Legacy incident originally included in ACO.

CARMONA RESOURCES

CARMONA RESOURCES

May 18, 2023

Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Amendment to Closure Report
Chicken Fry Federal 1H
Marathon Oil Corporation
NAB1815049566
2RP-4771
Site Location: Unit A, S22, T24S, R28E
(Lat 32.209479844°, Long -104.06769976°)
Eddy County, New Mexico

Mr. Bratcher:

On behalf of Marathon Oil Corporation (Marathon), Carmona Resource, LLC has prepared this letter to document additional site activities for the Chicken Fry Federal 1H. The site is located at the GPS 32.209479844°, -104.06769976° within Unit A, S22, T24S, R28E in Eddy County, New Mexico.

1.0 Site Information and Background

NAB1815049566/2RP-4771

On May 30, 2023 the New Mexico OCD denied the closure report for the following reason: The elevated TPH at sampling point BH18-01 does not appear to have been fully delineated vertically or remediated.

2.0 Site Characterization and Groundwater

The site is located within a medium karst area. Based on a review of the New Mexico Office of State Engineers and USGS databases, no known water features are within a 0.50-mile radius of the location. The nearest identified well is approximately 0.13 miles Southeast of the site in S23, T24S, R28E and was drilled in 2018. The well has a reported depth to groundwater of 370 feet below the ground surface (ft bgs). A copy of the associated Summary Report is attached in Appendix D of the amended report.

3.0 NMAC Regulatory Criteria

Per the NMOCD regulatory criteria established in 19.15.29.12 NMAC, the following were utilized in assessing the site.

- Benzene: 10 milligrams per kilogram (mg/kg).
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg.
- TPH: 2,500 mg/kg (GRO + DRO + MRO).
- Chloride: 20,000 mg/kg.

4.0 Site Assessment Activities

On June 21, 2023, Carmona Resources, LLC performed site assessment activities to evaluate soil impacts stemming from the release. To assess the vertical extent, one (1) sample point (S-1) was advanced at BH18-01 to depths ranging from the surface to 6' bgs inside the release area. See Figure 3 for the sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Cardinal Labrotories in Hobbs, New Mexico. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified

310 West Wall Street, Suite 500
Midland, Texas 79701
432.813.1992

benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 4500. The laboratory reports, including analytical methods, results, and chain-of-custody documents, are attached in Appendix E of the amended report.

All samples were below the regulatory requirements for TPH, BTEX, and chloride. Refer to Table 1, Appendix B amended.

5.0 Conclusions

Based on the assessment results and the analytical data, no further actions are required at the site. The final C-141 is attached, and Marathon formally requests the closure of the spill. If you have any questions regarding this report or need additional information, please contact us at 432-813-1992.

Sincerely,
Carmona Resources, LLC

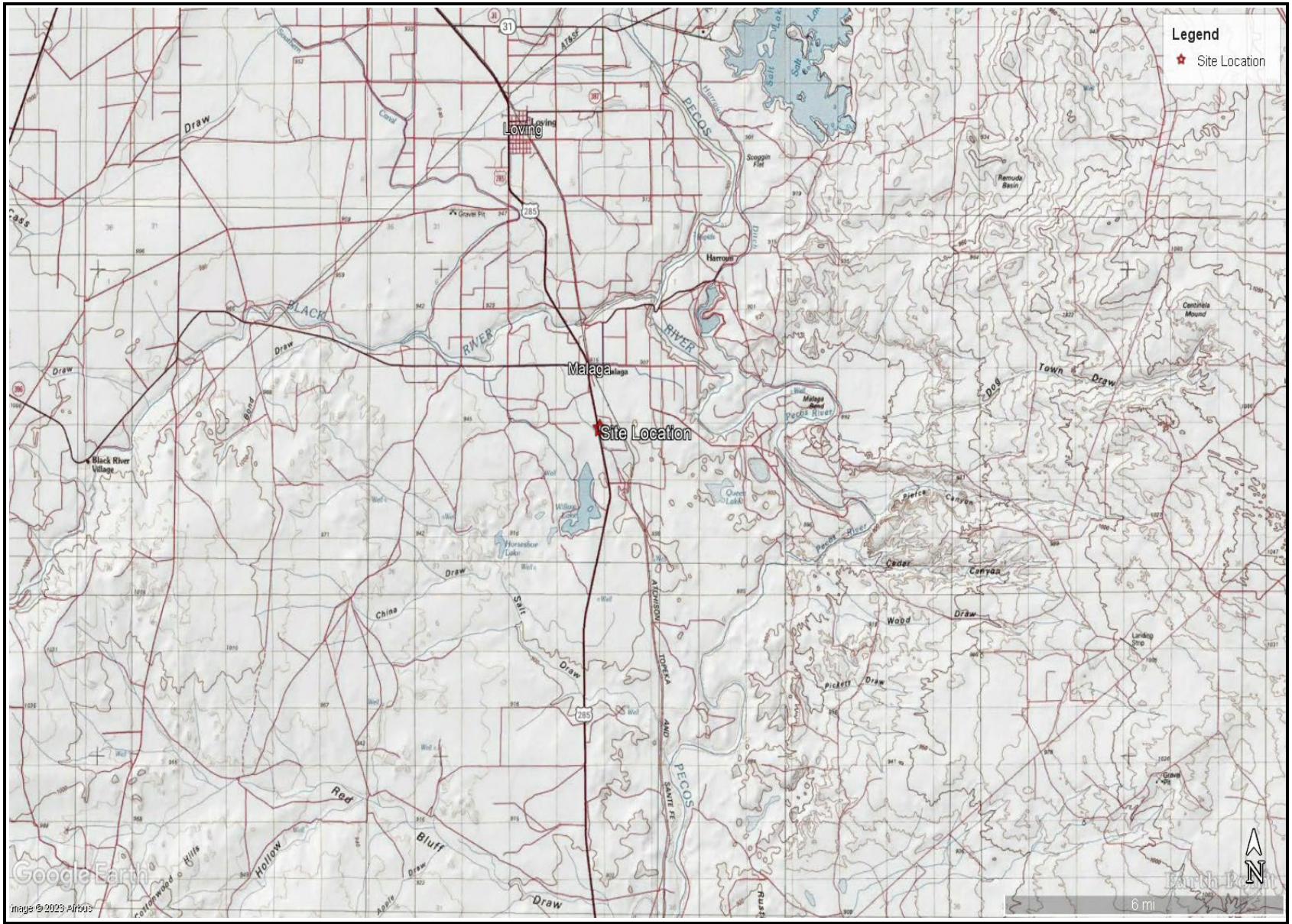
Mike Carmona
Environmental Manager

Clinton Merritt
Sr. Project Manager

FIGURES

CARMONA RESOURCES

OVERVIEW MAP MARATHON OIL CORPORATION CHICKEN FRY FEDERAL 1H EDDY COUNTY, NEW MEXICO 32.209479844°, -104.06769976°	CARMONA RESOURCES	FIGURE 1



TOPOGRAPHIC MAP MARATHON OIL CORPORATION CHICKEN FRY FEDERAL 1H EDDY COUNTY, NEW MEXICO 32.209479844°, -104.06769976°	CARMONA RESOURCES	FIGURE 2

SAMPLE LOCATION MAP MARATHON OIL CORPORATION CHICKEN FRY FEDERAL 1H EDDY COUNTY, NEW MEXICO 32.209479844°, -104.06769976°	CARMONA RESOURCES	FIGURE 3

APPENDIX B

CARMONA RESOURCES

Table 1
Marathon Oil Co.
Chicken Fry Federal 1H
Eddy County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
S-1	6/21/2023	0-0.5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	496
	"	1	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	336
	"	2	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	320
	"	3	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	400
	"	4	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	496
	"	5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
	"	6	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
Regulatory Criteria [A]						2,500 mg/kg	10 mg/kg				50 mg/kg	20,000 mg/kg

(-) Not Analyzed
[A] – Table 1 - 19.15.29 NMAC
mg/kg - milligram per kilogram
TPH- Total Petroleum Hydrocarbons
ft-feet
(S) Soil Sample

APPENDIX C

CARMONA RESOURCES

PHOTOGRAPHIC LOG

Marathon Oil Corporation

Photograph No. 1

Facility: Chicken Fry Federal 1H

County: Eddy County, New Mexico

Description:
View East of sample point S-1.

Photograph No. 2

Facility: Chicken Fry Federal 1H

County: Eddy County, New Mexico

Description:
View Southeast of sample point S-1.

Photograph No. 3

Facility: Chicken Fry Federal 1H

County: Eddy County, New Mexico

Description:
View Northeast of sample points S-1.

APPENDIX D

CARMONA RESOURCES

Nearest Water Well

Marathon Oil Permian LLC

Medium Karst

Marathon Oil Permian LLC

Legend

- CHICKEN FRY FEDERAL 1H
- High
- Medium

CHICKEN FRY FEDERAL 1H

N

5000 ft

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04263 POD1	CUB	ED	3	1	1	23	24S	28E	588026	3563915	204	390	370	20
C 03986 POD1	CUB	ED	3	4	2	22	24S	28E	587505	3563502	640	170	120	50
C 02244	C	LE	3	1	2	22	24S	28E	587224	3563865*	659	260		

Average Depth to Water: **245 feet**

Minimum Depth: **120 feet**

Maximum Depth: **370 feet**

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 587861 **Northing (Y):** 3564036 **Radius:** 700

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

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 04263 POD1	3	1	1	23	24S	28E	588026	3563915

Driller License:	1690	**Driller Company:**	VISION RESOURCES, INC		
Driller Name:	JASON MALEY				
Drill Start Date:	09/12/2018	**Drill Finish Date:**	09/13/2018	**Plug Date:**	
Log File Date:	10/04/2018	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	300 GPM
Casing Size:	8.00	**Depth Well:**	390 feet	**Depth Water:**	370 feet

Water Bearing Stratifications:	Top	Bottom	Description
	350	390	Other/Unknown

Casing Perforations:	Top	Bottom
	290	390

New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 03986 POD1	3	4	2	22	24S	28E	587505	3563502

Driller License: 1690 **Driller Company:** VISION RESOURCES, INC

Driller Name: MALEY, JASON

Drill Start Date: 01/09/2017 **Drill Finish Date:** 01/10/2017 **Plug Date:**

Log File Date: 01/16/2017 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

Casing Size: 6.00 **Depth Well:** 170 feet **Depth Water:** 120 feet

Water Bearing Stratifications:	Top	Bottom	Description
	120	150	Sandstone/Gravel/Conglomerate
	155	170	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	90	170

New Mexico NFHL Data

June 15, 2023

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

FEMA, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

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APPENDIX E

CARMONA RESOURCES

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 28, 2023

CLINT MERRITT

CARMONA RESOURCES

310 W WALL ST SUITE 415

MIDLAND, TX 79701

RE: CHICKEN FRY 1H

Enclosed are the results of analyses for samples received by the laboratory on 06/23/23 12:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (0-0.5') (H233277-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *70.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *73.5 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (1') (H233277-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**336**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *82.2 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *88.3 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (2') (H233277-03)

BTEX 8021B mg/kg Analyzed By: JH/

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	4.59	
Toluene*	<0.050	0.050	06/23/2023	ND	2.15	107	2.00	0.640	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.25	112	2.00	3.92	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.77	113	6.00	2.78	
Total BTEX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *115 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *88.0 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *95.0 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (3') (H233277-04)

BTEX 8021B mg/kg Analyzed By: JH/

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.28	114	2.00	4.59	
Toluene*	<0.050	0.050	06/24/2023	ND	2.15	107	2.00	0.640	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.25	112	2.00	3.92	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.77	113	6.00	2.78	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *90.7 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *98.0 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (4') (H233277-05)

BTEX 8021B mg/kg Analyzed By: JH/

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.28	114	2.00	4.59	
Toluene*	<0.050	0.050	06/24/2023	ND	2.15	107	2.00	0.640	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.25	112	2.00	3.92	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.77	113	6.00	2.78	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *91.4 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *98.9 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (5') (H233277-06)

BTEX 8021B mg/kg Analyzed By: JH/

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.28	114	2.00	4.59	
Toluene*	<0.050	0.050	06/24/2023	ND	2.15	107	2.00	0.640	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.25	112	2.00	3.92	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.77	113	6.00	2.78	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *79.6 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *72.6 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

CARMONA RESOURCES
CLINT MERRITT
310 W WALL ST SUITE 415
MIDLAND TX, 79701
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/28/2023	Sampling Type:	Soil
Project Name:	CHICKEN FRY 1H	Sampling Condition:	Cool & Intact
Project Number:	2052	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

Sample ID: S - 1 (6') (H233277-07)

BTEX 8021B mg/kg Analyzed By: JH/

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2023	ND	2.28	114	2.00	4.59	
Toluene*	<0.050	0.050	06/24/2023	ND	2.15	107	2.00	0.640	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.25	112	2.00	3.92	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.77	113	6.00	2.78	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *115 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	06/23/2023	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.4	200	0.783	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	180	90.0	200	5.50	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *79.9 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *79.2 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Chain of Custody

Work Order No: H233277

Page 1 of 1

Project Manager:	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name:	Carmona Resources	Company Name:	Marathon Oil Corporation
Address:	310 W Wall St Ste 500	Address:	990 Town and Country Blvd
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Houston, TX 77024
Phone:		Email:	msanjari@marathonoil.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐

Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Chicken Fry 1H	Turn Around	
Project Number:	2052	☑ Routine ☐ Rush	
Project Location	Eddy County, New Mexico	Due Date:	5 Day TAT
Sampler's Name:	CCM		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Received Intact:	Yes No	Thermometer ID:	113	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.6 c	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	1.2 c	
Total Containers:		Corrected Temperature:	0.6 c	

Preservative Codes

None: NO; DI Water: H_2O; Cool: Cool; MeOH: Me; HCL: HC; HNO_3: HN; H_2S0_4: H_2; NaOH: Na; H_3PO_4: HP; $NaHSO_4$: NABIS; $Na_2S_2O_3$: $NaSO_3$; Zn Acetate+NaOH: Zn; NaOH+Ascorbic Acid: SAPC

	Sample Identification	Date	Time	Soil	Water	Grab/ Comp	# of Cont	Pres. Code	Parameters: BTEX 8021B	TPH 8015M (GRO + DRO + MRO)	Chloride 4500	Sample Comments
1	S-1 (0-0.5')	6/21/2023	13:00	X		G	1		X	X	X	
2	S-1 (1')	6/21/2023	13:05	X		G	1		X	X	X	
3	S-1 (2')	6/21/2023	13:10	X		G	1		X	X	X	
4	S-1 (3')	6/21/2023	13:15	X		G	1		X	X	X	
5	S-1 (4')	6/21/2023	13:20	X		G	1		X	X	X	
6	S-1 (5')	6/21/2023	13:25	X		G	1		X	X	X	
7	S-1 (6')	6/21/2023	13:30	X		G	1		X	X	X	

Comments: Email results to Mike Carmona mcarmona@carmonaresources.com, Conner Moehring cmoehring@carmonaresources.com, Clint Merritt MerrittC@carmonaresources.com

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Ariana Arias	6-23-23 1210		

State of New Mexico
Oil Conservation Division

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: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: 07/10/2023

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: 07/21/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist

Originally submitted via the OCD Centrestack database March 26, 2019. As it didn't make the transfer efforts, resubmission was requested.

VERTEX

December 6, 2018

Spill Closure Report: Chicken Fry Federal 1H (Section 22, Township 24 South, Range 28 East)
API: 30-015-42882
Incident Number: 2RP-4771

Prepared For: **Marathon Oil Permian LLC.**
5555 San Felipe Street
Houston, Texas 77056

NMOCD District 2
811 South 1st Street
Artesia, NM 87410

Mr. Mike Bratcher,

Marathon Oil Permian LLC. retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for a release that occurred at the Chicken Fry Federal 1H, API 30-015-42882 (hereafter referred to as "site") on the production pad. A water dump malfunction on the free water knock out sent water to the oil tank. While in the process of pulling bottoms, a 1" bleed valve was opened on the pump. This letter provides a description of the Spill Assessment, Remediation Plan and includes this request for Spill Closure.

Site Information

The site is located approximately 17 miles south of Carlsbad, New Mexico. The legal location for the site is Section 22, Township 24 South, Range 28 East in Eddy County, New Mexico (approximately 32° 12' 34.128" N, 104° 4' 3.72" W). An aerial photograph and site schematic are included in Attachment 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2014-2017) indicates the site's surface geology is comprised primarily Alluvium (Holocene to upper Plesitocene). The United States Department of Agriculture, Natural Resource Conservation Services, identifies the local soils as Rv – Russler Loam, 1 to 3 percent slopes. The soils are well drained, slowly permeable soils that formed in saline medium to moderately fine textured calcareous alluvial sediments over strong gypsiferous interbedded clay, silts, sands and gypsum bedrock. These soils are unstable and susceptible to wind and water erosion. They are best used for irrigated crops, native pasture and wildlife habitat. These descriptions are consistent with observations during the site visit. Site photographs obtained during the Spill Assessment and remediation are included in Attachment 2.

Incident Description

The spill was reported May 13, 2018, involving the release of production water on to the well pad surface. The release was caused by a water dump malfunction on the free water knock out sent water to the oil tank. While in process of pulling bottoms, a 1" bleed valve was opened on the pump and 17 barrels of production water was

released into the secondary containment and overflowed onto the ground. The valve was closed and recycling operations were halted. There was no standing fluids to recover. However, impacted soil was removed and disposed at the approved R360 waste facility. The initial C-141 Report is included in Attachment 3.

Groundwater, Point of Diversion and Site Ranking

The New Mexico State Engineer website (New Mexico Water Rights Reporting System – Water Column Report) indicates that the nearest groundwater data available for Section 15 T24S R28E is approximately 1,400 feet northeast from the site. The groundwater in that area is reported to be at an average depth of 50 feet below ground surface (BGS). The referenced groundwater data are presented in Attachment 4.

Based on the information obtained, the ranking for the site in question is **20** based on the following:

Depth to Groundwater	< 50 feet
Wellhead Protection Area	> 1,000 ft.
Distance to Surface Water Body	> 1,000 ft.

Based on a site ranking of **20**, NMOCD Recommended Remedial Action Levels (RRALs) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, and 100 mg/kg for total petroleum hydrocarbons. Based on previous communication with the NMOCD, 600 mg/kg for total chlorides is considered to be an acceptable threshold for remediation.

The New Mexico State Engineer web site (New Mexico Water Rights Reporting System – Active & Inactive Points of Diversion) indicates that there are no diversions within 1,000 feet (Attachment 5).

Remedial Actions Taken

A site visit was completed on July 19, 2018, which aimed to identify evidence of the spill specified in the initial C-141 Report and delineate the area of contamination. A total of four (4) test pits were advanced to delineate the vertical and horizontal impacts of the spill. These four (4) test pits were advanced to 4 feet below ground surface in the Cardinal directions (North, South, East, and West). Soil samples taken during delineation activity were submitted to the lab and analyzed for hydrocarbons (volatile and extractable) and chlorides. The lab results are presented in Table 1 and can be found in Attachment 7.

The lab results from July 19, 2018, showed there was high concentrations of Total Petroleum Hydrocarbons (TPH) and chlorides at two (2) test pits, which required remediation below the remediation action levels. Excavation was completed to 4 feet below ground surface with removal of approximately 10 yards of impacted soils. The excavated soil was transportation by a licensed waste hauler and disposal at an approved waste management facility. The excavation process was accomplished on November 14, 2018. Excavation on the horizontal plane was completed in conjunction with field screening results. In total, approximately 10 yards of contaminated soil was excavated and disposed of. Field screening for chlorides and hydrocarbons (volatile and extractable) was completed during the excavation using the standardized saturated paste method with Quantabs and is documented in Table 2, along with the lab screening results. Discreet confirmatory samples were collected on November 14, 2018 and submitted for lab analysis. Lab analysis included hydrocarbons and chlorides. Remediation activity can be viewed in Figure 1,

Attachment 1, and site photos, documenting the remedial activities in Attachment 2. Daily Field Reports of the excavation and sampling can be found in Attachment 4. The lab results are presented in Table 2 and can be found in Attachment 7.

The confirmatory sample results collected on November 14, 2018 show hydrocarbons and chlorides are within the NMOCD Recommended Remediation Action Levels (RRAL) on each of the excavated sample points.

Table 1. Soil Characterization Results – July 19, 2018

Sample Description			Field Screening		Petroleum Hydrocarbons			Inorganic
					Volatile		Extractable	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Benzene	BTEX (Total)	TPH	Chloride
			(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH18-01	**0**	07/19/2018	-	-	<0.00201	<0.00201	4790	895
BH18-01	**2**	07/19/2018	-	-	<0.00201	<0.00201	5070	340
BH18-01	**4**	07/19/2018	-	-	–	–	–	239
BH18-02	**0**	07/19/2018	-	-	<0.00199	<0.00199	30.5	578
BH18-02	**2**	07/19/2018	-	-	<0.00200	<0.00200	26.6	352
BH18-02	**4**	07/19/2018	-	-	–	–	–	355
BH18-03	**0**	07/19/2018	-	-	<0.00202	<0.00202	46.8	298
BH18-03	**2**	07/19/2018	-	-	<0.00201	<0.00201	<15.0	249
BH18-03	**4**	07/19/2018	-	-	–	–	–	199
BH18-04	**0**	07/19/2018	-	-	<0.00199	<0.00199	15.9	666
BH18-04	**2**	07/19/2018	-	-	<0.00200	<0.00200	<15.0	253
BH18-04	**4**	07/19/2018	-	-	-	-	-	97.8

RRALs - 10 mg/kg BTEX, 10mg/kg Benzene, 100 mg/kg TPH, 600 mg/kg Chloride

Table 2. Soil Characterization Results – November 14, 2018

Sample Description			Field Screening		Petroleum Hydrocarbons			Inorganic
					Volatile		Extractable	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Benzene	BTEX (Total)	TPH	Chloride
			(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
West Wall	**2**	11/14/2018	-	ND	<0.0195	<0.0195	68.7	36.5
East Wall	**2**	11/14/2018	-	ND	<0.0195	<0.0195	<15.0	7
North Wall	**2**	11/14/2018	-	ND	<0.0192	<0.0192	<15.0	5.93
South Wall	**2**	11/14/2018	-	ND	<0.0190	<0.0190	<15.0	11.5
Base	**2**	11/14/2018	-	ND	<0.0179	<0.0179	24.4	10.2

RRALs - 50 mg/kg BTEX, 10 mg/kg Benzene, 100 mg/kg TPH, 600 mg/kg Chloride

Closure Request

Initial response addressed concerns that were readily accessible around existing infrastructure on the operating site. The spill occurred on the well pad and was contained within the boundary of the lease in proximity to the well infrastructure. The initial samples collected at the site identified, through lab analysis of hydrocarbons and chlorides, that there were high concentrations of TPH and chlorides which, required remediation through excavation. The excavation was confined to approximately 10 yards. Upon completion of the initial excavation, confirmatory samples were collected from the walls and base. These samples were analyzed by the lab for hydrocarbon and chloride concentrations. They were found to be below the NMOCD guidance for allowable THP and chloride concentration on the walls and base of the excavation. Complete laboratory results are included in Attachment 7.

The excavation was backfilled with local caliche soils. Given that the impact associated with this spill and has been remediated to the approved NMOCD levels, Marathon Oil Permian LLC. requests that this spill be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 832.588.0674 or dhanton@vertex.ca.

Sincerely,

Dhugal Hanton
VICE PRESIDENT – US OPERATIONS

Attachments

References

New Mexico Bureau of Geology and Mineral Resources. (2018). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu

New Mexico Energy, Mineral and Natural Resources Department. (2018) retrieved mine data from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

New Mexico Oil Conservation Division. (2018). Natural Resources and Wildlife Oil and Gas Releases. Santa Fe, New Mexico.

New Mexico Water Rights Reporting System. (2018). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

New Mexico Water Rights Reporting System. (2018). *Point of Diversion Location Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

New Mexico Water Rights Reporting System. (2018). *Well Log/Meter Information Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html

United States Department of Agriculture, Soil Conservation Service in Cooperation with New Mexico Agricultural Experiment Station. (1971). Soil Survey Eddy Area, New Mexico. Retrieved from http://www.wipp.energy.gov/library/Information_Repository_A/Supplemental_Information/Chugg%20et%20al%201971%20w-map.pdf

Limitations

This report has been prepared for the sole benefit of Marathon Oil Permian LLC. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Marathon Oil Permian LLC. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

North Wall	
B	<0.0192
BTEX	<0.0192
TPH	<15.0
Cl	5.93

West Wall	
B	<0.0195
BTEX	<0.0195
TPH	68.7
Cl	36.5

East Wall	
B	<0.0195
BTEX	<0.0195
TPH	<15.0
Cl	7

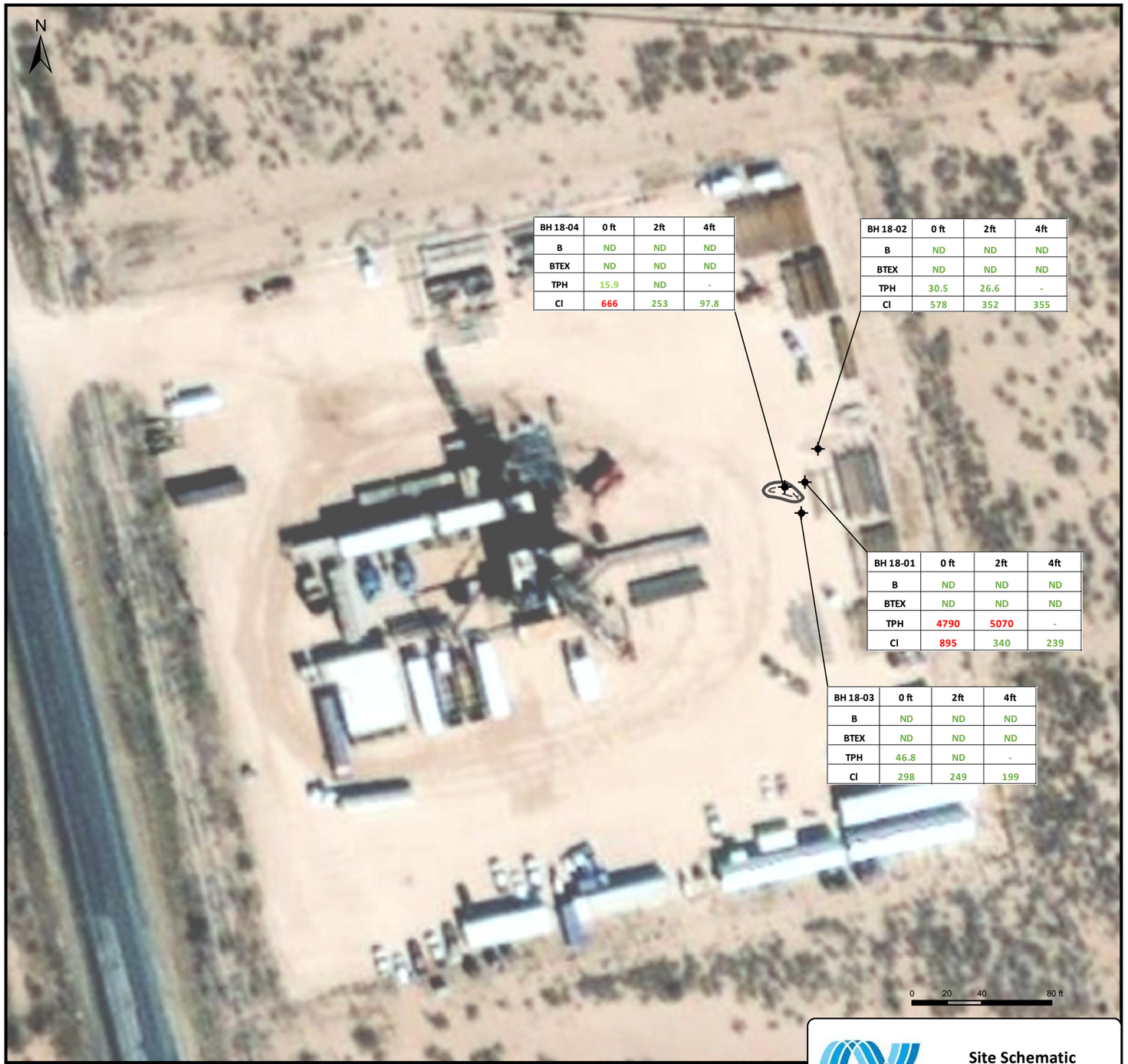
Base	
B	<0.0179
BTEX	<0.0179
TPH	24.4
Cl	10.2

South Wall	
B	<0.0190
BTEX	<0.0190
TPH	<15.0
Cl	11.5

Excavation Area
168 sq ft.

EXCAVATION DETAIL

0 2.5 5 10 ft



Legend

- Borehole
- Base Sample
- Wall Sample
- Excavation

NOTE: Image from Bing, 2017

Marathon Oil

Site Schematic
Chicken Fry Federal 1H

VERTEX

DRAWN:	PS
APPROVED:	KM
DATE:	NOV 30/18

FIGURE: 1

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Marathon\Figure 1 Site Schematic Chicken Fry Lab Tabloid.mxd

ATTACHMENT 2

Photo 1. Overview of Spill Area

Photo Date: July 19, 2018 GPS: N: 32.20927 W: 104.06776

Photo 2. Sample in Spill Area Location

Photo Date: July 19, 2018 GPS: N: 32.20927 W: 104.06776

Photo 3. Sample in Spill Area Filled In

Photo Date: July 19, 2018 GPS: N: 32.20927 W: 104.06776

Photo 4. Sample BH18-04 Location

Photo Date: July 19, 2018 GPS: N: 32.20927 W: 104.06776

Marathon Oil Permian LLC
Chicken Fry Federal 1

Spill Assesment
July 2018

Photo 5. Sample BH18-04 Filled In

Photo Date: July 19, 2018 GPS: N: 32.20927 W: 104.06776

Photo 1. Base Soil Sample

Photo Date: November 14, 2018

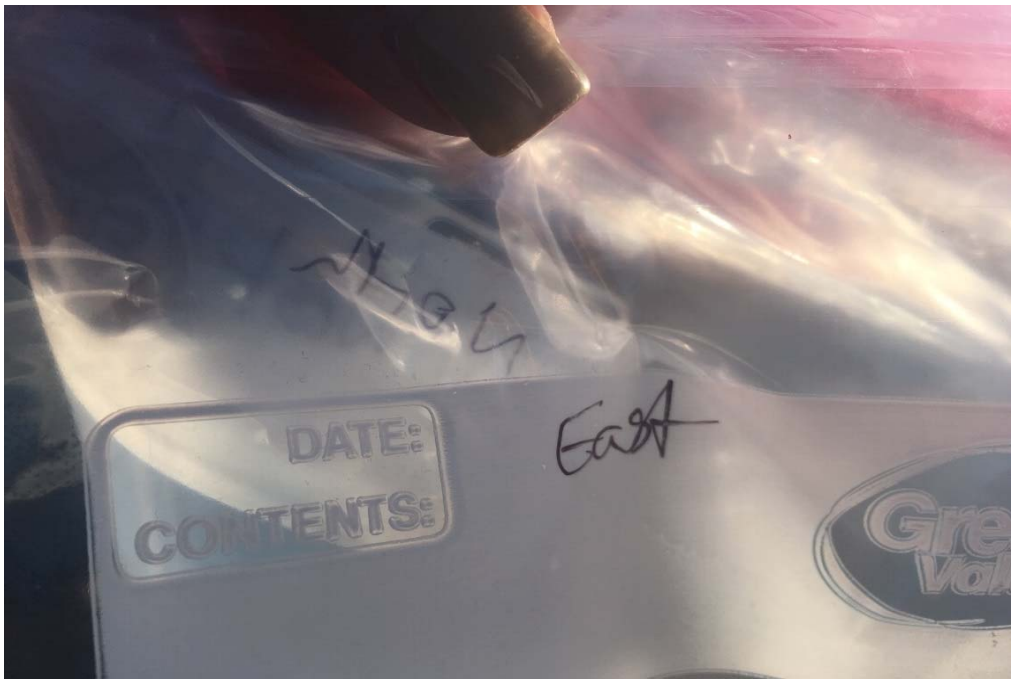


Photo 2. East Soil Sample

Photo Date: November 14, 2018

Photo 3. East sample location

Photo Date: November 14, 2018

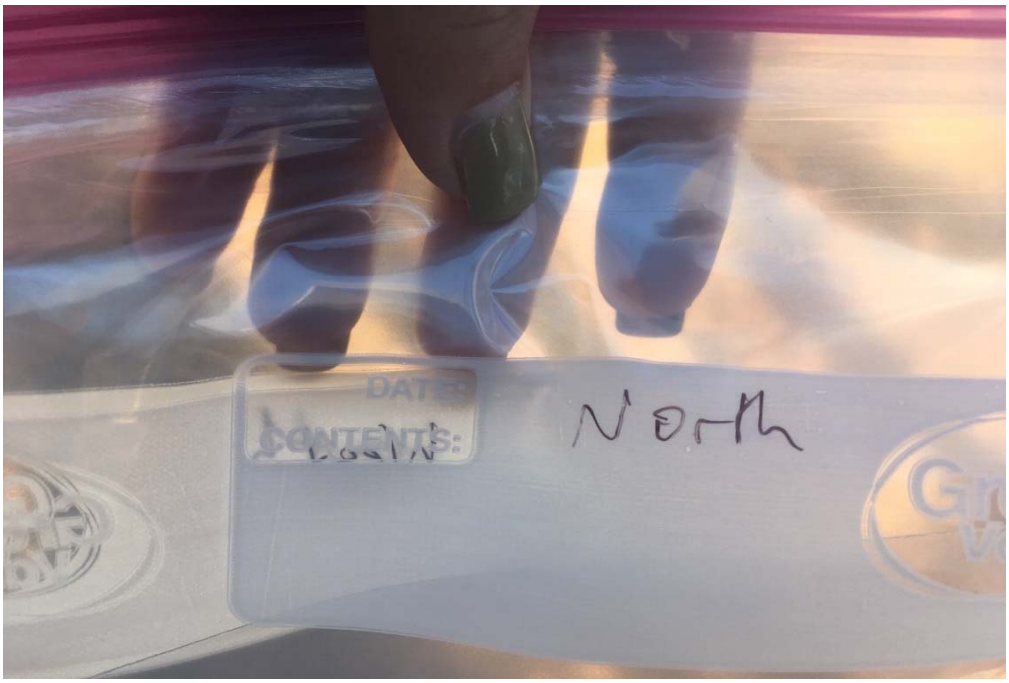


Photo 4. North Soil Sample

Photo Date: November 14, 2018

Photo 5. Location of North sample

Photo Date: November 14, 2018

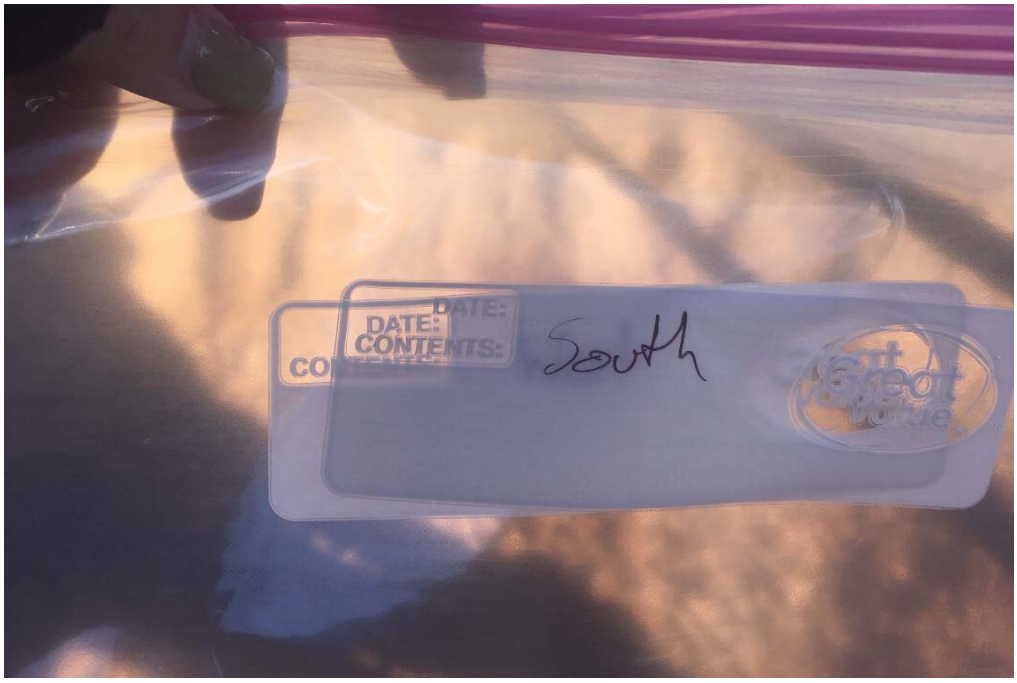


Photo 6. South soil sample

Photo Date: November 14, 2018

Photo 7. Location of South sample

Photo Date: November 14, 2018

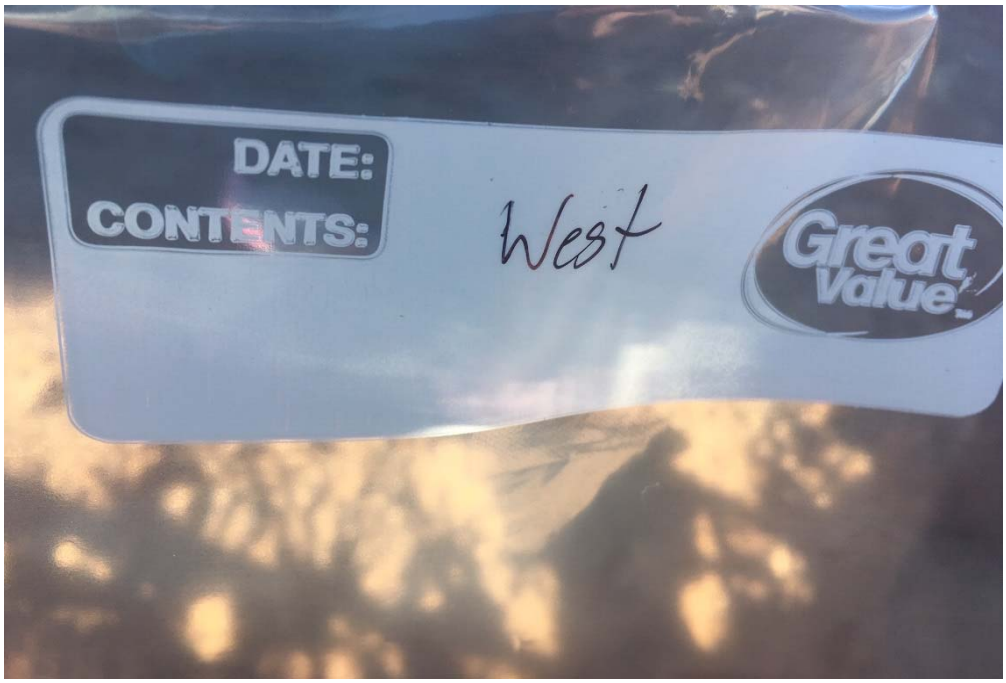


Photo 8. West soil sample

Photo Date: November 14, 2018

Photo 9. Excavation Area

Photo Date: November 14, 2018

Photo 8. Impacted soil pile

Photo Date: November 14, 2018

ATTACHMENT 3

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

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

☐ Extents of contamination must be fully delineated.

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

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

Printed Name: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

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: _____ Title: _____

Signature: Callie Kerrigan _____ Date: _____

email: _____ Telephone: _____

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

MAY 24 2018
DISTRICT II-ARTESIA O.C.D.

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

nAB1815049516LP 372098

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Permian LLC	Contact: Callie Karrigan
Address: 5555 San Felipe St., Houston, TX 77056	Telephone No.: 405-202-1028
Facility Name: Chicken Fry Federal 1H	Facility Type: Oil Well

Surface Owner: Private	Mineral Owner: Federal	API No.: 30-015-42882

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	22	24S	28E	475	FNL	200	FEL	Eddy

Latitude 32.209479844 **Longitude** -104.06769976

NATURE OF RELEASE

Type of Release: produced water	Volume of Release: 17 bbls	Volume Recovered: 0 bbls
Source of Release: recycle pump	Date and Hour of Occurrence: 05/13/2018 8:30 am	Date and Hour of Discovery: 05/13/2018 8:30 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher and Shelly Tucker	
By Whom? Callie Karrigan	Date and Hour: 05/14/2018 7:32 am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Operator reported a release from the recycle pump. A water dump malfunction on the free water knock out sent water to the oil tank. While in process of pulling bottoms, a 1" bleed valve was opened on the pump and 17 barrels of produced water released into pump containment and overflowed onto the ground. The release remained onsite.

Describe Area Affected and Cleanup Action Taken.*
The valve was closed and recycling operations were halted. There were no standing fluids to recover. Samples will be taken to confirm extent of release. Impacted soil will be removed and disposed at R360. Confirmation samples will be taken for laboratory analysis.

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: Callie Karrigan	OIL CONSERVATION DIVISION
Printed Name: Callie Karrigan	Approved by Environmental Specialist: Mike Bratcher
Title: HES Professional	Approval Date: 5/29/18 Expiration Date: N/A
E-mail Address: cnkarrigan@marathonoil.com	Conditions of Approval: See attached Attached:
Date: 05/24/2018 Phone: 405-202-1028	

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 5/24/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4771 has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 6/24/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

- Composite sampling is not generally allowed.

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

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

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

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

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

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

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

ATTACHMENT 4

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

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04263 POD1		CUB	ED	3	1	1	23	24S	28E	588026	3563915	204	390	370	20
C 03986 POD1		CUB	ED	3	4	2	22	24S	28E	587505	3563502	641	170	120	50
C 02244		C	LE	3	1	2	22	24S	28E	587224	3563865*	660	260		
C 04222 POD2		CUB	ED	1	2	4	22	24S	28E	587707	3563255	795	100	40	60
C 03132		C	ED	1	2	4	15	24S	28E	587616	3564877*	875	90	19	71
C 02057		C	ED		1	4	14	24S	28E	588956	3564774*	1319	126	52	74
C 00346		C	ED		2	2	15	24S	28E	587715	3565591*	1561	90	32	58
C 02524 POD2		C	ED	2	2	2	15	24S	28E	587814	3565690*	1654	90	11	79
C 00488		C	ED	2	1	2	15	24S	28E	587412	3565688*	1711	64	8	56
C 03833 POD1		C	ED	2	1	2	26	24S	28E	589014	3562545	1884	96	55	41
C 04180 POD1		CUB	ED	2	1	2	26	24S	28E	589055	3562502	1943	160	58	102
C 00890		CUB	ED	3	3	4	10	24S	28E	587211	3565897*	1971	50		
C 04181 POD1		CUB	ED	3	2	1	26	24S	28E	588450	3562146	1979	280	56	224
C 04151 POD1		CUB	ED	4	2	1	26	24S	28E	588584	3562192	1980	280	65	215
C 03358 POD1		CUB	ED	1	4	1	26	24S	28E	588416	3562116	1998	135		
C 03423		CUB	ED	2	4	1	26	24S	28E	588786	3561952	2279	126		
C 00738		CUB	ED	3	1	1	13	24S	28E	589673	3565472*	2311	125	12	113
C 02836		C	ED	2	2	2	16	24S	28E	586203	3565676*	2332		15	
C 00962		C	ED		3	3	10	24S	28E	586505	3565992*	2380	63	9	54
C 00574		CUB	ED	2	4	4	11	24S	28E	589452	3566081*	2590	200	20	180
C 03824 POD1		CUB	ED	4	1	2	16	24S	28E	585770	3565578	2598	290	60	230
C 00764		CUB	ED	3	1	3	10	24S	28E	586399	3566292*	2688	118	25	93
C 00353	C	CUB	ED		3	4	13	24S	28E	590603	3564367*	2761	2726		
C 00903		C	ED		2	1	13	24S	28E	590178	3565575*	2780	57	30	27
C 01082		CUB	ED	3	3	2	11	24S	28E	588832	3566693*	2828	120		
C 04026 POD1		CUB	ED	3	2	1	25	24S	28E	590148	3562290	2876	190	90	100
C 00464		CUB	ED	2	2	1	13	24S	28E	590277	3565674*	2918	111	28	83
C 00709		C	ED	3	3	3	16	24S	28E	584802	3564232*	3065			
C 00513 S		CUB	ED	1	3	3	16	24S	28E	584801	3564431	3086	161	42	119
C 00750		CUB	ED	1	2	4	13	24S	28E	590898	3564871*	3149	110		
C 00354	C	CUB	ED		4	4	13	24S	28E	591005	3564367*	3160	2739		
C 04222 POD1		CUB	ED	1	3	3	27	24S	28E	586406	3561228	3162	140	35	105
C 01442		C	ED		1	2	10	24S	28E	587298	3567199*	3212	100		

C 00513		CUB	ED	2	2	2	20	24S	28E	584605	3564020	3256	212	48	164
C 00329		C	ED	2	1	2	13	24S	28E	590682	3565677*	3262	95	30	65
C 00684		CUB	ED	2	1	2	13	24S	28E	590682	3565677*	3262	95	40	55
C 01154		C	ED	2	1	2	13	24S	28E	590682	3565677*	3262	95	50	45
C 04025 POD1		CUB	ED	4	3	3	27	24S	28E	586700	3560964	3284	190	90	100
C 01237		C	ED	1	1	2	10	24S	28E	587197	3567298*	3328	123		
C 03988 POD1		CUB	ED	4	4	4	28	24S	28E	586303	3561087	3335	110	95	15
C 00570		CUB	ED		1	1	10	24S	28E	586490	3567195*	3443	100	28	72
C 00618		C	ED	3	4	4	12	24S	28E	590880	3565885*	3539	80	40	40
C 01747		CUB	ED				12	24S	28E	590367	3566577*	3568	176	139	37
C 00349	C	CUB	ED		1	3	18	24S	29E	591401	3564773*	3615	2734		
C 00648		C	ED	2	2	2	17	24S	28E	584593	3565644*	3642	96	58	38
C 00983		C	ED	4	4	4	12	24S	28E	591080	3565885*	3711	92	40	52
C 03989 POD1		CUB	ED	4	2	2	33	24S	28E	586342	3560573	3781	100	70	30
C 03862 POD2		CUB	ED	3	3	3	01	24S	28E	589665	3567507	3911	30	10	20
C 03862 POD1		CUB	ED	3	3	3	01	24S	28E	589672	3567505	3913	17	10	7
C 03862 POD3		CUB	ED	3	3	3	01	24S	28E	589685	3567500	3914	60	10	50
C 03862 POD4		CUB	ED	3	3	3	01	24S	28E	589705	3567490	3915	30	10	20
C 03862 POD5		CUB	ED	4	3	3	01	24S	28E	589785	3567458	3925	17	10	7
C 00511		C	ED		2	3	02	24S	28E	588518	3568001*	4018	268	140	128
C 03703 POD1		C	ED	1	2	1	09	24S	28E	585259	3567225	4116	74	15	59
C 02713		CUB	ED	4	4	1	16	24S	29E	591633	3565944	4226	230	18	212
C 00365		CUB	ED	2	4	1	17	24S	28E	583791	3565226*	4240	238	26	212
C 02184		C	ED	2	4	3	01	24S	28E	590248	3567700*	4372	87	60	27
C 00573		CUB	ED	2	2	4	04	24S	28E	586188	3568087*	4382	250	35	215
C 00381	C	CUB	ED	3	2	3	07	24S	29E	591682	3566297*	4439	2797		
C 02186		C	ED			2	02	24S	28E	589128	3568606*	4741	100	55	45
C 02306		C	ED		3	2	04	24S	28E	585690	3568382*	4858	75	25	50
C 00361	C	CUB	ED		3	3	08	24S	28E	583283	3565926*	4953	2575		

Average Depth to Water: **50 feet**
Minimum Depth: **8 feet**
Maximum Depth: **370 feet**

Record Count:62

UTMNAD83 Radius Search (in meters):

Easting (X): 587861.6 **Northing (Y):** 3564036.39 **Radius:** 5000

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

11/29/18 8:49 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

ATTACHMENT 5

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum) (R=POD has been replaced and no longer serves this file, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 6416	q 4	q Sec	Tws	Rng	X	Y	Distance
C 04263	CUB	EXP	0	RUSTLER HILLS II LTD PTP	ED	C 04263 POD1	NA			Shallow	3	1	1 23	24S	28E	588026	3563915	204
C 03756	C	STK	0	BRANTLEY BROTHERS	ED	C 03756 POD1			NON		1	4	4 15	24S	28E	587599	3564476	512
C 03754	C	STK	0	BRANTLEY BROTHERS	ED	C 03754 POD1			NON		4	4	2 22	24S	28E	587843	3563496	540
C 03987	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03987 POD1			NON		3	4	2 22	24S	28E	587591	3563491	608
C 03986	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03986 POD1	NA		NON	Shallow	3	4	2 22	24S	28E	587505	3563502	641
C 02244	C	PRO	0	KAISER-FRANCIS OIL COMPANY	LE	C 02244					3	1	2 22	24S	28E	587224	3563865*	660
C 04222	CUB	EXP	0	VL FRESH WATER LLC	ED	C 04222 POD2	NA			Shallow	1	2	4 22	24S	28E	587707	3563255	795
C 03132	C	DOL	3	BRANTLEY BROTHERS	ED	C 03132				Shallow	1	2	4 15	24S	28E	587616	3564877*	875
C 02057	C	PRO	0	POGO PRODUCING CO.	ED	C 02057				Shallow		1	4 14	24S	28E	588956	3564774*	1319
C 00346	C	SAN	3	MALAGA SCHOOL	ED	C 00346				Shallow		2	2 15	24S	28E	587715	3565591*	1561
C 02524	C	DOM	3	TONY LOPEZ	ED	C 02524					2	2	2 15	24S	28E	587814	3565690*	1654
					ED	C 02524 POD2				Shallow	2	2	2 15	24S	28E	587814	3565690*	1654
C 02674	C	DOM	1	JOHN E RUIZ	ED	C 02674	2077B				2	2	2 15	24S	28E	587814	3565690	1654
C 04267	C	SAN	1	ALICE RUIZ	ED	C 04267 POD1	2077A				1	1	1 14	24S	28E	587980	3565706	1674
C 00488	C	DOM	3	CID	ED	C 00488				Shallow	2	1	2 15	24S	28E	587412	3565688*	1711
C 00394	CUB	CLS	0	DEKALB AGRIGULTURAL ASSN.	ED	C 00394		C				4	2 21	24S	28E	586116	3563545*	1813
C 00580	CUB	IRR	0	GUILLERMO RUIZ	ED	C 00580					3	3	3 11	24S	28E	588017	3565903*	1873
C 03833	C	DOL	3	SCOTT BRANSON	ED	C 03833 POD1			NON	Shallow	2	1	2 26	24S	28E	589014	3562545	1884
C 04262	C	DOL	3	OVBAR LAND & CATTLE, LLC	ED	C 04262	20753				2	1	2 14	24S	28E	588966	3565581	1899
C 04180	CUB	EXP	0	VALERIE BRANSON	ED	C 04180 POD1	NA			Shallow	2	1	2 26	24S	28E	589055	3562502	1943
C 04181	CUB	EXP	0	VALERIE BRANSON	ED	C 04181 POD2	NA				3	2	1 26	24S	28E	588417	3562146	1970
C 00890	CUB	DOM	3	M.G. CLEAVELAND	ED	C 00890					3	3	4 10	24S	28E	587211	3565897*	1971
C 04181	CUB	EXP	0	SCOTT BRANSON	ED	C 04181 POD1	NA			Shallow	3	2	1 26	24S	28E	588450	3562146	1979
C 04151	CUB	EXP	0	VL FRESH WATER LLC	ED	C 04151 POD1	NA			Shallow	4	2	1 26	24S	28E	588584	3562192	1980
C 01264	CUB	EXP	0	GUY A. REED	ED	C 03358 POD1				Shallow	1	4	1 26	24S	28E	588416	3562116	1998

C 03358	C	STK	3	NM COMMISSIONER OF PUBLIC LAND	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03359	C	PRO	0	CORKY GLENN	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03376	C	PRO	0	RIO TANKS FASLINE INC	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03391	C	PRO	0	RIO TANKS FASLINE INC.	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03485	C	PRO	0	SCOTT BRANSON	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03486	C	PRO	0	SCOTT BRANSON	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03487	C	PRO	0	SCOTT BRANSON	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03742	C	PRO	0	CONCHO OIL & GAS	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03743	C	PRO	0	CONCHO OIL & GAS	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 03744	C	PRO	0	CONCHO OIL & GAS	ED	C 03358 POD1		Shallow	1	4	1	26	24S	28E	588416	3562116	1998
C 01266	CUB	IRR	0	HAROLD WALKER	ED	C 01266				4	2	16	24S	28E	586106	3565171*	2090
C 03990	C	STK	3	JIMMY J VASQUEZ	ED	C 03990 POD1	NON		1	4	4	10	24S	28E	587626	3566115	2092
C 01930	C	DOL	0	OSCAR F VASQUEZ	ED	C 01930				3	4	11	24S	28E	588941	3565989*	2231
C 01265	CUB	EXP	0	GUY A. REED	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03158	C	PRO	0	NEARBURG PRODUCTING	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03250	C	PRO	0	PATTERSON DRILLING COMPANY	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03315	C	PRO	0	CORKY GLENN	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03423	C	STK	3	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03425	C	PRO	0	BOBCO PRODUCTION CO	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03466	C	PRO	0	O.G.X. RESOURCES	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03473	C	PRO	0	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03474	C	PRO	0	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03475	C	PRO	0	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03683	C	PRO	0	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 03685	C	PRO	0	SCOTT BRANSON	ED	C 03423		Shallow	2	4	1	26	24S	28E	588786	3561952	2279
C 00738	CUB	IRR	343.5	W.J. BURKHAM	ED	C 00738		Shallow	3	1	1	13	24S	28E	589673	3565472*	2311
C 02256	C	DOM	3	ROBERT HIGGINS	ED	C 02256			3	2	3	13	24S	28E	590093	3564669*	2319
C 02799	C	DOL	0	EFREN B COLLINS	ED	C 02799			2	2	2	16	24S	28E	586203	3565676*	2332
C 02836	C	STK	3	ZULEMA COLLINS	ED	C 02836		Shallow	2	2	2	16	24S	28E	586203	3565676*	2332
C 00962	C	STK	3	H F WALKER	ED	C 00962		Shallow		3	3	10	24S	28E	586505	3565992*	2380
C 00555	C	DOM	0	C.F. BEEMAN	ED	C 00555			4	2	3	11	24S	28E	588625	3566296*	2385
C 00768	CUB	IRR	0	MARCELO P. NAVARRETTE	ED	C 00768				2	3	13	24S	28E	590194	3564770*	2445

C 03978	CUB	EXP	0	EFREN COLLINS	ED	C 03978 POD1			NON		2	1	2	16	24S	28E	585804	3565591	2579
C 00574	CUB	IRR	55.05	TOMMY JR. OR CARLA DUARTE	ED	C 00574				Shallow	2	4	4	11	24S	28E	589452	3566081*	2590
C 00574 A	CUB	IRR	119.4	PEDRO A. DUARTE	ED	C 00574				Shallow	2	4	4	11	24S	28E	589452	3566081*	2590
C 03824	CUB	EXP	0	ZULEMA F COLLINS	ED	C 03824 POD1				Shallow	4	1	2	16	24S	28E	585770	3565578	2598
C 03880	C	PRO	0	CONCHO OIL & GAS	ED	C 03824 POD1				Shallow	4	1	2	16	24S	28E	585770	3565578	2598
C 03881	C	PRO	0	CONCHO OIL & GAS	ED	C 03824 POD1				Shallow	4	1	2	16	24S	28E	585770	3565578	2598
C 03882	C	PRO	0	CONCHO OIL & GAS	ED	C 03824 POD1				Shallow	4	1	2	16	24S	28E	585770	3565578	2598
C 04198	CUB	EXP	0	EFREN COLLINS	ED	C 04198 POD1	NA				2	1	2	16	24S	28E	585779	3565600	2604
C 03868	C	DOL	3	EFRAIN RIOS	ED	C 03868 POD1					3	4	2	10	24S	28E	587679	3566685	2655
C 00764	CUB	IRR	117.9	MIKE M. VASQUEZ	ED	C 00764				Shallow	3	1	3	10	24S	28E	586399	3566292*	2688
C 00764 A	CUB	IRR	20.4	EVELYN KAY WALKER FAULK	ED	C 00764				Shallow	3	1	3	10	24S	28E	586399	3566292*	2688
C 00353	CUB	CLS	0	DEKALB AGRICULTURAL ASSOC.	ED	C 00353		C				3	4	13	24S	28E	590603	3564367*	2761
C 00903	C	DOL	3	HENRY MCDONALD	ED	C 00903				Shallow		2	1	13	24S	28E	590178	3565575*	2780
C 00802	CUB	IRR	120	ALBERTO DUARTE	ED	C 00802					3	3	2	11	24S	28E	588832	3566693*	2828
C 01082	CUB	IRR	240	DAMON U. BOND	ED	C 01082				Shallow	3	3	2	11	24S	28E	588832	3566693*	2828
C 03642	C	DOL	0	EFRAIN RIOS	ED	C 03642 POD1			NA		3	3	1	10	24S	28E	586372	3566453	2839
C 04026	CUB	EXP	0	SCOTT BRANSON	ED	C 04026 POD1				Shallow	3	2	1	25	24S	28E	590147	3562290	2876
C 01137	CUB	EXP	0	MORRIS R. ANTWEIL	LE	C 01137					4	1	4	13	24S	28E	590696	3564670*	2904
C 00464	CUB	IRR	314.245	HENRY E MCDONALD	ED	C 00464				Shallow	2	2	1	13	24S	28E	590277	3565674*	2918
C 00464 ENL	CUB	IRR	0	PREWITT MRS J A	ED	C 00464				Shallow	2	2	1	13	24S	28E	590277	3565674*	2918
C 00709	C	DOL	3	C.P. PARDUE & SONS	ED	C 00709				Shallow	3	3	3	16	24S	28E	584802	3564232*	3065
C 00513	CUB	IRR	1422	PARDUE LIMITED COMPANY	ED	C 00513 S	NA			Shallow	1	3	3	16	24S	28E	584800	3564431	3086
C 03665	C	PRO	0	LEGEND NATURAL GAS	ED	C 00513 S	NA			Shallow	1	3	3	16	24S	28E	584800	3564431	3086
C 04152	C	PRO	0	MEWBOURNE OIL COMPANY	ED	C 00513 S	NA			Shallow	1	3	3	16	24S	28E	584800	3564431	3086
C 04154	C	PRO	0	MEWBOURNE OIL COMPANY	ED	C 00513 S	NA			Shallow	1	3	3	16	24S	28E	584800	3564431	3086
C 04155	C	PRO	0	MEWBOURNE OIL COMPANY	ED	C 00513 S	NA			Shallow	1	3	3	16	24S	28E	584800	3564431	3086
C 00750	CUB	IRR	74.7	BETH ANN BOTROS	ED	C 00750				Shallow	1	2	4	13	24S	28E	590898	3564871*	3149
C 00354	CUB	CLS	0	DEKALB ALGRICULTURAL ASSN. INC	ED	C 00354		C				4	4	13	24S	28E	591005	3564367*	3160
C 04222	CUB	EXP	0	VL FRESH WATER LLC	ED	C 04222 POD1	NA			Shallow	1	3	3	27	24S	28E	586406	3561228	3162
C 01442	C	DOM	0	FRANK WILLIAMS	ED	C 01442						1	2	10	24S	28E	587298	3567199*	3212
C 00513	CUB	IRR	1422	PARDUE LIMITED COMPANY	ED	C 00513	NA		NON	Shallow	2	2	2	20	24S	28E	584605	3564020	3256
C 03664	C	PRO	0	LEGEND NATURAL GAS	ED	C 00513	NA		NON	Shallow	2	2	2	20	24S	28E	584605	3564020	3256

C 04153	C	PRO	0	COG OPERATING LLC	ED	C 00513	NA		NON	Shallow	2	2	2	20	24S	28E	584605	3564020	3256
C 04156	C	PRO	0	COG OPERATING LLC	ED	C 00513	NA		NON	Shallow	2	2	2	20	24S	28E	584605	3564020	3256
C 04157	C	PRO	0	COG OPERATING LLC	ED	C 00513	NA		NON	Shallow	2	2	2	20	24S	28E	584605	3564020	3256
C 00329	C	DOM	3	DEKALB AGRI. ASSOC. INC.	ED	C 00329				Shallow	2	1	2	13	24S	28E	590682	3565677*	3262
C 00684	CUB	IRR	0	EASTLAND OIL CO.	ED	C 00684				Shallow	2	1	2	13	24S	28E	590682	3565677*	3262
C 01154	C	PRO	0	MORRIS R. ANTWEIL	ED	C 01154				Shallow	2	1	2	13	24S	28E	590682	3565677*	3262
C 04025	CUB	EXP	0	SCOTT BRANSON	ED	C 04025 POD1				Shallow	4	3	3	27	24S	28E	586699	3560964	3284
C 04073	C	PRO	0	MESQUITE SWD INC	ED	C 04025 POD1				Shallow	4	3	3	27	24S	28E	586699	3560964	3284
C 04074	C	PRO	0	MESQUITE SWD INC	ED	C 04025 POD1				Shallow	4	3	3	27	24S	28E	586699	3560964	3284
C 04075	C	PRO	0	MESQUITE SWD INC	ED	C 04025 POD1				Shallow	4	3	3	27	24S	28E	586699	3560964	3284
C 01237	C	DOL	3	S. F. WILLIAMS	ED	C 01237				Shallow	1	1	2	10	24S	28E	587197	3567298*	3328
C 03988	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03988 POD1	NA		NON	Shallow	4	4	4	28	24S	28E	586303	3561087	3335
C 00570	CUB	IRR	0	FRANK Z. VASQUEZ	ED	C 00570				Shallow		1	1	10	24S	28E	586490	3567195*	3443
C 00618	C	DOM	3	ANNA LANDRUM	ED	C 00618				Shallow	3	4	4	12	24S	28E	590880	3565885*	3539
C 01747	CUB	EXP	0	GEORGE BRANTLEY	ED	C 01747				Shallow				12	24S	28E	590367	3566577*	3568
C 00349	CUB	CLS	0	E.L. WILSON	ED	C 00349		C				1	3	18	24S	29E	591401	3564773*	3615
C 00648	C	DOM	3	T. J. CARLETON	ED	C 00648				Shallow	2	2	2	17	24S	28E	584593	3565644*	3642
C 00983	C	DOM	3	E J ROGERS	ED	C 00983				Shallow	4	4	4	12	24S	28E	591080	3565885*	3711
C 03989	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03989 POD1			NON	Shallow	4	2	2	33	24S	28E	586341	3560573	3781
C 03669	C	SAN	0	CRESTWOOD NEW MEXICO PIPELINES	ED	C 03669					1	2	2	29	24S	28E	584389	3562486	3802
					ED	C 03669 POD1					1	2	2	29	24S	28E	584389	3562486	3802
C 00575	CUB	IRR	0	J.R. DUARTE	ED	C 00575						4	4	08	24S	28E	584491	3565951*	3876
C 03862	CUB	EXP	0	ENVIRO DRILL INC	ED	C 03862 POD2			NON	Shallow	3	3	3	01	24S	28E	589664	3567507	3911
					ED	C 03862 POD1			NON	Shallow	3	3	3	01	24S	28E	589672	3567505	3913
					ED	C 03862 POD3			NON	Shallow	3	3	3	01	24S	28E	589685	3567500	3914
					ED	C 03862 POD4			NON	Shallow	3	3	3	01	24S	28E	589705	3567490	3915
					ED	C 03862 POD5			NON	Shallow	4	3	3	01	24S	28E	589785	3567458	3925
C 00511	C	PRO	0	RICHARDSON & BASS	ED	C 00511				Shallow		2	3	02	24S	28E	588518	3568001*	4018
C 03703	C	DOM	1	BLACK RIVER PROPERTY	ED	C 03703 POD1			NON	Shallow	1	2	1	09	24S	28E	585259	3567225	4116
C 02713	CUB	IND	645	RED BLUFF WATER POWER CONTROL DISTRICT	ED	C 02713				Shallow	4	4	1	16	24S	29E	591633	3565944	4226
C 03360	C	PRO	0	REEF EXPLORATION	ED	C 02713				Shallow	4	4	1	16	24S	29E	591633	3565944	4226
C 00006	CUB	IRR	0	W H SWEARINGEN	ED	C 00006								03	24S	28E	587087	3568199*	4234

C 00365	CUB	IRR	185.7	CARLETON JOE O	ED	C 00365			Shallow	2	4	1	17	24S	28E	583791	3565226*		4240
C 02184	C	PRO	0	SANTA FE ENERGY OPER. PARTNERS	ED	C 02184			Shallow	2	4	3	01	24S	28E	590248	3567700*		4372
C 00573	CUB	IRR	260.1	GUADALUPE & YSABEL O. VASQUEZ	ED	C 00573			Shallow	2	2	4	04	24S	28E	586188	3568087*		4382
C 02084	C	DOL	0	JIM BURLESON	ED	C 02084					1	3	01	24S	28E	589741	3568003*		4389
C 00381	CUB	CLS	0	TENNESSEE PRODUCING CO.	ED	C 00381		C		3	2	3	07	24S	29E	591682	3566297*		4439
C 01098	CUB	EXP	0	GUY A. REED	ED	C 01098					2	2	36	24S	28E	591033	3560719*		4589
C 02186	C	PRO	0	GRACE DRILLING CO.	ED	C 02186			Shallow			2	02	24S	28E	589128	3568606*		4741
C 00484 ETAL	CUB	IRR	7250.075	CITY OF CARLSBAD	ED	C 00484 S-7				4	4	1	07	24S	29E	591877	3566702*		4819
C 02306	C	DOM	3	RUSS DUNBAR	ED	C 02306			Shallow		3	2	04	24S	28E	585690	3568382*		4858
C 00361	CUB	CLS	0	C.D. DONAHO	ED	C 00361		C			3	3	08	24S	28E	583283	3565926*		4953
C 00365	CUB	IRR	185.7	CRAFT JAMES R	ED	C 00365 S					3	3	08	24S	28E	583283	3565926*		4953

Record Count: 132

UTMNAD83 Radius Search (in meters):

Easting (X): 587861.6 **Northing (Y):** 3564036.39 **Radius:** 5000

Sorted by: Distance

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

ATTACHMENT 6

Daily Field Report

VERTEX

Client:	Maraton	Date:	July 19, 2018
Site Location:	Chicken Fry Federal 1	Project #:	18E-02112
Project Owner:	Robyn Fisher	API:	30-015-42882
Project Manager:	Dhugal Hanton	Incident Number:	2RP-4771

Summary of Daily Operations

– Drove to Chicken Fry Federal 1 met Wescom on site. Completed sample work. Left site, returned to Calsbad. Jarred the samploes and then sent them off to Fed Ex.

Planned Activites and Recommendations

—No plans or recommendations at this time

Photo Log

Picture Number (Camera Label)	Viewing Direction	Description
DSCF4197		BH18-01 0" sample
DSCF4198		BH18-01 sample pit
DSCF4199		BH18-01 sample pit
DSCF4200		BH18-01 sample pit
DSCF4201		BH18-01 sample pit
DSCF4202		BH18-01 sample pit filled
DSCF4203		BH18-02 0" sample
DSCF4204		BH18-02 sample pit
DSCF4205		BH18-02 sample pit
DSCF4207		BH18-02 sample pit filled
DSCF4208		BH18-03 0" sample
DSCF4209		BH18-03 sample pit
DSCF4209		BH18-03 sample pit
DSCF4211		BH18-03 Sample pit filled
DSCF4213		BH18-04 2" jarred sample
DSCF4214		BH18-04 Sample Pit

Cont'd on Page 2

Photo Log		
Picture Number (Camera Label)	**Viewing Direction**	**Description**
DSCF4215		BH18-04 Sample Pit
DSCF4216		BH18-04 Sample Pit Filled
DSCF4217		BH18-04 Sample Pit Filled

Daily Field Report

VERTEX

Client:	Marathon	Date:	11/14/2018
Site Location:	Chicken Fry federal 1H	Project #:	18E-02112
Project Owner:	Robyn Fisher	API:	30-015-42882
Project Manager:	Dhugal Hanton	Incident Number:	2RP-4771

Summary of Daily Operations

- Drove to Chicken Fry with Wescom to sample excavation.
- Drove back to Carlsbad.

Planned Activites and Recommendations

Send out samples.

Photo Log

Picture Number (Camera Label)	Viewing Direction	Description
IMG_1423	N/A	Base
IMG_1424	N/A	Base
IMG_1425	N/A	East
IMG_1426	N/A	East
IMG_1427	N/A	North
IMG_1428	N/A	North
IMG_1429	N/A	South
IMG_1430	N/A	South
IMG_1431	N/A	West
IMG_1432	East	Excavation Area
IMG_1433	East	Excavation Area
IMG_1434	South	Soil Pile
IMG_1435	East	Excavation area

Spill Response and Sampling

VERTEX

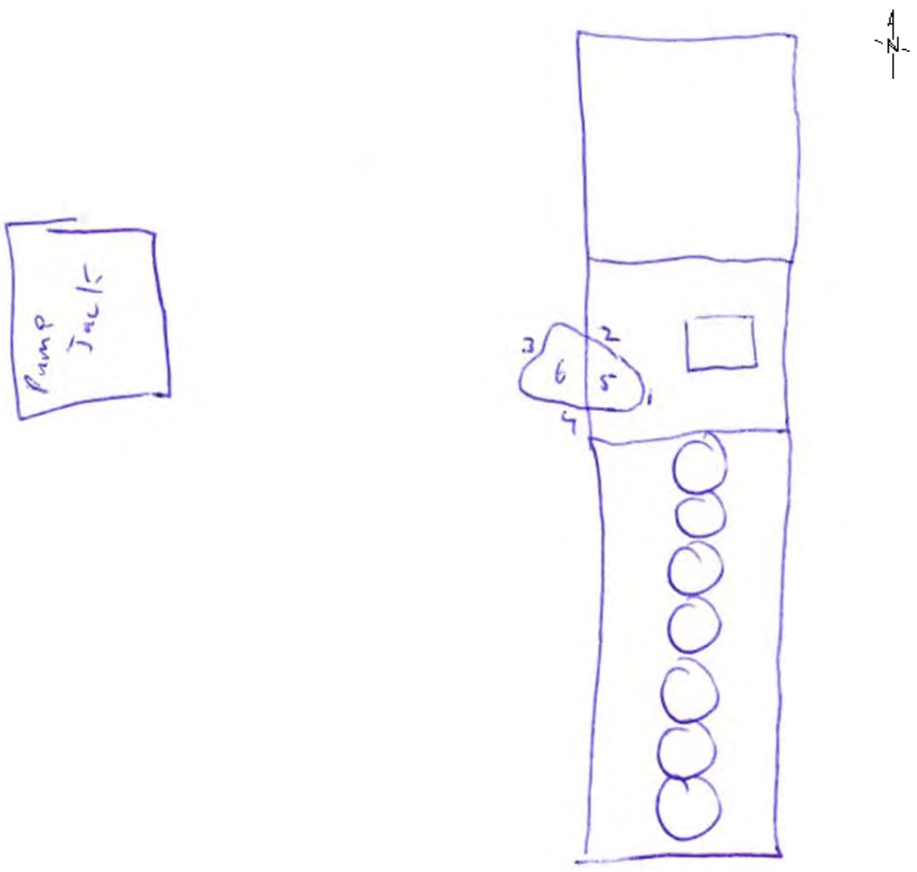
Page _____ of _____

Client:	Marathon
Date:	November 14, 2018
Site Name:	Chicken Fry Federal 1H
Site Location:	32.209479844, -103.06769976
Project Owner:	Robyn Fisher
Project Manager:	Dhugal Hanton
Project #:	18E-02112
API:	30-015-42882

Initial Spill Information - Record on First Visit

Spill Date:	5/13/2018
Spill Volume:	17 bbls
Spill Cause:	1" bleed valve was opened on the pumup
Spill Product:	production water
Recovered Spill Volume:	0
Recovery Method:	top soil excavation
On Lease/Off Lease	on lease

Site Sketch



Approx. Total Spill Area _____

Site Wide Picture **Yes/No** Circle Site Placard Picture **Yes/No** Circle

VERTEX

Spill Response and Sampling

Client:	Marathon
Date:	November 14, 2018
Site Name:	Chicken Fry Federal 1H
Site Location:	32.209479844, -103.06769976
Project Owner:	Robyn Fisher
Project Manager:	Dhugal Hanton
Project #:	18E-02112

Initial Spill Information - Record on First Visit	
Spill Date:	5/13/2018
Spill Volume:	17 bbls
Spill Cause:	1" bleed valve was opened on the pumup
Spill Product:	production water
Recovered Spill Volume:	0
Recovery Method:	top soil excavation

Sampling

		Field Screening		Data Collection (Check for Yes)			
Sample ID	**Depth (ft)**	**VOC (PID)**	**Quantab (High/Low) + or -**	**Lab Analysis**	**Picture**	**Trimble Coordinates**	**Marked on Site Sketch**
South	2		ND	Chlorides, BTEX, TPH	Yes	Yes	Yes
North	2		ND	Chlorides, BTEX, TPH	Yes	Yes	Yes
East	2		ND	Chlorides, BTEX, TPH	Yes	Yes	Yes
West	2		ND	Chlorides, BTEX, TPH	Yes	Yes	Yes
Base	2		ND	Chlorides, BTEX, TPH	Yes	Yes	Yes

ATTACHMENT 7

Certificate of Analysis Summary 593071

Marathon Oil Company, Tulsa, OK

Project Name: Chicken Fry Federal 1

Project Id: 18E-02112
Contact: Callie Karrigan
Project Location: Eddy County,New Mexico

Date Received in Lab: Fri Jul-20-18 10:30 am
Report Date: 27-JUL-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	593071-001		593071-002		593071-003		593071-004		593071-005		593071-006	
	Field Id:	BH18-01 Depth 0 ft		BH18-01 Depth 2 ft		BH18-01 Depth 4 ft		BH18-02 Depth 0 ft		BH18-02 Depth 2 ft		BH18-02 Depth 4 ft	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-19-18 10:25		Jul-19-18 10:30		Jul-19-18 10:35		Jul-19-18 10:40		Jul-19-18 10:45		Jul-19-18 10:50	
BTEX by EPA 8021B	***Extracted:***	Jul-25-18 18:00		Jul-24-18 17:00				Jul-24-18 17:00		Jul-24-18 17:00			
	Analyzed:	Jul-26-18 08:54		Jul-25-18 00:19				Jul-25-18 00:39		Jul-25-18 01:00			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Benzene		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Toluene		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Ethylbenzene		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
m,p-Xylenes		<0.00402	0.00402	<0.00402	0.00402			<0.00398	0.00398	<0.00399	0.00399		
o-Xylene		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Total Xylenes		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Total BTEX		<0.00201	0.00201	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Inorganic Anions by EPA 300	***Extracted:***	Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00	
	Analyzed:	Jul-23-18 19:07		Jul-23-18 19:17		Jul-23-18 19:27		Jul-23-18 19:38		Jul-23-18 20:09		Jul-23-18 20:19	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		895	49.8	340	50.4	239	50.4	578	49.5	352	49.9	355	50.3
TPH by SW8015 Mod	***Extracted:***	Jul-20-18 14:00		Jul-20-18 14:00				Jul-20-18 14:00		Jul-20-18 14:00			
	Analyzed:	Jul-20-18 18:44		Jul-20-18 19:44				Jul-20-18 20:04		Jul-20-18 20:23			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		98.1	15.0	156	14.9			<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		4660	15.0	4880	14.9			30.5	15.0	26.6	15.0		
Oil Range Hydrocarbons (ORO)		30.4	15.0	29.4	14.9			<15.0	15.0	<15.0	15.0		
Total TPH		4790	15.0	5070	14.9			30.5	15.0	26.6	15.0		

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 593071

Marathon Oil Company, Tulsa, OK

Project Name: Chicken Fry Federal 1

Project Id: 18E-02112
Contact: Callie Karrigan
Project Location: Eddy County,New Mexico

Date Received in Lab: Fri Jul-20-18 10:30 am
Report Date: 27-JUL-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	593071-007		593071-008		593071-009		593071-010		593071-011		593071-012	
	Field Id:	BH18-03 Depth 0 ft		BH18-03 Depth 2 ft		BH18-03 Depth 4 ft		BH18-04 Depth 0 ft		BH18-04 Depth 2 ft		BH18-04 Depth 4 ft	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-19-18 10:55		Jul-19-18 11:00		Jul-19-18 11:05		Jul-19-18 11:10		Jul-19-18 11:15		Jul-19-18 11:20	
BTEX by EPA 8021B	*Extracted:*	Jul-24-18 17:00		Jul-24-18 17:00				Jul-24-18 17:00		Jul-24-18 17:00			
	Analyzed:	Jul-25-18 01:20		Jul-25-18 01:41				Jul-25-18 02:02		Jul-25-18 02:22			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Benzene		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Toluene		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Ethylbenzene		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
m,p-Xylenes		<0.00403	0.00403	<0.00402	0.00402			<0.00398	0.00398	<0.00399	0.00399		
o-Xylene		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Total Xylenes		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Total BTEX		<0.00202	0.00202	<0.00201	0.00201			<0.00199	0.00199	<0.00200	0.00200		
Inorganic Anions by EPA 300	*Extracted:*	Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00		Jul-23-18 16:00	
	Analyzed:	Jul-23-18 20:29		Jul-23-18 20:40		Jul-23-18 20:50		Jul-23-18 21:31		Jul-23-18 21:42		Jul-23-18 22:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		298	50.1	249	50.3	199	50.4	666	50.0	253	49.8	97.8	25.2
TPH by SW8015 Mod	*Extracted:*	Jul-20-18 14:00		Jul-20-18 14:00				Jul-20-18 14:00		Jul-20-18 14:00			
	Analyzed:	Jul-20-18 20:43		Jul-20-18 21:03				Jul-20-18 21:22		Jul-20-18 21:42			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0			<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		46.8	15.0	<15.0	15.0			15.9	15.0	<15.0	15.0		
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0			<15.0	15.0	<15.0	15.0		
Total TPH		46.8	15.0	<15.0	15.0			15.9	15.0	<15.0	15.0		

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer
Project Assistant

Final 1.000

Analytical Report 593071

for

Marathon Oil Company

Project Manager: Callie Karrigan

Chicken Fry Federal 1

18E-02112

27-JUL-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-15)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

27-JUL-18

Project Manager: **Callie Karrigan**
Marathon Oil Company
P. O. Box 22164
Tulsa, OK 74121-2164

Reference: XENCO Report No(s): **593071**
Chicken Fry Federal 1
Project Address: Eddy County,New Mexico

Callie Karrigan:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 593071. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 593071 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH18-01 Depth 0 ft	S	07-19-18 10:25		593071-001
BH18-01 Depth 2 ft	S	07-19-18 10:30		593071-002
BH18-01 Depth 4 ft	S	07-19-18 10:35		593071-003
BH18-02 Depth 0 ft	S	07-19-18 10:40		593071-004
BH18-02 Depth 2 ft	S	07-19-18 10:45		593071-005
BH18-02 Depth 4 ft	S	07-19-18 10:50		593071-006
BH18-03 Depth 0 ft	S	07-19-18 10:55		593071-007
BH18-03 Depth 2 ft	S	07-19-18 11:00		593071-008
BH18-03 Depth 4 ft	S	07-19-18 11:05		593071-009
BH18-04 Depth 0 ft	S	07-19-18 11:10		593071-010
BH18-04 Depth 2 ft	S	07-19-18 11:15		593071-011
BH18-04 Depth 4 ft	S	07-19-18 11:20		593071-012

CASE NARRATIVE

Client Name: Marathon Oil Company

Project Name: Chicken Fry Federal 1

Project ID: *18E-02112*
Work Order Number(s): *593071*

Report Date: *27-JUL-18*
Date Received: *07/20/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3057247 TPH by SW8015 Mod

Lab Sample ID 593071-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Diesel Range Organics (DRO) recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 593071-001, -002, -004, -005, -007, -008, -010, -011.

The Laboratory Control Sample for Diesel Range Organics (DRO) is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3057635 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3057911 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-01 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-001	Date Collected:	07.19.18 10.25		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**895**	49.8	mg/kg	07.23.18 19.07		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**98.1**	15.0	mg/kg	07.20.18 18.44		1
Diesel Range Organics (DRO)	C10C28DRO	**4660**	15.0	mg/kg	07.20.18 18.44		1
Oil Range Hydrocarbons (ORO)	PHCG2835	**30.4**	15.0	mg/kg	07.20.18 18.44		1
Total TPH	PHC635	**4790**	15.0	mg/kg	07.20.18 18.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	07.20.18 18.44	
o-Terphenyl	84-15-1	86	%	70-135	07.20.18 18.44	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-01 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-001	Date Collected:	07.19.18 10.25		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.25.18 18.00	Basis:	Wet Weight
Seq Number:	3057911				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.26.18 08.54	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.26.18 08.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.26.18 08.54	
4-Bromofluorobenzene	460-00-4	90	%	70-130	07.26.18 08.54	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-01 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-002	Date Collected:	07.19.18 10.30		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**340**	50.4	mg/kg	07.23.18 19.17		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**156**	14.9	mg/kg	07.20.18 19.44		1
Diesel Range Organics (DRO)	C10C28DRO	**4880**	14.9	mg/kg	07.20.18 19.44		1
Oil Range Hydrocarbons (ORO)	PHCG2835	**29.4**	14.9	mg/kg	07.20.18 19.44		1
Total TPH	PHC635	**5070**	14.9	mg/kg	07.20.18 19.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	127	%	70-135	07.20.18 19.44	
o-Terphenyl	84-15-1	88	%	70-135	07.20.18 19.44	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-01 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-002	Date Collected:	07.19.18 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.25.18 00.19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.25.18 00.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	07.25.18 00.19	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.25.18 00.19	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-01 Depth 4 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-003	Date Collected:	07.19.18 10.35		
Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**239**	50.4	mg/kg	07.23.18 19.27		10

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-02 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-004	Date Collected:	07.19.18 10.40		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**578**	49.5	mg/kg	07.23.18 19.38		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 20.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	**30.5**	15.0	mg/kg	07.20.18 20.04		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 20.04	U	1
Total TPH	PHC635	**30.5**	15.0	mg/kg	07.20.18 20.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	07.20.18 20.04	
o-Terphenyl	84-15-1	100	%	70-135	07.20.18 20.04	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-02 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-004	Date Collected:	07.19.18 10.40		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.25.18 00.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.25.18 00.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	07.25.18 00.39	
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.25.18 00.39	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-02 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-005	Date Collected:	07.19.18 10.45		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**352**	49.9	mg/kg	07.23.18 20.09		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 20.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	**26.6**	15.0	mg/kg	07.20.18 20.23		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 20.23	U	1
Total TPH	PHC635	**26.6**	15.0	mg/kg	07.20.18 20.23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	07.20.18 20.23	
o-Terphenyl	84-15-1	102	%	70-135	07.20.18 20.23	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-02 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-005	Date Collected:	07.19.18 10.45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.25.18 01.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.25.18 01.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	70-130	07.25.18 01.00	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.25.18 01.00	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-02 Depth 4 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-006	Date Collected:	07.19.18 10.50		
Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**355**	50.3	mg/kg	07.23.18 20.19		10

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-03 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-007	Date Collected:	07.19.18 10.55		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**298**	50.1	mg/kg	07.23.18 20.29		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 20.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	**46.8**	15.0	mg/kg	07.20.18 20.43		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 20.43	U	1
Total TPH	PHC635	**46.8**	15.0	mg/kg	07.20.18 20.43		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	07.20.18 20.43	
o-Terphenyl	84-15-1	103	%	70-135	07.20.18 20.43	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-03 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-007	Date Collected:	07.19.18 10.55		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.25.18 01.20	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.25.18 01.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	85	%	70-130	07.25.18 01.20	
1,4-Difluorobenzene	540-36-3	109	%	70-130	07.25.18 01.20	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-03 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-008	Date Collected:	07.19.18 11.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**249**	50.3	mg/kg	07.23.18 20.40		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 21.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.20.18 21.03	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 21.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.20.18 21.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	07.20.18 21.03	
o-Terphenyl	84-15-1	99	%	70-135	07.20.18 21.03	

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Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-03 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-008	Date Collected:	07.19.18 11.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.25.18 01.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.25.18 01.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	87	%	70-130	07.25.18 01.41	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.25.18 01.41	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-03 Depth 4 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-009	Date Collected:	07.19.18 11.05		
Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**199**	50.4	mg/kg	07.23.18 20.50		10

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-04 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-010	Date Collected:	07.19.18 11.10		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**666**	50.0	mg/kg	07.23.18 21.31		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 21.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	**15.9**	15.0	mg/kg	07.20.18 21.22		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 21.22	U	1
Total TPH	PHC635	**15.9**	15.0	mg/kg	07.20.18 21.22		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	07.20.18 21.22	
o-Terphenyl	84-15-1	101	%	70-135	07.20.18 21.22	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-04 Depth 0 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-010	Date Collected:	07.19.18 11.10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.25.18 02.02	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.25.18 02.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	109	%	70-130	07.25.18 02.02	
4-Bromofluorobenzene	460-00-4	88	%	70-130	07.25.18 02.02	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-04 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-011	Date Collected:	07.19.18 11.15		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**253**	49.8	mg/kg	07.23.18 21.42		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.18 14.00	Basis:	Wet Weight
Seq Number:	3057247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.20.18 21.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.20.18 21.42	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.20.18 21.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.20.18 21.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	07.20.18 21.42	
o-Terphenyl	84-15-1	100	%	70-135	07.20.18 21.42	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-04 Depth 2 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-011	Date Collected:	07.19.18 11.15		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	07.24.18 17.00	Basis:	Wet Weight
Seq Number:	3057635				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.25.18 02.22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.25.18 02.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	70-130	07.25.18 02.22	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.25.18 02.22	

Certificate of Analytical Results 593071

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**BH18-04 Depth 4 ft**	Matrix:	Soil	Date Received:	07.20.18 10.30
Lab Sample Id:	593071-012	Date Collected:	07.19.18 11.20		
Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	07.23.18 16.00	Basis:	Wet Weight
Seq Number:	3057413				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**97.8**	25.2	mg/kg	07.23.18 22.13		5

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 593071

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3057413 Matrix: Solid Date Prep: 07.23.18
MB Sample Id: 7658927-1-BLK LCS Sample Id: 7658927-1-BKS LCSD Sample Id: 7658927-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	226	90	227	91	90-110	0	20	mg/kg	07.23.18 18:15	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3057413 Matrix: Soil Date Prep: 07.23.18
Parent Sample Id: 592680-001 MS Sample Id: 592680-001 S MSD Sample Id: 592680-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	20.4	252	255	93	253	92	90-110	1	20	mg/kg	07.23.18 18:46	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3057413 Matrix: Soil Date Prep: 07.23.18
Parent Sample Id: 593083-004 MS Sample Id: 593083-004 S MSD Sample Id: 593083-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	221	252	482	104	483	104	90-110	0	20	mg/kg	07.23.18 21:11	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3057247 Matrix: Solid Date Prep: 07.20.18
MB Sample Id: 7658836-1-BLK LCS Sample Id: 7658836-1-BKS LCSD Sample Id: 7658836-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	952	95	942	94	70-135	1	20	mg/kg	07.20.18 18:04	
Diesel Range Organics (DRO)	<15.0	1000	988	99	968	97	70-135	2	20	mg/kg	07.20.18 18:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		119		120		70-135	%	07.20.18 18:04
o-Terphenyl	103		111		105		70-135	%	07.20.18 18:04

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 593071

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3057247 — Matrix: Soil — Date Prep: 07.20.18
Parent Sample Id: 593071-001 — MS Sample Id: 593071-001 S — MSD Sample Id: 593071-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	98.1	999	1090	99	1100	100	70-135	1	20	mg/kg	07.20.18 19:04	
Diesel Range Organics (DRO)	4660	999	6400	174	6480	182	70-135	1	20	mg/kg	07.20.18 19:04	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		121		70-135	%	07.20.18 19:04
o-Terphenyl	95		101		70-135	%	07.20.18 19:04

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3057635 — Matrix: Solid — Date Prep: 07.24.18
MB Sample Id: 7659036-1-BLK — LCS Sample Id: 7659036-1-BKS — LCSD Sample Id: 7659036-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0958	96	0.0925	93	70-130	4	35	mg/kg	07.24.18 21:55	
Toluene	<0.00199	0.0996	0.0942	95	0.0896	90	70-130	5	35	mg/kg	07.24.18 21:55	
Ethylbenzene	<0.00199	0.0996	0.102	102	0.0986	99	70-130	3	35	mg/kg	07.24.18 21:55	
m,p-Xylenes	<0.00398	0.199	0.202	102	0.195	98	70-130	4	35	mg/kg	07.24.18 21:55	
o-Xylene	<0.00199	0.0996	0.0993	100	0.0958	96	70-130	4	35	mg/kg	07.24.18 21:55	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		107		104		70-130	%	07.24.18 21:55
4-Bromofluorobenzene	81		80		82		70-130	%	07.24.18 21:55

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3057911 — Matrix: Solid — Date Prep: 07.25.18
MB Sample Id: 7659186-1-BLK — LCS Sample Id: 7659186-1-BKS — LCSD Sample Id: 7659186-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0957	95	0.0861	86	70-130	11	35	mg/kg	07.26.18 06:29	
Toluene	<0.00202	0.101	0.0936	93	0.0852	85	70-130	9	35	mg/kg	07.26.18 06:29	
Ethylbenzene	<0.00202	0.101	0.102	101	0.0943	94	70-130	8	35	mg/kg	07.26.18 06:29	
m,p-Xylenes	<0.00403	0.202	0.200	99	0.186	93	70-130	7	35	mg/kg	07.26.18 06:29	
o-Xylene	<0.00202	0.101	0.0991	98	0.0947	95	70-130	5	35	mg/kg	07.26.18 06:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		108		104		70-130	%	07.26.18 06:29
4-Bromofluorobenzene	91		86		93		70-130	%	07.26.18 06:29

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 593071

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3057635 Matrix: Soil Date Prep: 07.24.18

Parent Sample Id: 593140-001 MS Sample Id: 593140-001 S MSD Sample Id: 593140-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0773	77	0.0741	74	70-130	4	35	mg/kg	07.24.18 22:36	
Toluene	<0.00201	0.100	0.0744	74	0.0705	71	70-130	5	35	mg/kg	07.24.18 22:36	
Ethylbenzene	<0.00201	0.100	0.0811	81	0.0760	76	70-130	6	35	mg/kg	07.24.18 22:36	
m,p-Xylenes	<0.00402	0.201	0.160	80	0.149	75	70-130	7	35	mg/kg	07.24.18 22:36	
o-Xylene	<0.00201	0.100	0.0777	78	0.0730	73	70-130	6	35	mg/kg	07.24.18 22:36	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		105		70-130	%	07.24.18 22:36
4-Bromofluorobenzene	85		82		70-130	%	07.24.18 22:36

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3057911 Matrix: Soil Date Prep: 07.25.18

Parent Sample Id: 593218-007 MS Sample Id: 593218-007 S MSD Sample Id: 593218-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0838	84	0.0834	83	70-130	0	35	mg/kg	07.26.18 07:10	
Toluene	<0.00199	0.0994	0.0825	83	0.0818	82	70-130	1	35	mg/kg	07.26.18 07:10	
Ethylbenzene	<0.00199	0.0994	0.0914	92	0.0902	90	70-130	1	35	mg/kg	07.26.18 07:10	
m,p-Xylenes	<0.00398	0.199	0.180	90	0.176	88	70-130	2	35	mg/kg	07.26.18 07:10	
o-Xylene	<0.00199	0.0994	0.0893	90	0.0873	87	70-130	2	35	mg/kg	07.26.18 07:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		106		70-130	%	07.26.18 07:10
4-Bromofluorobenzene	88		85		70-130	%	07.26.18 07:10

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analysis Request of Chain of Custody Record

593071

Page 1 of 2

Client Name: Marathon Oil	Site Manager:
Project Name: Chicken Fry Federal 1	
Project Location: (county, state) Eddy County, New Mexico	Project #: 18E-02112
Invoice to: Callie Karrigan at Marathon Oil Permian LLC 5555 San Felipe St., Houston, TX 77056	
Receiving Laboratory: Midland, TX	Sampler Signature:
Comments: Please Send Email to Callie and Dhugal Hanton DHanton@vertex.ca	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2018 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE			# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloridem (method 300)	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance					Hold
	BH18-01 Depth 0 ft	19/07/2018	10:25		x				X			2		X		X												X								
	BH18-01 Depth 2 ft	19/07/2018	10:30		x				X			2		X		X												X								
	BH18-01 Depth 4 ft	19/07/2018	10:35		x				X			2																X								
	BH18-02 Depth 0 ft	19/07/2018	10:40		x				X			2		X		X												X								
	BH18-02 Depth 2 ft	19/07/2018	10:45		x				X			2		X		X												X								
	BH18-02 Depth 4 ft	19/07/2018	10:50		x				X			2																X								
	BH18-03 Depth 0 ft	19/07/2018	10:55		x				X			2		X		X												X								
	BH18-03 Depth 2 ft	19/07/2018	11:00		x				X			2		X		X												X								
	BH18-03 Depth 4 ft	19/07/2018	11:05		x				X			2																X								
	BH18-04 Depth 0 ft	19/07/2018	11:10		x				X			2		X		X												X								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Robyn Fisher	19/07/2018	14:30		7/19/18	14:30
	7/19	15:30		7/19/18	1030

LAB USE ONLY
Sample Temperature
0.2 / 0.0
RB

REMARKS:
- ☐ RUSH: Same Day 24 hr 48 hr 72 hr
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: 777558

ORIGINAL COPY

Analysis Request of Chain of Custody Record

593071

Page 2 of 2

Client Name:	Marathon Oil	Site Manager:	
Project Name:	Chicken Fry Federal 1		
Project Location: (county, state)	Eddy County, New Mexico	Project #:	
Invoice to:	Callie Karrigan at Marathon Oil Permian LLC 5555 San Felipe St., Houston, TX 77056		
Receiving Laboratory:	Midland, TX	Sampler Signature:	[signature]
Comments:			

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2018 DATE	TIME	MATRIX WATER	SOIL	PRESERVATIVE METHOD HCL	HNO_3	ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloridem (method 300)	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	BH18-04 Depth 2 ft	19/07/2018	11:15		x			X	2		X		X												X				
	BH18-04 Depth 4 ft	19/07/2018	11:20		x				2																X				

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Robyn Fisher	19/07/2019	14:30	[signature]	7/19/18	14:30
[signature]	7/19	15:30	[signature]	7/20/18	1035

LAB USE ONLY
Sample Temperature
0.4/0.0
NE

REMARKS:
☐ RUSH: Same Day 24 hr 48 hr 72 hr
☐ Rush Charges Authorized
☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: 77125758924[illegible]

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Final 1.000

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Marathon Oil Company

Date/ Time Received: 07/20/2018 10:30:00 AM

Work Order #: 593071

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07/20/2018

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 07/20/2018

Jessica Kramer

Certificate of Analysis Summary 605817

Marathon Oil Company, Tulsa, OK

Project Name: Chicken Fry Federal 1

Project Id: 18E-02112
Contact: Callie Karrigan
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Nov-16-18 12:30 pm
Report Date: 27-NOV-18
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	605817-001		605817-002		605817-003		605817-004		605817-005	
	Field Id:	West Wall		East Wall		North Wall		South Wall		Base	
	Depth:										
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Nov-14-18 00:00		Nov-14-18 00:00		Nov-14-18 00:00		Nov-14-18 00:00		Nov-14-18 00:00	
BTEX by EPA 8021B SUB: T104704219-18-18	***Extracted:***	Nov-20-18 10:00		Nov-20-18 10:00		Nov-20-18 10:00		Nov-20-18 10:00		Nov-20-18 10:00	
	Analyzed:	Nov-22-18 10:12		Nov-22-18 19:50		Nov-22-18 23:02		Nov-23-18 00:38		Nov-23-18 01:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
Toluene		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
Ethylbenzene		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
m,p-Xylenes		<0.0389	0.0389	<0.0390	0.0390	<0.0383	0.0383	<0.0380	0.0380	<0.0358	0.0358
o-Xylene		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
Total Xylenes		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
Total BTEX		<0.0195	0.0195	<0.0195	0.0195	<0.0192	0.0192	<0.0190	0.0190	<0.0179	0.0179
Inorganic Anions by EPA 300	***Extracted:***	Nov-20-18 09:30		Nov-20-18 09:30		Nov-20-18 09:30		Nov-20-18 09:30		Nov-20-18 09:30	
	Analyzed:	Nov-26-18 14:50		Nov-26-18 14:57		Nov-26-18 15:03		Nov-26-18 15:09		Nov-26-18 15:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		36.5	4.97	7.00	4.97	5.93	4.95	11.5	4.98	10.2	4.98
TPH by SW8015 Mod	***Extracted:***	Nov-16-18 18:00		Nov-16-18 18:00		Nov-16-18 18:00		Nov-16-18 18:00		Nov-19-18 10:00	
	Analyzed:	Nov-18-18 16:18		Nov-18-18 16:37		Nov-18-18 17:32		Nov-18-18 17:50		Nov-19-18 19:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		68.7	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	24.4	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		68.7	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	24.4	15.0

Jessica Kramer
Project Assistant

Final 1.000

Analytical Report 605817

for

Marathon Oil Company

Project Manager: Callie Karrigan

Chicken Fry Federal 1

18E-02112

27-NOV-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

27-NOV-18

Project Manager: **Callie Karrigan**
Marathon Oil Company
P. O. Box 22164
Tulsa, OK 74121-2164

Reference: XENCO Report No(s): **605817**
Chicken Fry Federal 1
Project Address: Eddy County, New Mexico

Callie Karrigan:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 605817. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 605817 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
West Wall	S	11-14-18 00:00		605817-001
East Wall	S	11-14-18 00:00		605817-002
North Wall	S	11-14-18 00:00		605817-003
South Wall	S	11-14-18 00:00		605817-004
Base	S	11-14-18 00:00		605817-005

CASE NARRATIVE

Client Name: Marathon Oil Company

Project Name: Chicken Fry Federal 1

Project ID: *18E-02112*
Work Order Number(s): *605817*

Report Date: *27-NOV-18*
Date Received: *11/16/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3070616 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3070621 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**West Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-001	Date Collected:	11.14.18 00.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	11.20.18 09.30	Basis:	Wet Weight
Seq Number:	3070596				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**36.5**	4.97	mg/kg	11.26.18 14.50		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	11.16.18 18.00	Basis:	Wet Weight
Seq Number:	3070139				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.18.18 16.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	**68.7**	15.0	mg/kg	11.18.18 16.18		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.18.18 16.18	U	1
Total TPH	PHC635	**68.7**	15.0	mg/kg	11.18.18 16.18		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	11.18.18 16.18	
o-Terphenyl	84-15-1	109	%	70-135	11.18.18 16.18	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**West Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-001	Date Collected:	11.14.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MIT			% Moisture:	
Analyst:	MIT	Date Prep:	11.20.18 10.00	Basis:	Wet Weight
Seq Number:	3070616			SUB:	T104704219-18-18

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1
Toluene	108-88-3	<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1
Ethylbenzene	100-41-4	<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1
m,p-Xylenes	179601-23-1	<0.0389	0.0389	mg/kg	11.22.18 10.12	U	1
o-Xylene	95-47-6	<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1
Total Xylenes	1330-20-7	<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1
Total BTEX		<0.0195	0.0195	mg/kg	11.22.18 10.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	68-120	11.22.18 10.12	
a,a,a-Trifluorotoluene	98-08-8	117	%	71-121	11.22.18 10.12	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**East Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-002	Date Collected:	11.14.18 00.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	11.20.18 09.30	Basis:	Wet Weight
Seq Number:	3070596				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.00**	4.97	mg/kg	11.26.18 14.57		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	11.16.18 18.00	Basis:	Wet Weight
Seq Number:	3070139				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.18.18 16.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.18.18 16.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.18.18 16.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.18.18 16.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.18.18 16.37	
o-Terphenyl	84-15-1	95	%	70-135	11.18.18 16.37	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**East Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-002	Date Collected:	11.14.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MIT			% Moisture:	
Analyst:	MIT	Date Prep:	11.20.18 10.00	Basis:	Wet Weight
Seq Number:	3070616			SUB:	T104704219-18-18

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1
Toluene	108-88-3	<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1
Ethylbenzene	100-41-4	<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1
m,p-Xylenes	179601-23-1	<0.0390	0.0390	mg/kg	11.22.18 19.50	U	1
o-Xylene	95-47-6	<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1
Total Xylenes	1330-20-7	<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1
Total BTEX		<0.0195	0.0195	mg/kg	11.22.18 19.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117	%	68-120	11.22.18 19.50	
a,a,a-Trifluorotoluene	98-08-8	107	%	71-121	11.22.18 19.50	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**North Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-003	Date Collected:	11.14.18 00.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	11.20.18 09.30	Basis:	Wet Weight
Seq Number:	3070596				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.93**	4.95	mg/kg	11.26.18 15.03		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	11.16.18 18.00	Basis:	Wet Weight
Seq Number:	3070139				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.18.18 17.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.18.18 17.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.18.18 17.32	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.18.18 17.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.18.18 17.32	
o-Terphenyl	84-15-1	93	%	70-135	11.18.18 17.32	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**North Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-003	Date Collected:	11.14.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MIT			% Moisture:	
Analyst:	MIT	Date Prep:	11.20.18 10.00	Basis:	Wet Weight
Seq Number:	3070621			SUB:	T104704219-18-18

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1
Toluene	108-88-3	<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1
Ethylbenzene	100-41-4	<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1
m,p-Xylenes	179601-23-1	<0.0383	0.0383	mg/kg	11.22.18 23.02	U	1
o-Xylene	95-47-6	<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1
Total Xylenes	1330-20-7	<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1
Total BTEX		<0.0192	0.0192	mg/kg	11.22.18 23.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	68-120	11.22.18 23.02	
a,a,a-Trifluorotoluene	98-08-8	98	%	71-121	11.22.18 23.02	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**South Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-004	Date Collected:	11.14.18 00.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	11.20.18 09.30	Basis:	Wet Weight
Seq Number:	3070596				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.5**	4.98	mg/kg	11.26.18 15.09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	11.16.18 18.00	Basis:	Wet Weight
Seq Number:	3070139				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.18.18 17.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.18.18 17.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.18.18 17.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.18.18 17.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	11.18.18 17.50	
o-Terphenyl	84-15-1	103	%	70-135	11.18.18 17.50	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**South Wall**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-004	Date Collected:	11.14.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MIT			% Moisture:	
Analyst:	MIT	Date Prep:	11.20.18 10.00	Basis:	Wet Weight
Seq Number:	3070621			SUB:	T104704219-18-18

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1
Toluene	108-88-3	<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1
Ethylbenzene	100-41-4	<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1
m,p-Xylenes	179601-23-1	<0.0380	0.0380	mg/kg	11.23.18 00.38	U	1
o-Xylene	95-47-6	<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1
Total Xylenes	1330-20-7	<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1
Total BTEX		<0.0190	0.0190	mg/kg	11.23.18 00.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	85	%	68-120	11.23.18 00.38	
a,a,a-Trifluorotoluene	98-08-8	87	%	71-121	11.23.18 00.38	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**Base**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-005	Date Collected:	11.14.18 00.00		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	11.20.18 09.30	Basis:	Wet Weight
Seq Number:	3070596				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.2**	4.98	mg/kg	11.26.18 15.15		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	11.19.18 10.00	Basis:	Wet Weight
Seq Number:	3070265				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.19.18 19.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	**24.4**	15.0	mg/kg	11.19.18 19.17		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.19.18 19.17	U	1
Total TPH	PHC635	**24.4**	15.0	mg/kg	11.19.18 19.17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.19.18 19.17	
o-Terphenyl	84-15-1	98	%	70-135	11.19.18 19.17	

Certificate of Analytical Results 605817

Marathon Oil Company, Tulsa, OK

Chicken Fry Federal 1

Sample Id:	**Base**	Matrix:	Soil	Date Received:	11.16.18 12.30
Lab Sample Id:	605817-005	Date Collected:	11.14.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MIT			% Moisture:	
Analyst:	MIT	Date Prep:	11.20.18 10.00	Basis:	Wet Weight
Seq Number:	3070621			SUB:	T104704219-18-18

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1
Toluene	108-88-3	<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1
Ethylbenzene	100-41-4	<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1
m,p-Xylenes	179601-23-1	<0.0358	0.0358	mg/kg	11.23.18 01.02	U	1
o-Xylene	95-47-6	<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1
Total Xylenes	1330-20-7	<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1
Total BTEX		<0.0179	0.0179	mg/kg	11.23.18 01.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	68-120	11.23.18 01.02	
a,a,a-Trifluorotoluene	98-08-8	115	%	71-121	11.23.18 01.02	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 605817

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3070596 Matrix: Solid Date Prep: 11.20.18
MB Sample Id: 7666508-1-BLK LCS Sample Id: 7666508-1-BKS LCSD Sample Id: 7666508-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	260	104	262	105	90-110	1	20	mg/kg	11.20.18 17:59	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3070596 Matrix: Soil Date Prep: 11.20.18
Parent Sample Id: 605815-003 MS Sample Id: 605815-003 S MSD Sample Id: 605815-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	888	249	1110	89	1120	93	90-110	1	20	mg/kg	11.20.18 18:18	X

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3070596 Matrix: Soil Date Prep: 11.20.18
Parent Sample Id: 605815-006 MS Sample Id: 605815-006 S MSD Sample Id: 605815-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1130	248	1320	77	1350	89	90-110	2	20	mg/kg	11.20.18 19:44	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3070139 Matrix: Solid Date Prep: 11.16.18
MB Sample Id: 7666454-1-BLK LCS Sample Id: 7666454-1-BKS LCSD Sample Id: 7666454-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1080	108	1110	111	70-135	3	20	mg/kg	11.18.18 12:38	
Diesel Range Organics (DRO)	<8.13	1000	1130	113	1090	109	70-135	4	20	mg/kg	11.18.18 12:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		119		119		70-135	%	11.18.18 12:38
o-Terphenyl	124		112		129		70-135	%	11.18.18 12:38

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 605817

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3070265 — Matrix: Solid — Date Prep: 11.19.18
MB Sample Id: 7666533-1-BLK — LCS Sample Id: 7666533-1-BKS — LCSD Sample Id: 7666533-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1010	101	1010	101	70-135	0	20	mg/kg	11.19.18 12:12	
Diesel Range Organics (DRO)	<8.13	1000	1040	104	1080	108	70-135	4	20	mg/kg	11.19.18 12:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	91		120		124		70-135	%	11.19.18 12:12
o-Terphenyl	96		104		107		70-135	%	11.19.18 12:12

Analytical Method: TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3070139 — Matrix: Soil — Date Prep: 11.16.18
Parent Sample Id: 605815-001 — MS Sample Id: 605815-001 S — MSD Sample Id: 605815-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	945	95	974	97	70-135	3	20	mg/kg	11.18.18 13:33	
Diesel Range Organics (DRO)	<8.13	1000	964	96	970	97	70-135	1	20	mg/kg	11.18.18 13:33	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		121		70-135	%	11.18.18 13:33
o-Terphenyl	96		102		70-135	%	11.18.18 13:33

Analytical Method: TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3070265 — Matrix: Soil — Date Prep: 11.19.18
Parent Sample Id: 605899-004 — MS Sample Id: 605899-004 S — MSD Sample Id: 605899-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<7.99	999	1010	101	968	97	70-135	4	20	mg/kg	11.19.18 13:07	
Diesel Range Organics (DRO)	<8.12	999	1040	104	1010	101	70-135	3	20	mg/kg	11.19.18 13:07	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		114		70-135	%	11.19.18 13:07
o-Terphenyl	107		102		70-135	%	11.19.18 13:07

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 605817

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3070616 — Matrix: Solid — Date Prep: 11.20.18
MB Sample Id: 7666784-1-BLK — LCS Sample Id: 7666784-1-BKS — LCSD Sample Id: 7666784-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0200	2.00	2.07	104	2.07	104	55-120	0	20	mg/kg	11.21.18 22:41	
Toluene	<0.0200	2.00	2.05	103	2.05	103	77-120	0	20	mg/kg	11.21.18 22:41	
Ethylbenzene	<0.0200	2.00	2.12	106	2.11	106	77-120	0	20	mg/kg	11.21.18 22:41	
m,p-Xylenes	<0.0400	4.00	4.19	105	4.24	106	78-120	1	20	mg/kg	11.21.18 22:41	
o-Xylene	<0.0200	2.00	2.16	108	2.11	106	78-120	2	20	mg/kg	11.21.18 22:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	91		113		90		68-120	%	11.21.18 22:41
a,a,a-Trifluorotoluene	94		113		89		71-121	%	11.21.18 22:41

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3070621 — Matrix: Solid — Date Prep: 11.20.18
MB Sample Id: 7666785-1-BLK — LCS Sample Id: 7666785-1-BKS — LCSD Sample Id: 7666785-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0200	2.00	2.04	102	1.99	100	55-120	2	20	mg/kg	11.22.18 21:02	
Toluene	<0.0200	2.00	2.02	101	1.99	100	77-120	1	20	mg/kg	11.22.18 21:02	
Ethylbenzene	<0.0200	2.00	2.08	104	2.08	104	77-120	0	20	mg/kg	11.22.18 21:02	
m,p-Xylenes	<0.0400	4.00	4.13	103	4.13	103	78-120	0	20	mg/kg	11.22.18 21:02	
o-Xylene	<0.0200	2.00	2.10	105	2.09	105	78-120	0	20	mg/kg	11.22.18 21:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	111		113		119		68-120	%	11.22.18 21:02
a,a,a-Trifluorotoluene	115		112		113		71-121	%	11.22.18 21:02

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3070616 — Matrix: Soil — Date Prep: 11.20.18
Parent Sample Id: 605809-003 — MS Sample Id: 605809-003 S — MSD Sample Id: 605809-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0196	1.96	1.83	93	1.78	93	54-120	3	25	mg/kg	11.22.18 01:03	
Toluene	<0.0196	1.96	1.88	96	1.82	95	57-120	3	25	mg/kg	11.22.18 01:03	
Ethylbenzene	<0.0196	1.96	1.92	98	1.88	98	58-131	2	25	mg/kg	11.22.18 01:03	
m,p-Xylenes	<0.0391	3.91	3.81	97	3.76	98	62-124	1	25	mg/kg	11.22.18 01:03	
o-Xylene	<0.0196	1.96	1.88	96	1.84	96	62-124	2	25	mg/kg	11.22.18 01:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	112		97		68-120	%	11.22.18 01:03
a,a,a-Trifluorotoluene	116		103		71-121	%	11.22.18 01:03

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 605817

Marathon Oil Company

Chicken Fry Federal 1

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3070621 Matrix: Soil Date Prep: 11.20.18

Parent Sample Id: 605817-003 MS Sample Id: 605817-003 S MSD Sample Id: 605817-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0171	1.71	1.54	90	1.78	94	54-120	14	25	mg/kg	11.22.18 23:26	
Toluene	<0.0171	1.71	1.55	91	1.80	95	57-120	15	25	mg/kg	11.22.18 23:26	
Ethylbenzene	<0.0171	1.71	1.58	92	1.84	97	58-131	15	25	mg/kg	11.22.18 23:26	
m,p-Xylenes	<0.0342	3.42	3.13	92	3.64	96	62-124	15	25	mg/kg	11.22.18 23:26	
o-Xylene	<0.0171	1.71	1.57	92	1.83	96	62-124	15	25	mg/kg	11.22.18 23:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	96		108		68-120	%	11.22.18 23:26
a,a,a-Trifluorotoluene	102		115		71-121	%	11.22.18 23:26

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analysis Request of Chain of Custody Record

605817

Page 1 of

Client Name:	Marathon Oil	**Site Manager:**	Robyn Fisher
Project Name:	Chicken Fry Federal 1		
Project Location: (county, state)	Eddy County, New Mexico	**Project #:**	18E-02112
Invoice to:	Callie Karrigan at Marathon Oil Permian LLC 5555 San Felipe St., Houston, TX 77056		
Receiving Laboratory:	Midland, TX	**Sampler Signature:**	[signature]
Comments:			

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE (YEAR: 2018)	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloridem (method 300)	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	West Wall	11/14/2018			x			X	1		X		X												X				
	East Wall	11/14/2018			x			X	1		X		X												X				
	North Wall	11/14/2018			x			X	1		X		X												X				
	South Wall	11/14/2018			x			X	1		X		X												X				
	Base	11/14/2018			x			X	1		X		X												X				

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Robyn Fisher	11/15/2018	15:00	[signature]	11/15/18	15:06
[signature]	11/15/18	15:30	[signature]	11/16	12:30

LAB USE ONLY

Sample Temperature: 2.1/2.0 KB

REMARKS:

- ☐ RUSH: Same Day 24 hr 48 hr 72 hr
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: ____________

ORIGINAL COPY

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Inter-Office Shipment

IOS Number **117559**

Date/Time: 11/19/18 10:57
Lab# From: **Midland**
Lab# To: **Lubbock**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.:

Please send report to: Jessica Kramer
Address: 1211 W. Florida Ave, Midland TX 79701
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
605817-001	S	West Wall	11/14/18 00:00	SW8021B	BTEX by EPA 8021B	11/23/18	11/28/18	JKR	BR4FBZ BZ BZME EBZ X	
605817-002	S	East Wall	11/14/18 00:00	SW8021B	BTEX by EPA 8021B	11/23/18	11/28/18	JKR	BR4FBZ BZ BZME EBZ X	
605817-003	S	North Wall	11/14/18 00:00	SW8021B	BTEX by EPA 8021B	11/23/18	11/28/18	JKR	BR4FBZ BZ BZME EBZ X	
605817-004	S	South Wall	11/14/18 00:00	SW8021B	BTEX by EPA 8021B	11/23/18	11/28/18	JKR	BR4FBZ BZ BZME EBZ X	
605817-005	S	Base	11/14/18 00:00	SW8021B	BTEX by EPA 8021B	11/23/18	11/28/18	JKR	BR4FBZ BZ BZME EBZ X	

Inter Office Shipment or Sample Comments:

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 11/19/2018

Received By:

Date Received:

Cooler Temperature:

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Marathon Oil Company

Date/ Time Received: 11/16/2018 12:30:00 PM

Work Order #: 605817

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 11/16/2018

Checklist reviewed by: Jessica Kramer Date: 11/16/2018

Jessica Kramer

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 237848

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 237848
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/21/2023