compliance with the strictest Closure Criteria per NMOCD Table I except for SS03B, which was recollected. Surface sample SS03B exceeded the strictest Closure Criteria; however, it is located in the area nearest the production tanks. Ensolum personnel returned to the Site on June 2, 2023 to recollect a lateral sample in the vicinity of SS03B. Sample SS03C was below the strictest Closure Criteria and void of elevated surface contamination associated with ongoing operations near the production tanks. Delineation soil sample locations are identified on **Figures 3**, laboratory analytical results are presented in **Table 1** and laboratory analytical reports are included in **Appendix D**.

#### 4.0 CLOSURE REQUEST

On behalf of Marathon, Ensolum hereby requests closure for the releases associated with Incident Numbers nAB1527326452 & nAB1601157221 based on the findings and conclusion listed below:

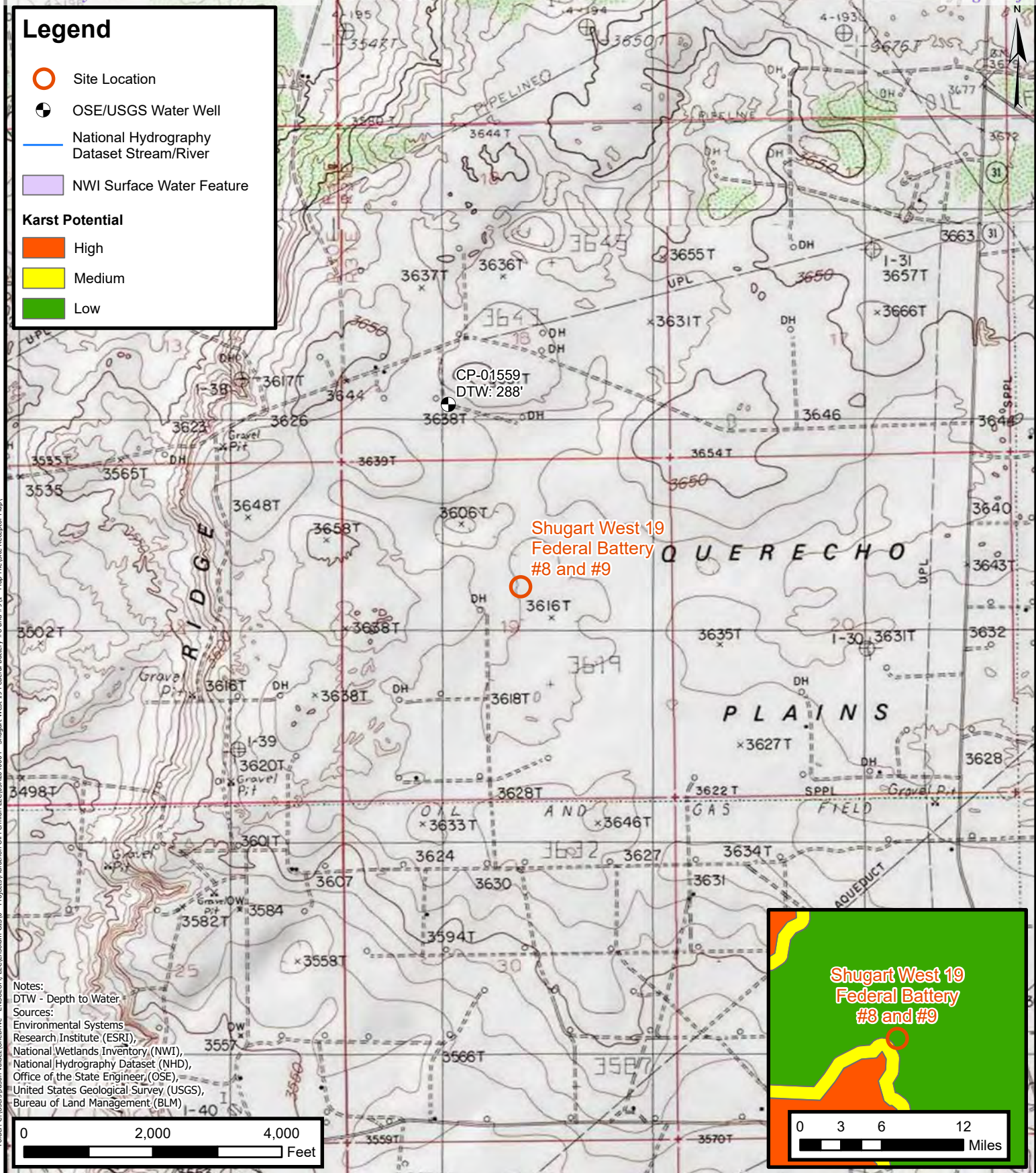
- Horizontal and vertical delineation sampling in the vicinity of soil sample locations CS3 and CS4 and SW4 through SW9 has been completed in accordance with the strictest Closure Criteria per NMOCD Table 1; and
- The lateral and vertical extents of the release have been adequately assessed as required in NMOCD's denial.

Remedial actions completed at the Site for Incident Numbers nAB1527326452 & nAB1601157221 have been protective of human health, the environment, and groundwater.



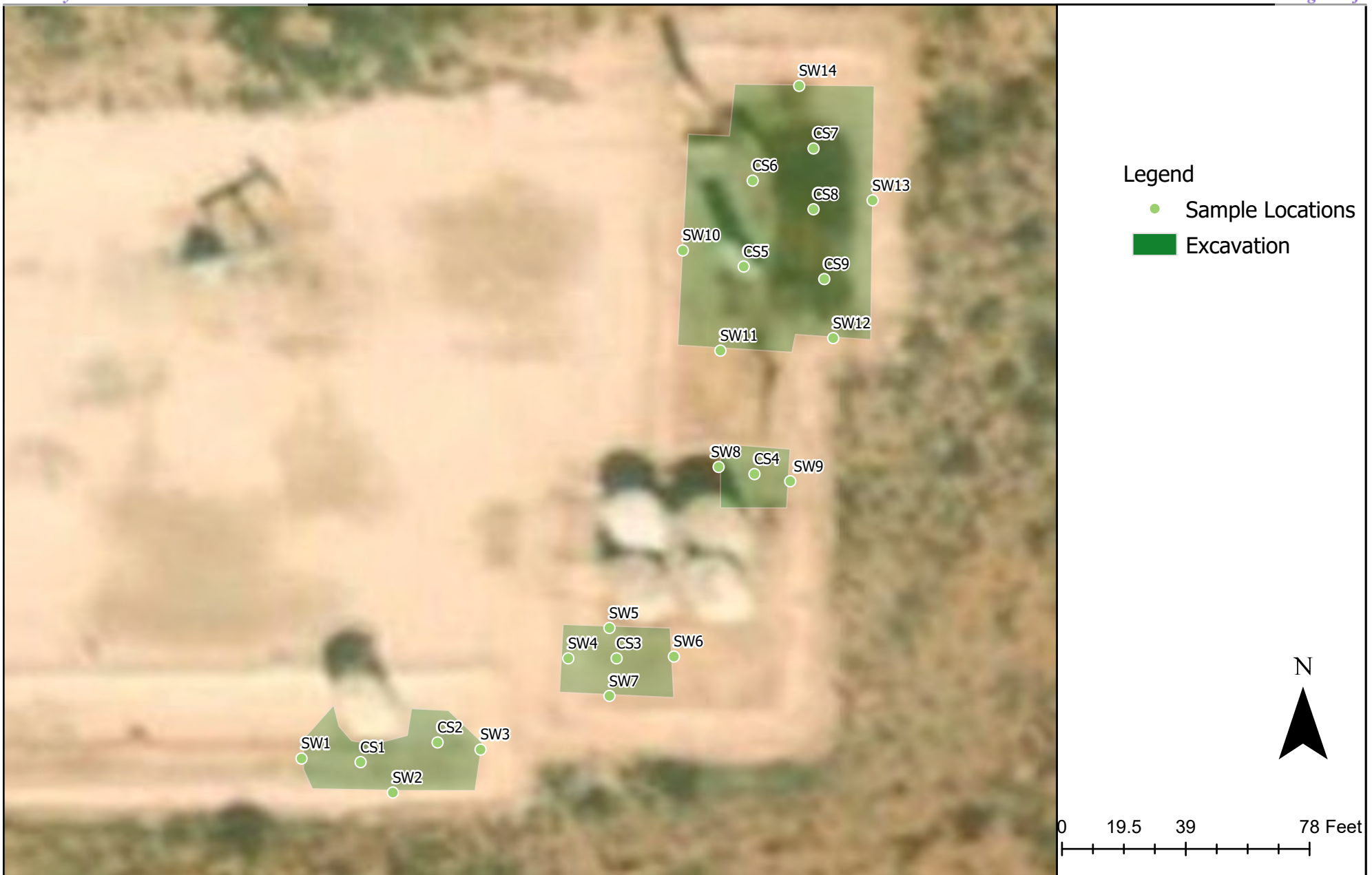
FIGURES







\\CBO10\Projects\5-Marathon MSA 2019 (5E27950)\GIS\ARCISIMARATHON\_MIT.aprx



Site and Sample location Map  
 Shugart West 19 Fed 6 TB - Marathon  
 Sec 19 T18S R23E, New Mexico

Figure 2

Date Saved:  
 4/15/2019

Revisions  
 By: \_\_\_\_\_ Date: \_\_\_\_\_ Descr: \_\_\_\_\_  
 By: \_\_\_\_\_ Date: \_\_\_\_\_ Descr: \_\_\_\_\_

Copyright 2018-19 Souder, Miller & Associates - All Rights Reserved

Drawn  
 Date  
 Checked  
 Approved

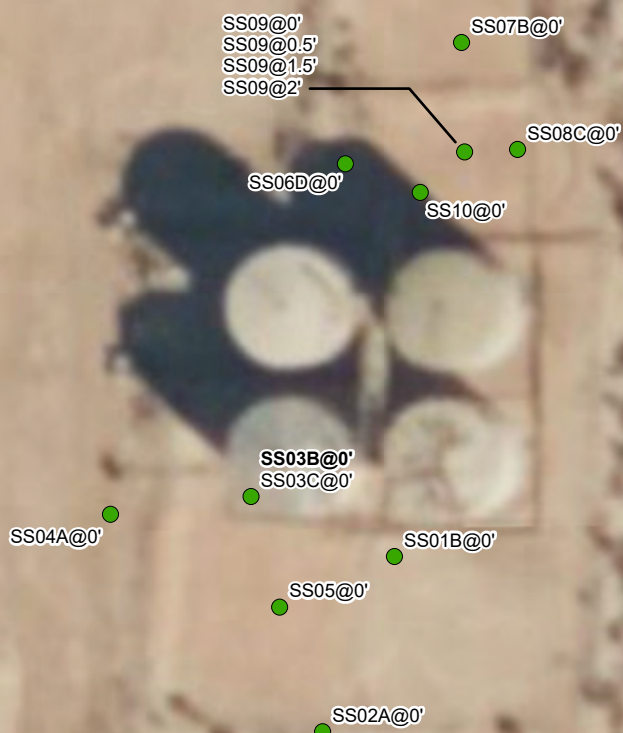
Heather Patterson  
4/15/2019



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

**Legend**

- Delineation Soil Sample  
in Compliance with  
Closure Criteria



Notes:  
Sample ID @ Depth Below Ground Surface.  
Samples in bold indicate sample exceeded applicable  
closure criteria

0 25 50  
Feet

Sources: Environmental Systems Research Institute (ESRI)



## Delineation Soil Sample Locations

Marathon Oil Permian LLC  
Shugart West 19 Fed Battery #8 and #9  
Incident Number: NAB1527326452NAB1601157221  
Unit B Sec 19 T18S R31E  
Eddy County, New Mexico

## FIGURE

# 3



TABLES

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TABLE 1  
SOIL SAMPLE ANALYTICAL RESULTS  
Shugart West 19 Federal #8 and #9  
Marathon Oil Permian LLC  
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
SS01B	05/17/2023	0	<0.025	<0.10	<5.0	<8.4	<42	<8.9	<42	<60
SS02A	05/17/2023	0	<0.025	<0.10	<4.9	<9.3	<47	<9.3	<47	<60
SS03B	05/17/2023	0	<0.025	<0.10	<5.0	24	<49	24	24	<b>2,200</b>
SS03C	06/02/2023	0	<0.025	<0.10	<4.9	<9.9	<50	<10	<50	<59
SS04A	05/17/2023	0	<0.025	<0.10	<4.9	<9.7	<48	<9.7	<48	320
SS05	05/17/2023	0	<0.024	<0.10	<4.9	18	57	18	75	<60
SS06D	05/17/2023	0	<0.024	<0.10	<4.8	<10	<50	<10	<50	<60
SS07B	05/17/2023	0	<0.024	<0.10	<4.8	11	<49	11	11	180
SS08C	05/17/2023	0	<0.024	<0.10	<4.9	9.8	<47	9.8	9.8	<60
SS09	05/17/2023	0	<0.024	<0.10	<4.8	19	<48	19	19	84
SS09	05/17/2023	0.5	<0.024	<0.09	<4.7	18	<49	18	18	95
SS09	05/17/2023	1	<0.023	<0.09	<4.7	16	<50	16	16	<60
SS09	05/17/2023	2	<0.025	<0.10	<4.9	12	<44	12	<12	<60
SS10	05/17/2023	0	<0.024	<0.10	<4.9	<9.7	<48	<9.7	<48	<60

## Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

"&lt;": Laboratory analytical results less than reportable limit

Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.



# APPENDIX A

## C-141 Forms

---



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

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

ARTESIA DISTRICT

SEP 29 2015

Form C-141  
Revised August 8, 2011

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

## Release Notification and Corrective Action

NAB 1527326452

## OPERATOR

x ☐ Initial Report ☐ Final Report

Name of Company Merit Energy Co. 14591	Contact Chris Flores
Address PO Box 1239 Eunice, N.M. 88231	Telephone No. 575-420-5506
Facility Name Shugart 19#8	Facility Type Oil & Gas Production battery
Surface Owner BLM	Mineral Owner BLM
API No. 300153092300	

## LOCATION OF RELEASE

Unit Letter 19#8 B	Sec 19	Township 18-S	Range 31-E	Feet from the 660'	North/South Line FNL	Feet from the 2310'	East/West Line FEL	County Eddy
--------------------------	-----------	------------------	---------------	-----------------------	-------------------------	------------------------	-----------------------	----------------

Latitude 32D44'04.14"N Longitude 103D54'26.82"W

## NATURE OF RELEASE

Type of Release Produced water	Volume of Release 40	Volume Recovered 35
Source of Release: Production tank on 19#8 tank battery, 2x4 swage on back of tank.	Date and Hour of Occurrence 9-29-2015	Date and Hour of Discovery 8:01 a.m. 9-29-2015
Was Immediate Notice Given? Required x <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not	If YES, To Whom? BLM and OCD Mike Bratcher - OCD & James Amos -BLM	
By Whom? Chris Flores	Date and Hour 9-29-15 8:23 A.M BLM./ 8:08 a.m. A.M. OCD	
Was a Watercourse Reached? <input type="checkbox"/> Yes x <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NA	
If a Watercourse was Impacted, Describe Fully.*  NO		
Describe Cause of Problem and Remedial Action Taken.* Internal corrosion on 2x4 swage on circulating line on back of oil tank. Removed and replaced all old or bad fittings on line.		
Describe Area Affected and Cleanup Action Taken.* Area around tanks inside firewall, leak was discovered around 8:01 A.M. on 9-29-2015. No leaking evident on previous day. All fluid was contained inside firewall, vacuumed and hauled off all standing fluid. Well follow up with further clean up.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: Chris Flores	OIL CONSERVATION DIVISION	
Printed Name: chris flores	Approved by	Signed By <u>Mike Bratcher</u>
Title: field foreman	Approval Date: 9/30/15	Expiration Date: N/A
E-mail Address: chris.flores@meritenergy.com	Conditions of Approval:	
Date: 9-29-2015 Phone: 575-420-5506	Mediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 11/7/15	

Incident ID	nAB1527326452
District RP	2RP-3304
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Volume exceeded 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was given to NMOCD on 05/02/2023 via website.	

## Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Isaac Castro</u>	Title: <u>Environmental Professional</u>
Signature: <u>Isaac Castro</u>	Date: <u>10/24/2019</u>
email: <u>icastro@marathonoil.com</u>	Telephone: <u>575-988-0561</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	nAB1527326452
District RP	2RP-3304
Facility ID	
Application ID	

## 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?	<u>288</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

Page 4

Incident ID	nAB1527326452
District RP	2RP-3304
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Printed Name: Isaac Castro Title: Environmental ProfessionalSignature: Isaac Castro Date: 10/24/19email: icastro@marathonoil.com Telephone: 575-988-0561**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	nAB1527326452
District RP	2RP-3304
Facility ID	
Application ID	

## Closure

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Isaac Castro Title: Environmental Professional  
Signature: Isaac Castro Date: 10/24/19  
email: icastro@marathonoil.com Telephone: 575-988-0561

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



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

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

ARTESIA DISTRICT

JAN 11 2016

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

RECEIVED

Form C-141  
Revised August 8, 2011

## Release Notification and Corrective Action

## OPERATOR

☒ Initial Report ☐ Final Report

*DABITD01157221*  
Name of Company MERIT ENERGY *14541* Contact Chris Flores  
Address : PO Box 1239, Eunice NM 88231 Telephone No. 575-420-5506  
Facility Name SHUGART WEST 19FED # 9 Facility Type : Tank Battery

Surface Owner BLM Mineral Owner BLM/ API No.30-0153092400

## LOCATION OF RELEASE

Unit Letter B	Section 19	Township 18S	Range 23E	Feet from the	North/South Line2310	Feet from	East/West Line2310	County Eddy
------------------	---------------	-----------------	--------------	---------------	-------------------------	-----------	-----------------------	-------------

Latitude 32.734617 Longitude 103.907571

NATURE OF RELEASE *10 PW 601 2PW 1011*

Type of Release : Oil and water	Volume of Release :16	Volume Recovered: 3
Source of Release Oil Production Tank	Date and Hour of Occurrence 1-11-16	Date and Hour of Discovery 1-11-16
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? James Amos Mike Bratcher	
By Whom? Chris Flores	Date and Hour 1-11-16 James Amos 8:09 am- left voice mail Mike Bratcher 8:13 am- left voicemail	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. No	

If a Watercourse was Impacted, Describe Fully.\*  
NA

Describe Cause of Problem and Remedial Action Taken.\*  
Tank bottom started leaking over night ,bad tank bottom :  
Call in vacuum trucks one with 100 barrels of fresh water one empty.  
Pump fresh water then skim up all standing fluid and empty out oil tank to begin repairs.

Describe Area Affected and Cleanup Action Taken.\*  
Around tank battery contained inside berm or firewall mop and skim up all standing fluid possible.  
Have crew extract oily dirt as soon as reasonably possible.  
Scheduled to repair tank bottom

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

## OIL CONSERVATION DIVISION

Signature: Chris Flores

Printed Name: Chris Flores

Title: Field Foreman

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

Date: 1-11-2016  
Phone: 575-420-5506

Signed By: *[Signature]*  
Approved by Environmental Specialist:

Approval Date: *1/11/16*Expiration Date: *N/A*

Conditions of Approval:  
**Remediation per O.C.D. Rules & Guidelines**  
**SUBMIT REMEDIATION PROPOSAL NO**  
**LATER THAN: *2/12/16***

\* Attach Additional Sheets If Necessary

2RD-3487

Incident ID	nAB1601157221
District RP	2RP-3487
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Volume exceeded 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was given to NMOCD on 05/02/2023 via website.	

## Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Isaac Castro</u>	Title: <u>Environmental Professional</u>
Signature: <u>Isaac Castro</u>	Date: <u>10/24/2019</u>
email: <u>icastro@marathonoil.com</u>	Telephone: <u>575-988-0561</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	nAB1601157221
District RP	2RP-3487
Facility ID	
Application ID	

## 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?	<u>288</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

Page 4

Incident ID	nAB1601157221
District RP	2RP-3487
Facility ID	
Application ID	

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

Printed Name: Isaac Castro Title: Environmental Professional

Signature: Isaac Castro Date: 10/24/19

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

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	nAB1601157221
District RP	2RP-3487
Facility ID	
Application ID	

## Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Isaac Castro Title: Environmental Professional  
Signature: Isaac Castro Date: 10/24/19  
email: icastro@marathonoil.com Telephone: 575-988-0561

**OCD Only**


Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



								Sample Name: SS09		Date: 5/17/2023	
								Site Name: Shugart West 19 Fed CTB #8 and #9			
								Incident Numbers: NAB1527326452 / NAB1601157221			
								Job Number: 03A2040004			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								Logged By: ANG		Method: Hand Auger	
Coordinates: 32.73457, -103.90743								Hole Diameter: 3"		Total Depth: 2'	
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D		0.1	N	SS09	1	0		(0.5-1'), SILTY SAND, dry, red, fine, no staining and no odor.			
							SM				
D		0.2	N	SS09	2	2	SM				
							TD	Total depth at 2' bgs.			



## APPENDIX C

### Photographic Log

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# Photographic Log

Marathon Oil Permian LLC

Shugart West 19 Federal #8 and #9

Incident Numbers: NAB1527326452 / NAB1601157221



Photograph 1 Date: 05/17/23  
Description: Delineation sampling activities  
View: Southeast



Photograph 2 Date: 05/17/23  
Description: Delineation sampling activities  
View: East



Photograph 3 Date: 06/02/23  
Description: Delineation sampling activities  
View: North



Photograph 4 Date: 06/02/23  
Description: Delineation sampling activities  
View: Northeast



## APPENDIX D

### Laboratory Analytical Reports & Chain-of-Custody Documentation

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

May 30, 2023

Ashley Giovengo  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX:

RE: Shugart West 19 Federal CTB H

OrderNo.: 2305A93

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/20/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2305A93

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS09-0.5'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 10:25:00 AM

Lab ID: 2305A93-001

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	18	9.9		mg/Kg	1	5/23/2023 9:51:03 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/23/2023 9:51:03 PM
Surr: DNOP	106	69-147		%Rec	1	5/23/2023 9:51:03 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/25/2023 6:01:00 AM
Surr: BFB	85.1	15-244		%Rec	1	5/25/2023 6:01:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 6:01:00 AM
Toluene	ND	0.047		mg/Kg	1	5/25/2023 6:01:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/25/2023 6:01:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/25/2023 6:01:00 AM
Surr: 4-Bromofluorobenzene	81.3	39.1-146		%Rec	1	5/25/2023 6:01:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	95	60		mg/Kg	20	5/25/2023 1:07:27 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT  
Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A93  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: MB-75165	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520086 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-75165	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520088 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 94.2 90 110

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A93

30-May-23

Client: Marathon Oil Company

Project: Shugart West 19 Federal CTB H

Sample ID: <b>LCS-75110</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518232</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: <b>MB-75110</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518236</b>		Units: <b>mg/Kg</b>					
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	8.1		10.00		80.8	69	147			

### 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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 3 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A93  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: mb-75105	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 75105	RunNo: 96984								
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3519769	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	850		1000		84.6	15	244			

Sample ID: lcs-75105	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 75105	RunNo: 96984								
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3519770	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.6	70	130			
Surr: BFB	1900		1000		191	15	244			

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 Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2305A93****30-May-23**

**Client:** Marathon Oil Company  
**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519793</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.2	39.1	146			

Sample ID: <b>lcs-75105</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519794</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.9	70	130			
Toluene	0.84	0.050	1.000	0	84.5	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		



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: Marathon Oil Company

Work Order Number: 2305A93

RcptNo: 1

Received By: Tracy Casarrubias

5/20/2023 9:30:00 AM

Completed By: Tracy Casarrubias

5/20/2023 10:50:09 AM

Reviewed By:

ms/22/23

### 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☒
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: TMC 5/20/23

### 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: Mailing address is missing on COC- TMC 5/20/23

16. Additional remarks:

Client did not relinquish chain of custody

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes	Yogi		







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

May 30, 2023

Ashley Giovengo  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX:

RE: Shugart West 19 Federal CTB H

OrderNo.: 2305A94

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/20/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 2305A94

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS09-1.0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 3:24:00 PM

Lab ID: 2305A94-001

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	16	9.9		mg/Kg	1	5/23/2023 10:02:01 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/23/2023 10:02:01 PM
Surr: DNOP	113	69-147		%Rec	1	5/23/2023 10:02:01 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/25/2023 6:22:00 AM
Surr: BFB	85.4	15-244		%Rec	1	5/25/2023 6:22:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	5/25/2023 6:22:00 AM
Toluene	ND	0.047		mg/Kg	1	5/25/2023 6:22:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/25/2023 6:22:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	5/25/2023 6:22:00 AM
Surr: 4-Bromofluorobenzene	84.4	39.1-146		%Rec	1	5/25/2023 6:22:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 1:44:28 AM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT  
Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A94  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: MB-75165	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520086 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-75165	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520088 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 94.2 90 110

Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A94

30-May-23

Client: Marathon Oil Company

Project: Shugart West 19 Federal CTB H

Sample ID: <b>LCS-75110</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518232</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: <b>MB-75110</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518236</b>		Units: <b>mg/Kg</b>					
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	8.1		10.00		80.8	69	147			

### 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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 3 of 5

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A94

30-May-23

Client: Marathon Oil Company

Project: Shugart West 19 Federal CTB H

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>		RunNo: <b>96984</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519769</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	850		1000		84.6	15	244			

Sample ID: <b>lcs-75105</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>		RunNo: <b>96984</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519770</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.6	70	130			
Surr: BFB	1900		1000		191	15	244			

### 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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2305A94****30-May-23****Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519793</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.2	39.1	146			

Sample ID: <b>lcs-75105</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519794</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.9	70	130			
Toluene	0.84	0.050	1.000	0	84.5	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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: Marathon Oil Company

Work Order Number: 2305A94

RcptNo: 1

Received By: Tracy Casarrubias 5/20/2023 9:30:00 AM

Completed By: Tracy Casarrubias 5/20/2023 10:54:04 AM

Reviewed By: *ms/22/23*

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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. Received at least 1 vial with headspace  $<1/4$ " for AQ VOA? Yes ☐ No ☐ NA ☒
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:

( $\leq 2$  or  $>12$  unless noted)

Adjusted?

Checked by: *TMC 5/20/23*

### 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: Mailing address is missing on COC- TMC 5/20/23

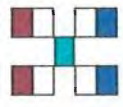
16. Additional remarks:

Client did not relinquish chain of custody

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes	Yogi		

PG. 1041



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

[illegible]

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



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

May 30, 2023

Ashley Giovengo  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX:

RE: Shugart West 19 Federal CTB H

OrderNo.: 2305A95

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/20/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 2305A95

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS09-2.0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 3:27:00 PM

Lab ID: 2305A95-001

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	12	8.7		mg/Kg	1	5/23/2023 10:23:49 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/23/2023 10:23:49 PM
Surr: DNOP	107	69-147		%Rec	1	5/23/2023 10:23:49 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/25/2023 6:44:00 AM
Surr: BFB	89.8	15-244		%Rec	1	5/25/2023 6:44:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	5/25/2023 6:44:00 AM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 6:44:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 6:44:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/25/2023 6:44:00 AM
Surr: 4-Bromofluorobenzene	84.8	39.1-146		%Rec	1	5/25/2023 6:44:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 1:56:49 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 1 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A95  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: MB-75165	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520086 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-75165	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 75165	RunNo: 97007
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520088 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 94.2 90 110

Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 2 of 5



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A95

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>LCS-75110</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518232</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: <b>MB-75110</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75110</b>		RunNo: <b>96945</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/23/2023</b>		SeqNo: <b>3518236</b>		Units: <b>mg/Kg</b>					
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	8.1		10.00		80.8	69	147			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 3 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A95  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: mb-75105	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range
Client ID: PBS	Batch ID: 75105	RunNo: 96984
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3519769 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	850	1000 84.6 15 244

Sample ID: lcs-75105	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSS	Batch ID: 75105	RunNo: 96984
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3519770 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	22	5.0 25.00 0 88.6 70 130
Surr: BFB	1900	1000 191 15 244

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 Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 4 of 5

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2305A95****30-May-23****Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519793</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.2	39.1	146			

Sample ID: <b>lcs-75105</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>	RunNo: <b>96984</b>								
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519794</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.9	70	130			
Toluene	0.84	0.050	1.000	0	84.5	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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: Marathon Oil Company

Work Order Number: 2305A95

RcptNo: 1

Received By: Tracy Casarrubias 5/20/2023 9:30:00 AM

Completed By: Tracy Casarrubias 5/20/2023 10:57:19 AM

Reviewed By: *gm 5/22/23*

### 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels? Yes ☒ No ☐  
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐  
(If no, notify customer for authorization.)
- # of preserved bottles checked for pH:   
(<2 or >12 unless noted)  
Adjusted?   
Checked by: *TMC 5/20/23*

### 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: Mailing address is missing on COC- TMC 5/20/23

### 16. Additional remarks:

Client did not relinquish chain of custody

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes	Yogi		





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

May 30, 2023

Ashley Giovengo  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX:

RE: Shugart West 19 Federal CTB H

OrderNo.: 2305A96

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/20/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2305A96

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS01B-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 2:09:00 PM

Lab ID: 2305A96-001

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	5/23/2023 10:34:52 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	5/23/2023 10:34:52 PM
Surr: DNOP	103	69-147		%Rec	1	5/23/2023 10:34:52 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/25/2023 7:06:00 AM
Surr: BFB	87.9	15-244		%Rec	1	5/25/2023 7:06:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	5/25/2023 7:06:00 AM
Toluene	ND	0.050		mg/Kg	1	5/25/2023 7:06:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/25/2023 7:06:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/25/2023 7:06:00 AM
Surr: 4-Bromofluorobenzene	85.0	39.1-146		%Rec	1	5/25/2023 7:06:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 2:09:09 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2305A96

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS02A-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 1:42:00 PM

Lab ID: 2305A96-002

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/24/2023 5:37:19 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/24/2023 5:37:19 PM
Surr: DNOP	69.5	69-147		%Rec	1	5/24/2023 5:37:19 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 11:29:00 PM
Surr: BFB	88.3	15-244		%Rec	1	5/24/2023 11:29:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	5/25/2023 1:32:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 1:32:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 1:32:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/25/2023 1:32:00 PM
Surr: 4-Bromofluorobenzene	83.7	39.1-146		%Rec	1	5/25/2023 1:32:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 2:46:12 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 11

## Analytical Report

Lab Order 2305A96

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS03B-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 3:41:00 PM

Lab ID: 2305A96-003

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	24	9.9		mg/Kg	1	5/24/2023 5:48:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/24/2023 5:48:08 PM
Surr: DNOP	91.5	69-147		%Rec	1	5/24/2023 5:48:08 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2023 11:52:20 PM
Surr: BFB	72.1	15-244		%Rec	1	5/24/2023 11:52:20 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	5/25/2023 1:54:00 PM
Toluene	ND	0.050		mg/Kg	1	5/25/2023 1:54:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/25/2023 1:54:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/25/2023 1:54:00 PM
Surr: 4-Bromofluorobenzene	83.5	39.1-146		%Rec	1	5/25/2023 1:54:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	2200	60		mg/Kg	20	5/25/2023 2:58:33 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 3 of 11

## Analytical Report

Lab Order 2305A96

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS04A-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 1:40:00 PM

Lab ID: 2305A96-004

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/25/2023 6:02:59 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/25/2023 6:02:59 PM
Surr: DNOP	85.3	69-147		%Rec	1	5/25/2023 6:02:59 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/25/2023 12:15:38 AM
Surr: BFB	74.7	15-244		%Rec	1	5/25/2023 12:15:38 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	5/25/2023 2:15:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 2:15:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 2:15:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/25/2023 2:15:00 PM
Surr: 4-Bromofluorobenzene	84.5	39.1-146		%Rec	1	5/25/2023 2:15:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	320	60		mg/Kg	20	5/25/2023 3:10:54 AM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 4 of 11

## Analytical Report

Lab Order 2305A96

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS05-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 9:36:00 AM

Lab ID: 2305A96-005

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	18	9.8		mg/Kg	1	5/24/2023 1:34:32 PM
Motor Oil Range Organics (MRO)	57	49		mg/Kg	1	5/24/2023 1:34:32 PM
Surr: DNOP	71.2	69-147		%Rec	1	5/24/2023 1:34:32 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/25/2023 12:39:01 AM
Surr: BFB	80.6	15-244		%Rec	1	5/25/2023 12:39:01 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 2:37:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 2:37:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 2:37:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/25/2023 2:37:00 PM
Surr: 4-Bromofluorobenzene	84.5	39.1-146		%Rec	1	5/25/2023 2:37:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 3:23:15 AM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT  
Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A96  
30-May-23

Client: Marathon Oil Company  
Project: Shugart West 19 Federal CTB H

Sample ID: MB-75165	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 75165	RunNo: 97007								
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520086	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-75165	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 75165	RunNo: 97007								
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3520088	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A96

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: 2305A96-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS01B-0'	Batch ID: 75110	RunNo: 96945								
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3518228 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	8.9	44.48	8.030	70.1	54.2	135			
Surr: DNOP	4.0		4.448		89.4	69	147			

Sample ID: 2305A96-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS01B-0'	Batch ID: 75110	RunNo: 96945								
Prep Date: 5/22/2023	Analysis Date: 5/24/2023	SeqNo: 3518229 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	8.5	42.34	8.030	67.4	54.2	135	7.00	29.2	
Surr: DNOP	3.4		4.234		79.9	69	147	0	0	

Sample ID: LCS-75110	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 75110	RunNo: 96945								
Prep Date: 5/22/2023	Analysis Date: 5/23/2023	SeqNo: 3518232 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: MB-75110	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 75110	RunNo: 96945								
Prep Date: 5/22/2023	Analysis Date: 5/23/2023	SeqNo: 3518236 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	8.1		10.00		80.8	69	147			

Sample ID: LCS-75133	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 75133	RunNo: 97001								
Prep Date: 5/23/2023	Analysis Date: 5/24/2023	SeqNo: 3519507 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	61.9	130			
Surr: DNOP	6.2		5.000		124	69	147			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A96

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>MB-75133</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75133</b>	RunNo: <b>97001</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3519510</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.9	69	147			

Sample ID: <b>LCS-75177</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75177</b>	RunNo: <b>97035</b>								
Prep Date: <b>5/25/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521100</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.0	61.9	130			
Surr: DNOP	4.4		5.000		87.2	69	147			

Sample ID: <b>MB-75177</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75177</b>	RunNo: <b>97035</b>								
Prep Date: <b>5/25/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521102</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.1	69	147			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A96

30-May-23

**Client:** Marathon Oil Company  
**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>ics-75127</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75127</b>			RunNo: <b>96974</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/24/2023</b>			SeqNo: <b>3519391</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.3	70	130			
Surr: BFB	5000		1000		496	15	244			S

Sample ID: <b>mb-75127</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75127</b>			RunNo: <b>96974</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/24/2023</b>			SeqNo: <b>3519392</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		90.8	15	244			

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>			RunNo: <b>96984</b>						
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>			SeqNo: <b>3519769</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	850		1000		84.6	15	244			

Sample ID: <b>ics-75105</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>			RunNo: <b>96984</b>						
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>			SeqNo: <b>3519770</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.6	70	130			
Surr: BFB	1900		1000		191	15	244			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A96

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>LCS-75127</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75127</b>		RunNo: <b>96974</b>							
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519397</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	85.2	70	130			
Toluene	0.88	0.050	1.000	0	87.9	70	130			
Ethylbenzene	0.89	0.050	1.000	0	89.0	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.2	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	39.1	146			

Sample ID: <b>mb-75127</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75127</b>		RunNo: <b>96974</b>							
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519398</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146			

Sample ID: <b>mb-75105</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75105</b>		RunNo: <b>96984</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519793</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.2	39.1	146			

Sample ID: <b>lcs-75105</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75105</b>		RunNo: <b>96984</b>							
Prep Date: <b>5/22/2023</b>	Analysis Date: <b>5/24/2023</b>		SeqNo: <b>3519794</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.9	70	130			
Toluene	0.84	0.050	1.000	0	84.5	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2305A96****30-May-23****Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75127</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75127</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3520527</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		86.1	39.1	146			

Sample ID: <b>lcs-75127</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75127</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3520528</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.7	70	130			
Toluene	0.87	0.050	1.000	0	86.5	70	130			
Ethylbenzene	0.84	0.050	1.000	0	84.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.9	70	130			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.5	39.1	146			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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: Marathon Oil Company

Work Order Number: 2305A96

RcptNo: 1

Received By: Tracy Casarrubias 5/20/2023 9:30:00 AM

Completed By: Tracy Casarrubias 5/20/2023 10:59:56 AM

Reviewed By: TML 5/22/23

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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. Received at least 1 vial with headspace  $<1/4$ " for AQ VOA? Yes ☐ No ☐ NA ☒
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: TML 5/16/23

### 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: Mailing address is missing on COC- TMC 5/20/23

16. Additional remarks:

Client did not relinquish chain of custody

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes	Yogi		







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

May 30, 2023

Ashley Giovengo  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX:

RE: Shugart West 19 Federal CTB H

OrderNo.: 2305A97

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/20/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2305A97

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS06D-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 3:28:00 PM

Lab ID: 2305A97-001

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/24/2023 9:38:25 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/24/2023 9:38:25 PM
Surr: DNOP	105	69-147		%Rec	1	5/24/2023 9:38:25 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/25/2023 4:04:00 PM
Surr: BFB	91.5	15-244		%Rec	1	5/25/2023 4:04:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 4:04:00 PM
Toluene	ND	0.048		mg/Kg	1	5/25/2023 4:04:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/25/2023 4:04:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/25/2023 4:04:00 PM
Surr: 4-Bromofluorobenzene	88.2	39.1-146		%Rec	1	5/25/2023 4:04:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 3:35:34 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2305A97

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS07B-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 12:05:00 PM

Lab ID: 2305A97-002

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	11	9.9		mg/Kg	1	5/24/2023 9:49:20 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/24/2023 9:49:20 PM
Surr: DNOP	99.2	69-147		%Rec	1	5/24/2023 9:49:20 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/25/2023 5:09:00 PM
Surr: BFB	87.8	15-244		%Rec	1	5/25/2023 5:09:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 5:09:00 PM
Toluene	ND	0.048		mg/Kg	1	5/25/2023 5:09:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/25/2023 5:09:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/25/2023 5:09:00 PM
Surr: 4-Bromofluorobenzene	84.7	39.1-146		%Rec	1	5/25/2023 5:09:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	180	60		mg/Kg	20	5/25/2023 3:47:55 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 11

## Analytical Report

Lab Order 2305A97

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS08C-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 3:41:00 PM

Lab ID: 2305A97-003

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	9.8	9.4		mg/Kg	1	5/24/2023 10:00:16 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/24/2023 10:00:16 PM
Surr: DNOP	106	69-147		%Rec	1	5/24/2023 10:00:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/25/2023 6:58:00 PM
Surr: BFB	90.3	15-244		%Rec	1	5/25/2023 6:58:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 6:58:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 6:58:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 6:58:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/25/2023 6:58:00 PM
Surr: 4-Bromofluorobenzene	85.6	39.1-146		%Rec	1	5/25/2023 6:58:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 4:00:16 AM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 3 of 11

## Analytical Report

Lab Order 2305A97

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS09-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 10:23:00 AM

Lab ID: 2305A97-004

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	19	9.6		mg/Kg	1	5/24/2023 10:11:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 10:11:14 PM
Surr: DNOP	108	69-147		%Rec	1	5/24/2023 10:11:14 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/25/2023 7:19:00 PM
Surr: BFB	90.9	15-244		%Rec	1	5/25/2023 7:19:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 7:19:00 PM
Toluene	ND	0.048		mg/Kg	1	5/25/2023 7:19:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/25/2023 7:19:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/25/2023 7:19:00 PM
Surr: 4-Bromofluorobenzene	87.2	39.1-146		%Rec	1	5/25/2023 7:19:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	84	60		mg/Kg	20	5/25/2023 4:12:37 AM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 4 of 11

## Analytical Report

Lab Order 2305A97

Date Reported: 5/30/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS10-0'

Project: Shugart West 19 Federal CTB H

Collection Date: 5/17/2023 10:29:00 AM

Lab ID: 2305A97-005

Matrix: SOIL

Received Date: 5/20/2023 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/24/2023 10:22:12 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 10:22:12 PM
Surr: DNOP	109	69-147		%Rec	1	5/24/2023 10:22:12 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/25/2023 7:41:00 PM
Surr: BFB	89.7	15-244		%Rec	1	5/25/2023 7:41:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	5/25/2023 7:41:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 7:41:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 7:41:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/25/2023 7:41:00 PM
Surr: 4-Bromofluorobenzene	86.4	39.1-146		%Rec	1	5/25/2023 7:41:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	5/25/2023 4:49:39 AM

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	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 5 of 11

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A97

30-May-23

**Client:** Marathon Oil Company  
**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>MB-75165</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75165</b>	RunNo: <b>97007</b>								
Prep Date: <b>5/24/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3520086</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-75165</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75165</b>	RunNo: <b>97007</b>								
Prep Date: <b>5/24/2023</b>	Analysis Date: <b>5/24/2023</b>	SeqNo: <b>3520088</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A97

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: 2305A97-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS06D-0'	Batch ID: 75146	RunNo: 97001								
Prep Date: 5/24/2023	Analysis Date: 5/25/2023	SeqNo: 3519455 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.6	47.89	0	86.7	54.2	135			
Surr: DNOP	4.7		4.789		98.5	69	147			

Sample ID: 2305A97-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS06D-0'	Batch ID: 75146	RunNo: 97001								
Prep Date: 5/24/2023	Analysis Date: 5/25/2023	SeqNo: 3519456 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	9.6	47.76	0	89.1	54.2	135	2.44	29.2	
Surr: DNOP	4.8		4.776		99.9	69	147	0	0	

Sample ID: LCS-75133	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 75133	RunNo: 97001								
Prep Date: 5/23/2023	Analysis Date: 5/24/2023	SeqNo: 3519507 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.2		5.000		124	69	147			

Sample ID: LCS-75146	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 75146	RunNo: 97001								
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3519508 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.6	61.9	130			
Surr: DNOP	5.0		5.000		100	69	147			

Sample ID: MB-75133	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 75133	RunNo: 97001								
Prep Date: 5/23/2023	Analysis Date: 5/24/2023	SeqNo: 3519510 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.5		10.00		94.9	69	147			

Sample ID: MB-75146	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 75146	RunNo: 97001								
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3519511 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		



QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A97  
30-May-23

Client: Marathon Oil Company

Project: Shugart West 19 Federal CTB H

Sample ID: MB-75146	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 75146	RunNo: 97001								
Prep Date: 5/24/2023	Analysis Date: 5/24/2023	SeqNo: 3519511	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	69	147			

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 Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 8 of 11

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A97

30-May-23

**Client:** Marathon Oil Company  
**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75132</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75132</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521524</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.2	15	244			

Sample ID: <b>lcs-75132</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75132</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521525</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.5	70	130			
Surr: BFB	1900		1000		190	15	244			

Sample ID: <b>2305A97-001ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>SS06D-0'</b>	Batch ID: <b>75132</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521527</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	23.95	0	86.8	70	130			
Surr: BFB	2000		957.9		204	15	244			

Sample ID: <b>2305A97-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>SS06D-0'</b>	Batch ID: <b>75132</b>	RunNo: <b>97020</b>								
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>	SeqNo: <b>3521528</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	24.25	0	89.8	70	130	4.74	20	
Surr: BFB	1900		969.9		201	15	244	0	0	

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305A97

30-May-23

**Client:** Marathon Oil Company**Project:** Shugart West 19 Federal CTB H

Sample ID: <b>mb-75127</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75127</b>			RunNo: <b>97020</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>			SeqNo: <b>3520527</b>	Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.86		1.000		86.1	39.1	146			

Sample ID: <b>lcs-75127</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75127</b>			RunNo: <b>97020</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>			SeqNo: <b>3520528</b>	Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.5	39.1	146			

Sample ID: <b>mb-75132</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75132</b>			RunNo: <b>97020</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>			SeqNo: <b>3521548</b>	Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

Sample ID: <b>lcs-75132</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75132</b>			RunNo: <b>97020</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>			SeqNo: <b>3521549</b>	Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.9	70	130			
Toluene	0.87	0.050	1.000	0	87.1	70	130			
Ethylbenzene	0.86	0.050	1.000	0	85.6	70	130			
Xylenes, Total	2.6	0.10	3.000	0	85.1	70	130			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.8	39.1	146			

Sample ID: <b>2305A97-002ams</b>	SampType: <b>MS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>SS07B-0'</b>	Batch ID: <b>75132</b>			RunNo: <b>97020</b>						
Prep Date: <b>5/23/2023</b>	Analysis Date: <b>5/25/2023</b>			SeqNo: <b>3521552</b>	Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.024	0.9775	0	83.4	70	130			
Toluene	0.83	0.049	0.9775	0	85.0	70	130			
Ethylbenzene	0.83	0.049	0.9775	0	84.6	70	130			
Xylenes, Total	2.5	0.098	2.933	0	83.8	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305A97

30-May-23

Client: Marathon Oil Company

Project: Shugart West 19 Federal CTB H

Sample ID: 2305A97-002ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles
Client ID: SS07B-0'	Batch ID: 75132	RunNo: 97020
Prep Date: 5/23/2023	Analysis Date: 5/25/2023	SeqNo: 3521552 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: 4-Bromofluorobenzene	0.86	0.9775 87.7 39.1 146

Sample ID: 2305A97-002amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles
Client ID: SS07B-0'	Batch ID: 75132	RunNo: 97020
Prep Date: 5/23/2023	Analysis Date: 5/25/2023	SeqNo: 3521553 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Benzene	0.83	0.024 0.9718 0 85.4 70 130 1.82 20
Toluene	0.85	0.049 0.9718 0 87.5 70 130 2.31 20
Ethylbenzene	0.85	0.049 0.9718 0 87.1 70 130 2.36 20
Xylenes, Total	2.5	0.097 2.915 0 86.3 70 130 2.41 20
Surr: 4-Bromofluorobenzene	0.85	0.9718 88.0 39.1 146 0 0

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 11 of 11



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: Marathon Oil Company

Work Order Number: 2305A97

RcptNo: 1

Received By: Tracy Casarrubias 5/20/2023 9:30:00 AM

Completed By: Tracy Casarrubias 5/20/2023 11:06:39 AM

Reviewed By: *ms/22/23*

### 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☒
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: *TML 5/20/23*

### 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: Mailing address is missing on COC- TMC 5/20/23

16. Additional remarks:

Client did not relinquish chain of custody

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes	Yogi		

☒ Rush 5 DAY

Subject Name: Shugart West 19 Federal CTB H

Shugart West 19 Federal 8/Shugart West 19 Federal 9

MO Cost Center: 0029588000

Ashley Giovengo

575-988-0055

[ragiovenago@ensolum.com](mailto:ragiovenago@ensolum.com)

**Sampler:** Ashley Giovengo

On Ice: ☒ Yes ☐ No

# of Coolers: 1

and #	Type	ILHS# / ALN
		2305A9167

1. ce mi 2000

9  
3

$$\frac{8}{3}$$

3	8	5
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U S	8	6 v
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Relinquished by:

Received by:	Via:	Date	Time
--------------	------	------	------

5/21/73 205

**Relinquished by:**

Received by: Via: *Carroll* Date \_\_\_\_\_ Time \_\_\_\_\_

6/26/20

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



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

June 20, 2023

Melodie Sanjari  
Marathon Oil Company  
4111 Tidwell Road  
Carlsbad, NM 88220  
TEL: (575) 297-0956  
FAX

RE: Sugart West 19 Federal CTB H  
(Shugart West 19)(Federal 8/Federal 9)

OrderNo.: 2306489

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/9/2023 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2306489

Date Reported: 6/20/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS03C-0'

Project: Sugart West 19 Federal CTB H

Collection Date: 6/2/2023 9:30:00 AM

Lab ID: 2306489-001

Matrix: SOIL

Received Date: 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/13/2023 11:47:08 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/13/2023 11:47:08 AM
Surr: DNOP	101	69-147		%Rec	1	6/13/2023 11:47:08 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/14/2023 9:55:57 PM
Surr: BFB	103	15-244		%Rec	1	6/14/2023 9:55:57 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	6/14/2023 9:55:57 PM
Toluene	ND	0.049		mg/Kg	1	6/14/2023 9:55:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/14/2023 9:55:57 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/14/2023 9:55:57 PM
Surr: 4-Bromofluorobenzene	89.7	39.1-146		%Rec	1	6/14/2023 9:55:57 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	59		mg/Kg	20	6/15/2023 1:19:15 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2306489

20-Jun-23

Client: Marathon Oil Company

Project: Sugart West 19 Federal CTB H

Sample ID: <b>MB-75617</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>						
Client ID: <b>PBS</b>		Batch ID: <b>75617</b>		RunNo: <b>97494</b>						
Prep Date: <b>6/15/2023</b>		Analysis Date: <b>6/15/2023</b>		SeqNo: <b>3542499</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

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 Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2306489

20-Jun-23

Client: Marathon Oil Company

Project: Sugart West 19 Federal CTB H

Sample ID: LCS-75540	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 75540	RunNo: 97392								
Prep Date: 6/12/2023	Analysis Date: 6/13/2023	SeqNo: 3538144	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	94.0	61.9	130			
Surr: DNOP	5.0		5.000		99.8	69	147			

Sample ID: MB-75540	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 75540	RunNo: 97392								
Prep Date: 6/12/2023	Analysis Date: 6/13/2023	SeqNo: 3538146	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.3		10.00		93.0	69	147			

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 Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 3 of 5

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2306489

20-Jun-23

**Client:** Marathon Oil Company  
**Project:** Sugart West 19 Federal CTB H

Sample ID: <b>lcs-75536</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75536</b>		RunNo: <b>97399</b>							
Prep Date: <b>6/12/2023</b>	Analysis Date: <b>6/13/2023</b>		SeqNo: <b>3538745</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.8	70	130			
Surr: BFB	2100		1000		208	15	244			

Sample ID: <b>mb-75536</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75536</b>		RunNo: <b>97399</b>							
Prep Date: <b>6/12/2023</b>	Analysis Date: <b>6/13/2023</b>		SeqNo: <b>3538746</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.4	15	244			

### 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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2306489

20-Jun-23

**Client:** Marathon Oil Company  
**Project:** Sugart West 19 Federal CTB H

Sample ID: <b>LCS-75536</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75536</b>			RunNo: <b>97399</b>						
Prep Date: <b>6/12/2023</b>	Analysis Date: <b>6/13/2023</b>			SeqNo: <b>3538747</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	1.000	0	79.8	70	130			
Toluene	0.81	0.050	1.000	0	81.3	70	130			
Ethylbenzene	0.81	0.050	1.000	0	81.0	70	130			
Xylenes, Total	2.5	0.10	3.000	0	81.9	70	130			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	39.1	146			

Sample ID: <b>mb-75536</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75536</b>			RunNo: <b>97399</b>						
Prep Date: <b>6/12/2023</b>	Analysis Date: <b>6/13/2023</b>			SeqNo: <b>3538748</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.85		1.000		85.4	39.1	146			

**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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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: **Marathon Oil Company**

Work Order Number: **2306489**

RcptNo: **1**

Received By: **Juan Rojas**

6/9/2023 7:45:00 AM

Completed By: **Cheyenne Gason**

6/9/2023 8:49:00 AM

Reviewed By:

*Juan Rojas*

*Cheyenne Gason*

## Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐

2. How was the sample delivered? Client

## Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐

4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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. Received at least 1 vial with headspace  $<1/4"$  for AQ VOA? Yes ☐ No ☐ NA ☒

10. Were any sample containers received broken? Yes ☐ No ☒

11. Does paperwork match bottle labels? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

*SCM*  
*06/09/23*

## 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Not Present	Yogi		





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

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

CONDITIONS  
  
Action 243502

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 243502
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/31/2023