



## CLOSURE REQUEST REPORT ADDENDUM

Site Location:

**State K #2**  
**Eddy County, New Mexico**  
**Incident Number**  
**nOY1710042657**  
June 19, 2023  
Ensolum Project No. 03A2040003

Prepared for:

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

Prepared by:

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Ashley N. Giovengo  
Senior Engineer

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Daniel R. Moir, PG  
Senior Managing Geologist

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## 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 release at the State K #2 (Site), located in Unit A, Section 2, Township 10 South, Range 33 East, in Eddy County, New Mexico (**Figure 1**). Global Positioning System (GPS) coordinates for the Site are as follows: North 32.48127 and West -103.53265. Surface owner of the Site is Justin Johnson, a private landowner.

On May 17, 2019, a Remediation *Closure Report* (CR), authored by Souder, Miller & Associates (SMA), was submitted to the New Mexico Oil Conservation Division (NMOCD) for the release associated with Incident Number nOY1710042657; however, the request was denied. The CR was submitted prior to the release of NMOCD's *Procedures for Implementation of the Spill Rule*, effective September 6, 2019, and as a result, samples collected during the initial remediation did not meet the reclamation requirements set forth in Title 19, Chapter 15, Part 29, Section 13 (19.15.29.13) of the New Mexico Administrative Code (NMAC). This CRRRA addresses additional delineation sampling in the vicinity of borehole BH2 and based on laboratory analytical results, Marathon respectfully requests no further action (NFA) for Incident Number nOY1710042657. The original CRs and other supporting documents can be viewed on the NMOCD web portal.

### 1.1 Background

On April 8, 2017, seals in a circulating pump failed, which resulted in the release of 170 barrels (bbls) of crude oil and produced water onto the pad surface. The spill migrated off-pad and down the lease road where it pooled on a nearby location; this location has since been reclaimed. A vacuum truck was used to recover approximately 20 bbls of fluid from the pooled area. Black Mountain LLC, the previous operator, reported the release to the NMOCD and filed a Corrective Action Form C-141 (Form C-141) on April 8, 2017. Subsequently, NMOCD assigned Incident Number nOY1710042657 to the release.

Black Mountain hired a third-party contractor to complete the initial spill cleanup and to conduct sampling activities at the Site. On August 2, 2018, NMOCD personnel approved the remediation proposal for the Site with a depth to groundwater ranking of 50 feet to 99 feet below ground surface (bgs). The third-party contractor completed the soil remediation, backfilled the excavation area, and submitted a closure report based on the approved site ranking. NMOCD denied the original CR and Marathon hired SMA to perform a new depth to ground water determination. SMA found the depth to groundwater to be 38 feet bgs. As such, SMA completed additional delineation sampling to determine whether further remediation was necessary, and all samples met the Closure Criteria for depth to groundwater of less than 50 feet bgs, except for BH2, which was located just behind the tank battery prior to the reclamation of the Site. SMA submitted their own CR to NMOCD on May 17, 2019, detailing the new depth to groundwater determination and the sampling efforts thereon. The CR submitted by SMA was denied by the NMOCD due to elevated chloride concentrations at 4 feet bgs since the site had since been reclaimed.

## 2.0 SITE CHARACTERIZATION

The Site was assessed for applicability of Table I, Closure Criteria for Soils Impacted by a Release, from 19.15.29 of the NMAC during the original CR. Results from the characterization desktop review were presented in the May 2019 CR and are presented on page 3 of the 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): 100 mg/kg
- Chloride: 600 mg/kg

Per 19.15.29.13 NMAC, a reclamation requirement of 600 mg/kg chloride and 100 mg/kg TPH was applied to the top 4 feet of the spill area.

### 3.0 DELINEATION ACTIVITIES

Beginning on May 23, 2023, Ensolum personnel arrived onsite to perform delineation soil sampling in the vicinity of sample location BH2, see **Figure 2**. Ensolum personnel hit refusal at 2 feet bgs with a hand auger and rock bar. Due to the lithology of the Site, a pothole (PH01) was advanced via mechanical equipment to a depth of 5 feet bgs on June 02, 2023; soil samples were collected at 2 feet, 4 feet, and 5 feet bgs and submitted to the laboratory for chloride analysis. Soil samples were field screened for chlorides utilizing the Mohr method titration. Field screening results and observations from the pothole were recorded on lithologic/soil sampling log (**Appendix B**) and photographic documentation is included in **Appendix C**.

Delineation soil samples were properly packaged, preserved, and transported to Hall Environmental, following proper chain-of-custody procedures and were analyzed for the following constituent of concern (COC): Chloride following United States Environmental Protection Agency (EPA) Method 300.0. Laboratory analytical results indicated the chloride concentrations in all three samples from pothole PH01 were in compliance with the reclamation standard. The initial spill area and delineation sampling locations are identified on **Figure 2** and the location of pothole PH01 is identified on **Figure 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 release associated with Incident Number nOY1710042657 based on the findings and conclusion listed below:

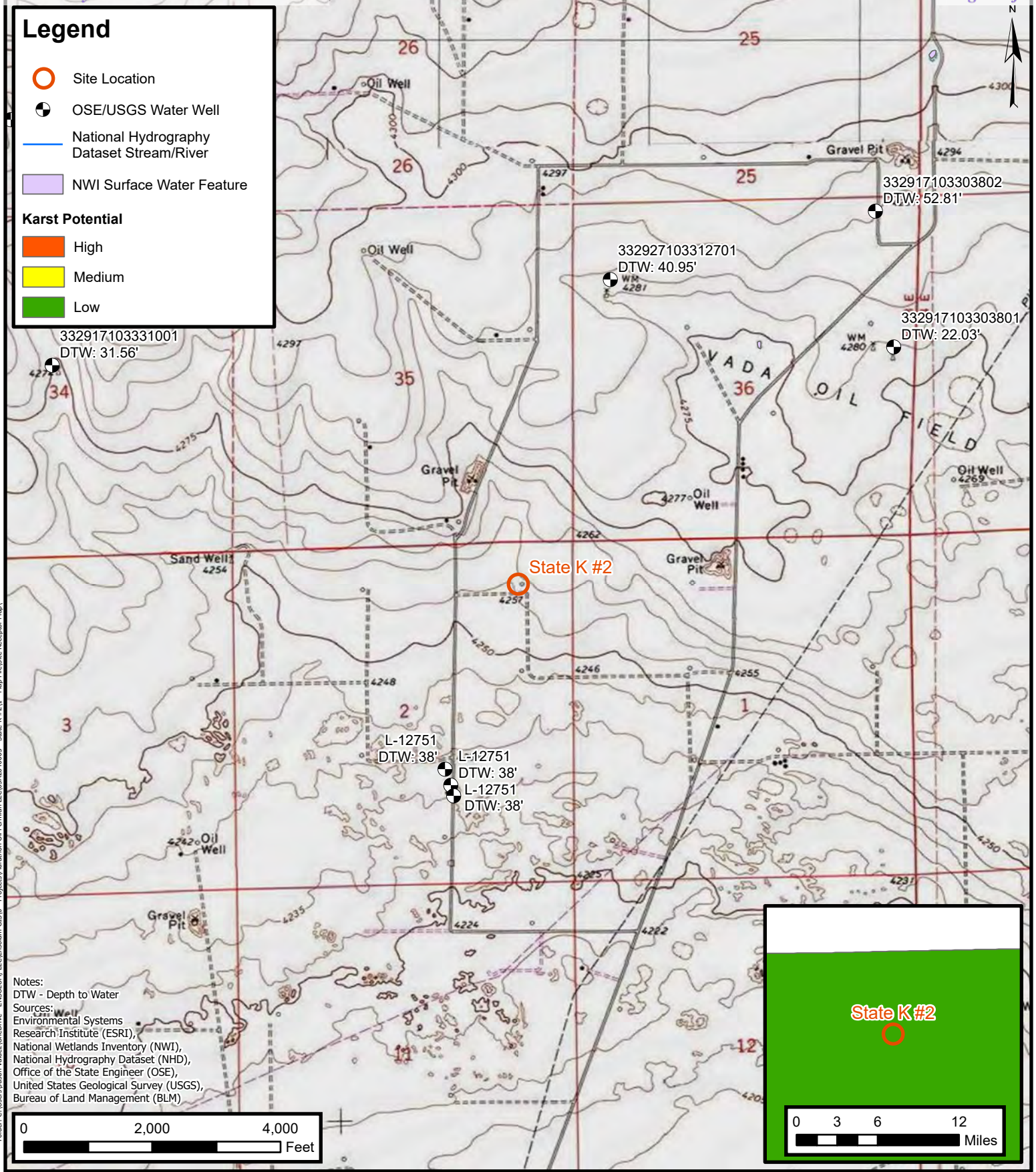
- Delineation sampling in the vicinity of sample location BH2 was completed and samples collected from pothole PH01 met the requirements set forth in the reclamation standard 19.15.29.13 NMAC.
- The Site has been reclaimed and re-vegetation has been established; see photographic log (**Appendix C**).



FIGURES

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**Site Receptor Map**  
Marathon Oil Permian LLC  
State K #2  
Incident Number: nOY1710042657  
Unit A Sec 2 T10S R33E  
Eddy County, New Mexico

**FIGURE**  
**1**





Site and Sample location Map  
 State K #2 - Marathon Oil  
 S 2-T10SR33E, New Mexico

**Figure 2**

Date Saved:  
5/16/2019

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

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

Drawn Heather Patterson  
 Date 5/16/2019  
 Checked \_\_\_\_\_  
 Approved \_\_\_\_\_



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



PH01@2'  
PH01@4'  
PH01@5'

Notes:  
Sample ID @ Depth Below Ground Surface.

0 25 50 100  
Feet

Sources: Environmental Systems Research Institute (ESRI)



## Delineation Soil Sample Locations

Marathon Oil Permian LLC

State K #2

Incident Number: nOY1710042657

Unit A Sec 2 T10S R33E

Eddy County, New Mexico

## FIGURE

# 3





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 State K #2  
 Marathon Oil Company  
 Eddy County, New Mexico

Sample Designation	Date	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)
<b>NMOCD Table I Closure Criteria (NMAC 19.15.29)</b>			<b>10</b>	<b>50</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>100</b>	<b>600</b>
<b>Pothole Soil Samples</b>										
PH01	6/2/2023	2	--	--	--	--	--	--	--	360
PH01	6/2/2023	4	--	--	--	--	--	--	--	350
PH01	6/2/2023	5	--	--	--	--	--	--	--	430

**Notes:**

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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

"--" = Not analyzed



# APPENDIX A

## C-141 Forms

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

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141  
Revised August 8, 2011

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

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Black Mountain Operating, LLC	Contact: John Wierzowiecki
Address 500 Main St, Suite 500, Fort Worth, TX, 76102	Telephone No. (817) 529-9488
Facility Name: State K #2	Facility Type: Oil Production Battery
Surface Owner: Justin Johnson	Mineral Owner: State of NM
API No. 30-025-00977	

### LOCATION OF RELEASE

Unit Letter A	Section 02	Township 10S	Range 33E	Feet from the 660'	FNL	Feet from the 660	FEL	County Eddy
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Latitude 32.48127 Longitude -103.53265

### NATURE OF RELEASE

Type of Release: Oil and produced fluids	Volume of Release: 170 bbl	Volume Recovered 20 bbl
Source of Release: Circulating Pump Seals	4/8/17	4/8/17
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Maxey Brown	
By Whom? John Wierzowiecki	4/8/17 @ 12:00 hrs	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

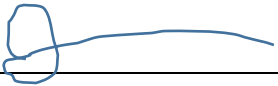
Describe Cause of Problem and Remedial Action Taken.\*

A circulating pump was being used to work bottoms from oil tank. At some point it is believed that solids in the fluids caused the seals to fail allowing fluid to be released from the pump.

Describe Area Affected and Cleanup Action Taken.\*

Area around the separators was affected by the release. This area is about 20' x 20'. Some fluid then flowed ~500 yards down the ruts in the lease road to a nearby location and pooled there. This area is about 10' x 20'. A vacuum truck was able to recover 20 bbl of liquid and all contaminated soil was removed and taken to an approved disposal. Basin Environmental was contacted and we will schedule testing to ensure all contamination has been removed.

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: 	<b><u>OIL CONSERVATION DIVISION</u></b>		
Printed Name: John Wierzowiecki	Approved by Environmental Specialist:		
Title: Operations Manager	Approval Date:	Expiration Date:	
E-mail Address: john.wierzowiecki@blackmtn.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 4/3/17	Phone: (817) 529-9488		

\* Attach Additional Sheets If Necessary

Incident ID	nOY1710042657
District RP	
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>Callie Karrigan</u>	Title: <u>HES Professional</u>
Signature: <u>Callie Karrigan</u>	Date: <u>05/17/2019</u>
email: <u>cnkarrigan@marathonoil.com</u>	Telephone: <u>575-297-0956</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	nOY1710042657
District RP	1RP-4675
Facility ID	
Application ID	pOY1710042935

## 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?	38 (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 checked="" type="checkbox"/> Yes <input 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	nOY1710042657
District RP	1RP-4675
Facility ID	
Application ID	pOY1710042935

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: Melodie Sanjari

Title: Environmental Professional

Signature: Melodie Sanjari

Date: 06/19/2023

email: msanjari@marathonoil.com

Telephone: 575-988-8753

**OCD Only**

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

Date: \_\_\_\_\_

Incident ID	nOY1710042657
District RP	1RP-4675
Facility ID	
Application ID	pOY1710042935

## 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: Melodie Sanjari Date: 06/19/2023

email: msanjari@marathonoil.com Telephone: 575-988-8753

### OCD Only

Received by: Jocelyn Harimon Date: 06/26/2023

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: 06/26/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist




## APPENDIX B

### Lithologic Soil Sampling Forms

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								Sample Name: PH01		Date: 6/2/23	
								Site Name: State K #2			
								Incident Number:			
								Job Number: 03A2040003			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								Logged By: Cole Burton		Method: Backhoe	
Coordinates: 33.48121, -103.53265								Hole Diameter: 3'		Total Depth: 5'	
Comments: Field screening conducted with Chloride Titration and PID for chloride and vapor, respectively. Chloride test performed with 1:1 dilution factor of soil to distilled water. No correction factors included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D	400			PH01	2	2	SP-SM	2' Sand W/ trace silt, Fine grade, Light brown, Rock, No stain			
D	300			PH01	4	4	SP-SM	4' Sand W/ trace silt, Fine grade, Light brown, Rock, No stain			
D	400			PH01	5	5	SP-SM	5' Sand W/ trace silt, Fine grade, Light brown, Rock, No stain			
Max Depth 5'											



## APPENDIX C

### Photographic Log

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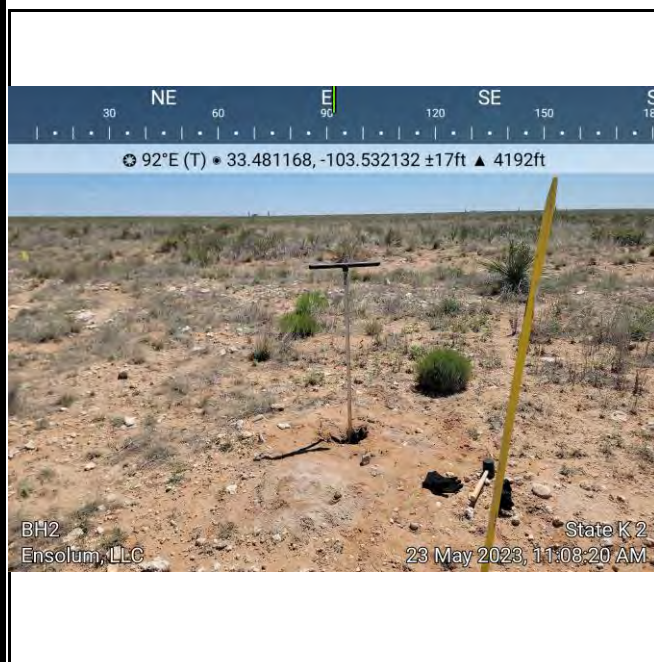


# Photographic Log

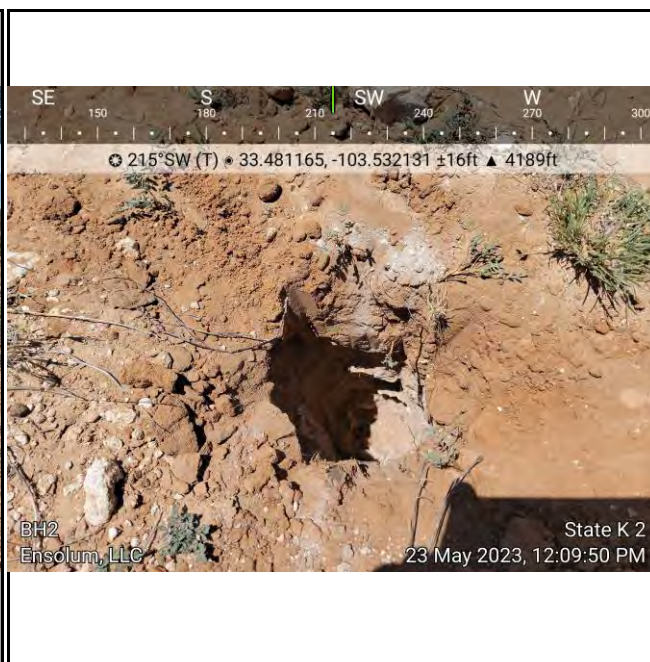
Marathon Oil Permian LLC

State K #2

Incident Number nOY1710042657



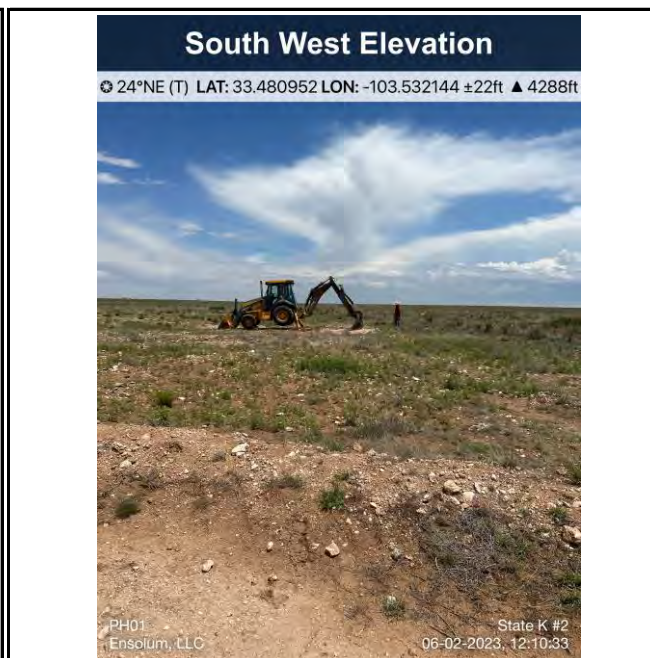
Photograph 1 Date: 5/23/23  
Description: Sampling activities; Rock at 2'  
View: East



Photograph 2 Date: 5/23/23  
Description: Sampling activities; Rock at 2'  
View: Southwest



Photograph 3 Date: 6/2/23  
Description: Sampling activities, PH01  
View: South



Photograph 4 Date: 6/2/23  
Description: Sampling activities, PH01  
View: Southwest



## 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)

June 13, 2023

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

RE: State K 2

OrderNo.: 2306187

Dear Ashley Giovengo:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/6/2023 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



Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2306187  
Date Reported: 6/13/2023

CLIENT: Marathon Oil Company      Client Sample ID: PH01-2'  
Project: State K 2      Collection Date: 6/2/2023 11:35:00 AM  
Lab ID: 2306187-001      Matrix: SOIL      Received Date: 6/6/2023 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	360	60		mg/Kg	20	6/9/2023 3:18:43 PM

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 2306187

Date Reported: 6/13/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: PH01-4'

Project: State K 2

Collection Date: 6/2/2023 11:45:00 AM

Lab ID: 2306187-002

Matrix: SOIL

Received Date: 6/6/2023 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	350	60		mg/Kg	20	6/9/2023 3:31:08 PM

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.		

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CLIENT: Marathon Oil Company

Client Sample ID: PH01-5'

Project: State K 2

Collection Date: 6/2/2023 11:55:00 AM

Lab ID: 2306187-003

Matrix: SOIL

Received Date: 6/6/2023 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	430	60		mg/Kg	20	6/9/2023 3:43:32 PM

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#: 2306187

13-Jun-23

Client: Marathon Oil Company

Project: State K 2

Sample ID: <b>MB-75493</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75493</b>	RunNo: <b>97339</b>								
Prep Date: <b>6/9/2023</b>	Analysis Date: <b>6/9/2023</b>	SeqNo: <b>3536201</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-75493</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75493</b>	RunNo: <b>97339</b>								
Prep Date: <b>6/9/2023</b>	Analysis Date: <b>6/9/2023</b>	SeqNo: <b>3536202</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	94.4	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

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

## Sample Log-In Check List

Client Name: Marathon Oil Company

Work Order Number: 2306187

RcptNo: 1

Received By: Joseph Alderette 6/6/2023 8:35:00 AM

Completed By: Tracy Casarrubias 6/6/2023 9:00:48 AM

Reviewed By: *JS 6-6-23*

### 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: *JS 6/6/23*

### 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 6/6/23

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Yes	Morty		





**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 230109

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 230109
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	6/26/2023