SITE INFORMATION

Report Type: Work Plan 1RP-4959

General Site Information:						
Site:	**Green Frog Café Federal #1H**					
Company:	**Marathon Oil Permian, LLC**					
Section, Township and Range	**Unit B**	**Sec. 18**	**T 20S**	**R 33E**		
Lease Number:	**API No. 30-025-40828**					
County:	**Lea County**					
GPS:	**32.578189º N**			**103.7015533º W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of Highway 62 and Laguna Road, travel north on Laguna Road an go for approximately 1.5 miles , turn right (east) on Tonto Road, go 0.6 mile and turn left and road curve right and go 0.3 mile to location .					

Release Data:	
Date Released:	unknown
Type Release:	Crude oil
Source of Contamination:	flare stack
Fluid Released:	31 bbls
Fluids Recovered:	2 bbls

Official Communication:			
Name:	Callie Karrigan		Ike Tavarez
Company:	Marathon Oil Permian, LLC.		Tetra Tech
Address:	2423 Bonita St.		4000 N. Big Spring
			Ste 401
City:	Carlsbad, NM 88220		Midland, Texas
Phone number:	(575) 297-0956		(432) 687-8110
Fax:			
Email:	cnkarrigan@marathonoil.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	*125'*
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	***20***	*Laguna Gatuna Salt Playa*
200 ft - 1,000 ft.	10	
>1,000 ft.	0	
Total Ranking Score:	***20***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	100

TETRA TECH

PRELIMINARY RESULTS

March 14, 2018

Ms. Olivia Yu
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the Marathon Oil Company, Green Frog Cafe Federal #1H, Unit B, Section 18, Township 20 South, Range 33 East, Lea County, New Mexico. 1RP-4937.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by Marathon Oil Company (Marathon) to investigate and assess a release that occurred at the Green Frog Café Federal #1H, Unit B, Section 18, Township 20 South, Range 33 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.5781898º, W 103.7015533º. The site location is shown in Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on January 9, 2018 and released approximately 31 barrels of crude oil due to the mechanical failure of a back-pressure valve on the flare line. Approximately two (2) barrels were recovered from the area. The release occurred at the flare stack, which then migrated along the well pad and then along a lease road. The fluids then migrated approximately 435' into the Laguna Gatuna Salt Playa. The total impacted area measures approximately 10' x 675'. Marathon immediately excavated the spill area and removed approximately 0.5' from the flare stack area, edge of the pad, and at the well location. These areas were scraped using a backhoe. All of the excavated material was hauled to proper disposal. The initial C-141 form is included in Appendix A.

In addition, the release in the playa migrated into a surface wash created by rainwater. Some of the wash areas depths were at approximately 1.0' to 4.5' deep. As directed by the BLM, the impacted areas in the playa wash were hand dug to depths of approximately of 6" to 1.0' deep. The impacted areas in the deeper wash areas were not accessible and not removed due to safety concerns. All of the excavated material was transported to proper disposal.

Tetra Tech
4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Groundwater

No wells are listed within Section 18 in the New Mexico Office of the State Engineers database or the Geology and Groundwater Conditions in Southern Lea County, NM (Report 6). The USGS National Water Information System does list one well in Section 18 with depth to groundwater of 125' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 125' and 150' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the distance to the Laguna Gatuna Salt Playa, the proposed RRAL for TPH is 100 mg/kg.

Soil Assessment and Analytical Results

On January 23, 2018, Tetra Tech personnel were onsite to evaluate and sampled the release area. Ten (10) auger holes (AH-1 through AH-10) were installed in the spill footprint. Auger holes (AH-1, AH-2, AH-3 and AH4) were installed to total depths ranging from 0.5' to 1.5' below surface in the area of the flare stack, edge of well pad, and adjacent well pad. Auger holes (AH-5, AH-6, AH-7, AH-8, AH-9 and AH-10) were installed in the playa with sampling depths ranging from 0.5' to 2.5' below excavation bottom (BEB). Selected samples were analyzed for TPH analysis by EPA method 8015 modified and BTEX by EPA Method 8021B. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the areas of auger holes (AH-3 and AH-7) did not show benzene, total BTEX, or TPH concentrations above the RRALs. Additionally, the areas of auger holes (AH-1, AH-6, AH-8, AH-9, and AH-10) did not show benzene or total BTEX concentrations above the RRALs, however TPH concentrations above the RRAL of 154 mg/kg, 116 mg/kg, 222 mg/kg, 184 mg/kg, and 251 mg/kg were detected at 0-1' below surface, respectively. The TPH concentrations then declined with depth to below the laboratory reporting limit at 1-1.5' below surface.

Also, the areas of auger holes (AH-2 and AH-4) did not show benzene or total BTEX concentrations above the RRALs, however TPH concentrations of 725 mg/kg at 0-6" and 384 mg/kg at 0-1' below surface, respectively, were detected. Deeper samples were not collected due to a dense formation in the area.

However, the area of auger hole (AH-5) showed total BTEX concentrations of 567 mg/kg at 0-1', 462 mg/kg at 1-1.5', which then declined to 118 mg/kg at 2-2.5' BEB. The total BTEX was not vertically defined. Additionally, benzene concentrations above the RRAL were detected, with concentrations of 22.4 mg/kg at 0-1', 20 mg/kg at 1-1.5' below surface. The benzene declined with depth to below the RRAL with a concentration of 0.211 mg/kg at 2-2.5' BEB. Elevated TPH concentrations were also detected in the area of auger hole (AH-5) above the RRALs with concentrations of 5,710 mg/kg (0-1') and 5,790 mg/kg (1-1.5'). The TPH concentrations then declined with depth at 2.0-2.5' below surface, with a concentration of 437 mg/kg.

Work Plan

Due to the access issues in the area of auger hole (AH-5) associated with hand digging and safety concerns, the area will be treated with a Micro-Blaze product to aid in the degradation and natural attenuation of the hydrocarbon impact. Additionally, based on the TPH concentrations detected in the areas of (AH-1, AH-2, AH-4, AH-6, AH-8, AH-9, and AH-10), which are slightly above the RRAL, Marathon proposes to treat the areas with a Micro-Blaze product to aid in the degradation and natural attenuation of the hydrocarbon impact. The proposed remediation areas are highlighted (green) on Table 1. The area will be monitored and periodically sampled to ensure the degradation of the hydrocarbons.

Conclusion

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

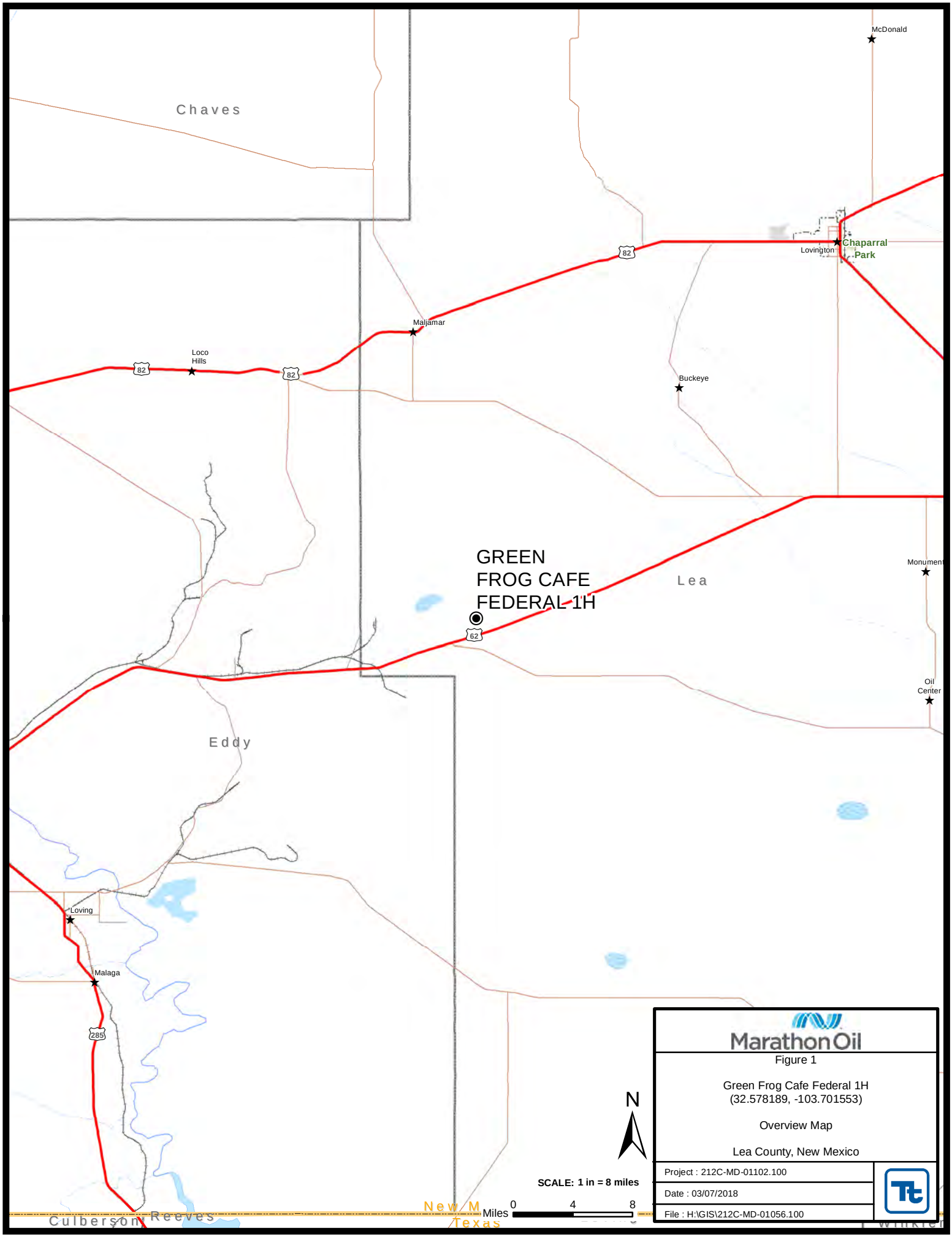
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

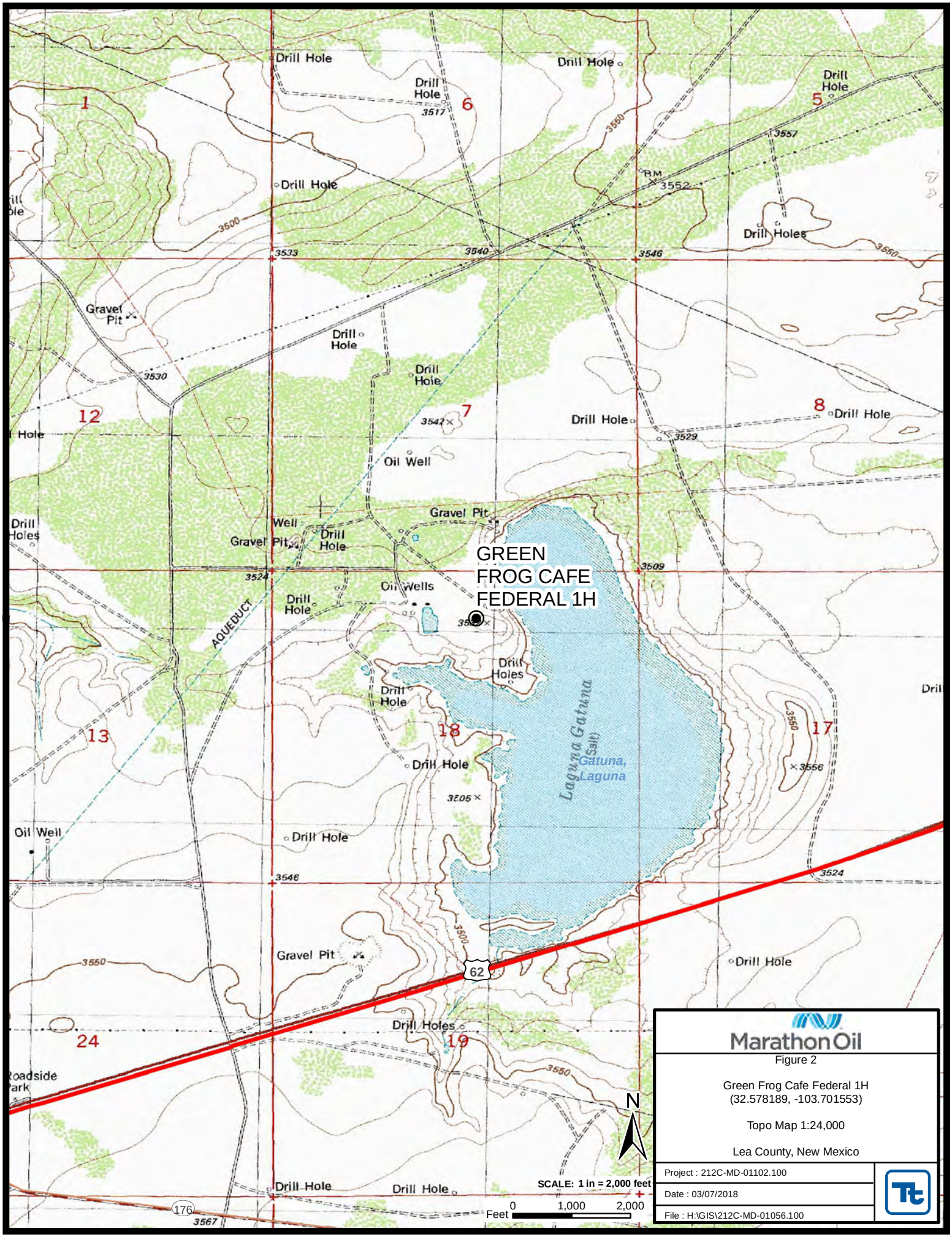
Ike Tavarez,
Senior Project Manager, P.G.

cc: Shelly Tucker – BLM
Henryetta Price – BLM
Callie Karrigan - Marathon

Figures



Mapped By: Isabel Marmolejo



Marathon Oil

Figure 2

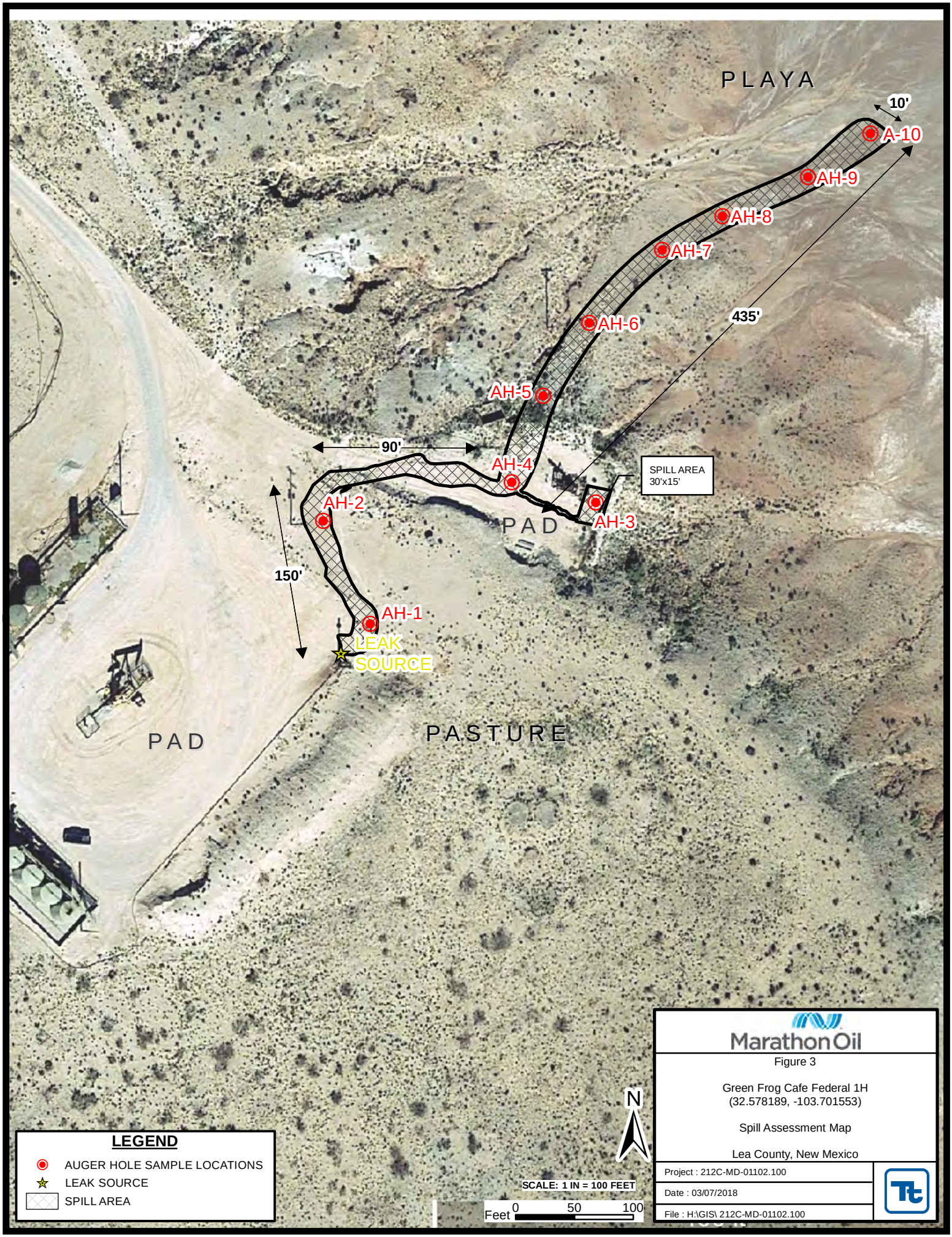
Green Frog Cafe Federal 1H
(32.578189, -103.701553)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-01102.100	
Date : 03/07/2018	
File : H:\GIS\212C-MD-01056.100	

Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo

Tables

Table 1
Marathon Oil Company
Green Frog Café Federal #1H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
				In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total					
Flare Stack, Edge of Pad and Adjacent Well Site														
AH-1	1/23/2018	0-1	0.5'	X		<15.0	137	16.7	**154**	0.0179	0.0307	0.0121	0.0280	0.0887
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	0.0137	0.00813	0.00484	<0.00346	0.0267
AH-2	1/23/2018	0.5	0.5'	X		135	508	82.2	**725**	0.0625	0.718	0.535	1.23	2.54
AH-3	1/23/2018	0-1	0.5'	X		<15.0	40.3	<15.0	40.3	0.00862	0.0532	0.0396	0.0985	0.200
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00334	0.00360	0.00358	<0.00334	0.00718
AH-4	1/23/2018	0-1	0.5'	X		59.4	283	41.6	**384**	0.00899	0.0317	0.135	0.441	0.617
Playa Area														
AH-5	1/23/2018	0-1	4.5'	X		**1,480**	**3,650**	**575**	**5,710**	**22.4**	191	113	241	**567**
	"	1-1.5		X		**2,010**	**3,290**	**492**	**5,790**	**20.0**	174	87.8	180	**462**
	"	2-2.5		X		93.1	302	41.6	**437**	0.211	22.8	26.6	68.0	**118**
AH-6	1/23/2018	0-1	1.5'	X		<14.9	116	<14.9	**116**	0.00702	0.0490	0.0240	0.0605	0.141
	"	1-1.5		X		<15.0	<15.0	<15.0	<15.0	0.00667	0.0157	0.00394	0.00874	0.0351
AH-7	1/23/2018	0-1	1.0'	X		<15.0	68.5	<15.0	68.5	<0.00202	0.00596	0.00530	0.0164	0.0277
	"	1-1.5		X		<15.0	28.4	<15.0	28.4	<0.00201	0.00349	<0.00201	0.00404	0.00753
AH-8	1/23/2018	0-1	0.5'	X		<15.0	167	55.4	**222**	0.00438	0.00704	<0.00199	<0.00199	0.0114
	"	1-1.5		X		<14.9	<14.9	<14.9	<14.9	<0.00198	0.00227	<0.00198	<0.00198	0.00227
AH-9	1/23/2018	0-1	1.0'	X		30.7	137	16.6	**184**	0.00350	0.0454	0.0413	0.103	0.193
	"	1-1.5		X		<15.0	<15.0	<15.0	<15.0	<0.00202	0.00217	<0.00202	<0.00202	0.00217
AH-10	1/23/2018	0-1	1.0'	X		38.9	186	26.2	**251**	0.00360	0.107	0.0773	0.181	0.369
	"	1-1.5		X		<15.0	<15.0	<15.0	<15.0	<0.00199	0.00207	<0.00199	<0.00199	0.00207

Proposed to Treat Areas with Micro-Blaze product.

BEB — Below Excavation Bottom - Excavation Bottom

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Permian LLC	Contact: Jason Wardell
Address: 5555 San Felipe St., Houston, TX 77056	Telephone No.: 575-297-0682
Facility Name: Green Frog Café Federal 1H	Facility Type: Oil Well

Surface Owner: Federal	Mineral Owner: Federal	API No.: 30-025-40828

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	18	20S	33E	810	FNL	2310	FEL	Lea

Latitude 32.5781898 **Longitude** -103.7015533 NAD83

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: 31 bbls	Volume Recovered: 2 bbls
Source of Release: Flare Stack	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: 01/09/2018 – 2330 HRS
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Notification via phone call to Shelly Tucker and email to Shelly Tucker and Oliva Yu	
By Whom? Jason Wardell	Date and Hour: 01/11/2018 1259 HRS	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

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

RECEIVED
By Olivia Yu at 10:18 am, Jan 17, 2018

Describe Cause of Problem and Remedial Action Taken.*
Mechanical failure of a back pressure valve on the flare line. Back pressure valve has been replaced and high level shut downs on vessels are being installed before the well is started back up. Earthen berm around Green Frog location will be installed to prevent potential future spills from getting off of location.

Describe Area Affected and Cleanup Action Taken.*
Oil spilled out of the flare stack onto the Green Frog Café location and ran down the road and off the side of the pad to the NE of the Green Frog Café location. Shovels and wheel borrows will be used to clean up the offsite spill and testing will be completed to ensure all impacted soil has been removed. Impacted caliche on location has been removed, disposed of and replaced.

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: *Jason Wardell*	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Printed Name: Jason Wardell		
Title: HES Professional	Approval Date: 1/17/2018	Expiration Date:
E-mail Address: jlwardell@marathonoil.com	Conditions of Approval: see attached directive	Attached ☑
Date: 01/16/2018 Phone: 575-297-06892		

* Attach Additional Sheets If Necessary

1RP-4937 nOY1801737259 pOY1801737638

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Marathon - Green Frog Café Federal #1H
Lea County, New Mexico

19 South 32 East

6	5	4	3	2	1
7	8 365	9	10	11	12
18	17	16	15	14	13 135 dry
19 102	20 345	21	22	23	24
30	29	28	27	26	25
31	32	33	34 250	35	36

19 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18 340	17 116	16	15	14	13
19	20	21	22	23	24
30	29	28 130 dry	27	26 92 85	25
31	32 185	33	34	35	36

19 South 34 East

6 244	5	4	3	2 100	1
7	8	9 29 28.6	10	11 123	12 60
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25 28
31 65	32	33	34	35	36

20 South 32 East

6	5	4	3	2	1 21.8
7	8	9	10	11	12
18 89	17	16	15	14	13
19	20	21	22	23	24 35
30 9.9	29	28	27 12.3	26	25
31	32	33	34	35	36 46

20 South 33 East

6	5 325 278	4 33	3	2	1
7	8	9	10	11	12
18 125	17	16	15 335	14	13
19	20	21	22	23	24 +300
30	29	28	27	26	25
31	32	33	34	35	36

20 South 34 East

6	5	4 125	3	2	1
7	8	9	10	11	12
18	17 128 140	16	15	14 150	13
19	20	21	22	23	24 270
30	29	28	27	26	25
31	32	33	34 82	35	36

21 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 630	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 SITE	34	35	36

21 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South 33 East

6	5	4	3	2 79 107	1
7	8	9	10	11 150	12
18 143	17	16	15	14	13
19	20	21	22	23	24
30	29	28 179	27	26	25
31	32	33 180	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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	Depth Well	Depth Water	Water Column
CP 00317		CP	LE	3	4	3	05	20S	33E	623054	3607235*	680	325	355
CP 00653 POD1		CP	LE		4	4	04	20S	33E	625573	3607367*	60		
CP 00748 POD1		CP	LE			2	01	20S	33E	630197	3608428*			
CP 00798 POD1		CP	LE	2	1	1	24	20S	33E	629348	3603892*	850		

Average Depth to Water: **325 feet**

Minimum Depth: **325 feet**

Maximum Depth: **325 feet**

Record Count: 4

PLSS Search:

Township: 20S **Range:** 33E

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

3/2/18 8:29 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: New Mexico | GO

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 323429103421601

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

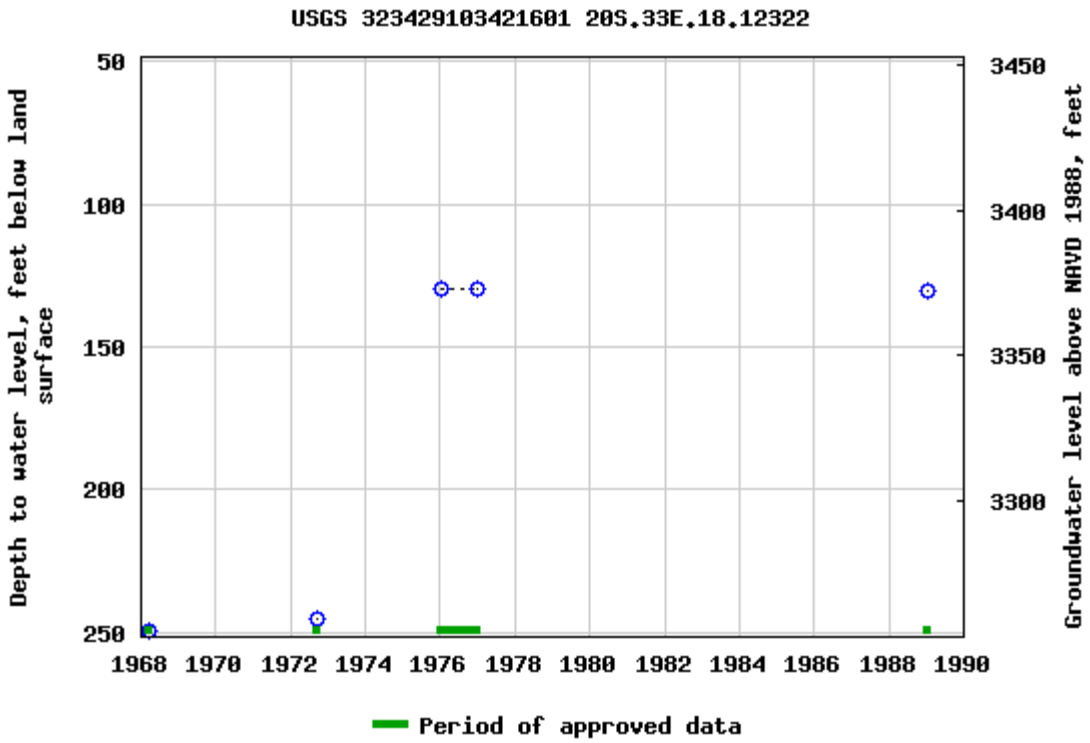
USGS 323429103421601 20S.33E.18.12322

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°34'29", Longitude 103°42'16" NAD27
Land-surface elevation 3,503 feet above NAVD88
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for New Mexico: Water Levels
URL: https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?

Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2018-03-02 11:14:14 EST
1.05 0.93 nadww01

Appendix C

Analytical Report 574500

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

Marathon-Green Frog Cafe Federal #1H

01-FEB-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), 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 (T104704400-17-13)
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)

01-FEB-18

Project Manager: **Ike Tavarez**
Tetra Tech- Midland
4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): **574500**
Marathon-Green Frog Cafe Federal #1H
Project Address: Lea County NM

Ike Tavarez:

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) 574500. 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. 574500 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 574500

Tetra Tech- Midland, Midland, TX

Marathon-Green Frog Cafe Federal #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	01-23-18 00:00	0 - 1 ft	574500-001
AH #1 (1-1.5')	S	01-23-18 00:00	1 - 1.5 ft	574500-002
AH #2 (0-6")	S	01-23-18 00:00	0 - 6 In	574500-003
AH #3 (0-1')	S	01-23-18 00:00	0 - 1 ft	574500-004
AH #3 (1-1.5')	S	01-23-18 00:00	1 - 1.5 ft	574500-005
AH #4 (0-1')	S	01-23-18 00:00	0 - 1 ft	574500-006
AH #5 (0-1') 4.5' BEB	S	01-23-18 00:00	0 - 1 ft	574500-007
AH #5 (1-1.5') 4.5' BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-008
AH #5 (2-2.2') 4.5' BEB	S	01-23-18 00:00	2 - 2.2 ft	574500-009
AH #6 (0-1') 1.5' BEB	S	01-23-18 00:00	0 - 1 ft	574500-010
AH #6 (1-1.5') 1.5' BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-011
AH #7 (0-1') 1'BEB	S	01-23-18 00:00	0 - 1 ft	574500-012
AH #7 (1-1.5') 1'BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-013
AH #8 (0-1')0.5' BEB	S	01-23-18 00:00	0 - 1 ft	574500-014
AH #8 (1-1.5') 0.5' BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-015
AH #9 (0-1') 1'BEB	S	01-23-18 00:00	0 - 1 ft	574500-016
AH #9 (1-1.5') 1'BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-017
AH #10 (0-1') 1'BEB	S	01-23-18 00:00	0 - 1 ft	574500-018
AH #10 (1-1.5') 1'BEB	S	01-23-18 00:00	1 - 1.5 ft	574500-019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3039315 BTEX by EPA 8021B

Lab Sample ID 574500-019 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 574500-001, -006, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

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

Batch: LBA-3039364 BTEX by EPA 8021B

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

Certificate of Analysis Summary 574500

Tetra Tech- Midland, Midland, TX

Project Name: Marathon-Green Frog Cafe Federal #1H

Project Id:

Contact: Ike Tavarez

Project Location: Lea County NM

Date Received in Lab: Thu Jan-25-18 09:35 am

Report Date: 01-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	574500-001		574500-002		574500-003		574500-004		574500-005		574500-006	
	Field Id:	AH #1 (0-1')		AH #1 (1-1.5')		AH #2 (0-6")		AH #3 (0-1')		AH #3 (1-1.5')		AH #4 (0-1')	
	Depth:	0-1 ft		1-1.5 ft		0-6 In		0-1 ft		1-1.5 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Jan-25-18 16:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-25-18 16:00	
	Analyzed:	Jan-25-18 21:46		Jan-26-18 16:56		Jan-26-18 17:52		Jan-26-18 18:09		Jan-26-18 18:28		Jan-25-18 23:21	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.0179	0.00200	0.0137	0.00346	0.0625	0.00360	0.00862	0.00341	<0.00334	0.00334	0.00899	0.00200
Toluene		0.0307	0.00200	0.00813	0.00346	0.718	0.00360	0.0532	0.00341	0.00360	0.00334	0.0317	0.00200
Ethylbenzene		0.0121	0.00200	0.00484	0.00346	0.535	0.00360	0.0396	0.00341	0.00358	0.00334	0.135	0.00200
m,p-Xylenes		0.0191	0.00401	<0.00692	0.00692	0.845	0.00719	0.0675	0.00683	<0.00669	0.00669	0.283	0.00401
o-Xylene		0.00890	0.00200	<0.00346	0.00346	0.381	0.00360	0.0310	0.00341	<0.00334	0.00334	0.158	0.00200
Total Xylenes		0.0280	0.00200	<0.00346	0.00346	1.23	0.00360	0.0985	0.00341	<0.00334	0.00334	0.441	0.00200
Total BTEX		0.0887	0.00200	0.0267	0.00346	2.54	0.00360	0.200	0.00341	0.00718	0.00334	0.617	0.00200
TPH By SW8015 Mod	***Extracted:***	Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00	
	Analyzed:	Jan-26-18 13:19		Jan-26-18 14:19		Jan-26-18 14:40		Jan-26-18 14:59		Jan-26-18 15:20		Jan-26-18 15:40	
	Units/RL:	mg/kg	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	135	15.0	<15.0	15.0	<15.0	15.0	59.4	15.0
Diesel Range Organics (DRO)		137	15.0	<15.0	15.0	508	15.0	40.3	15.0	<15.0	15.0	283	15.0
Oil Range Hydrocarbons (ORO)		16.7	15.0	<15.0	15.0	82.2	15.0	<15.0	15.0	<15.0	15.0	41.6	15.0
Total TPH		154	15.0	<15.0	15.0	725	15.0	40.3	15.0	<15.0	15.0	384	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 574500

Tetra Tech- Midland, Midland, TX

Project Name: Marathon-Green Frog Cafe Federal #1H

Project Id:
Contact: Ike Tavarez
Project Location: Lea County NM

Date Received in Lab: Thu Jan-25-18 09:35 am
Report Date: 01-FEB-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	574500-007		574500-008		574500-009		574500-010		574500-011		574500-012	
	Field Id:	AH #5 (0-1') 4.5' BEB		AH #5 (1-1.5') 4.5' BEB		AH #5 (2-2.2') 4.5' BEB		AH #6 (0-1') 1.5' BEB		AH #6 (1-1.5') 1.5' BEB		AH #7 (0-1') 1'BEB	
	Depth:	0-1 ft		1-1.5 ft		2-2.2 ft		0-1 ft		1-1.5 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00	
	Analyzed:	Jan-25-18 23:38		Jan-25-18 23:58		Jan-26-18 00:17		Jan-26-18 00:36		Jan-26-18 01:33		Jan-26-18 01:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		22.4 D	0.994	20.0 D	0.998	0.211	0.00200	0.00702	0.00199	0.00667	0.00200	<0.00202	0.00202
Toluene		191 D	0.994	174 D	0.998	22.8 D	1.00	0.0490	0.00199	0.0157	0.00200	0.00596	0.00202
Ethylbenzene		113 D	0.994	87.8 D	0.998	26.6 D	1.00	0.0240	0.00199	0.00394	0.00200	0.00530	0.00202
m,p-Xylenes		175 D	1.99	133 D	2.00	50.0 D	2.00	0.0412	0.00398	0.00594	0.00399	0.0106	0.00404
o-Xylene		65.7 D	0.994	47.3 D	0.998	18.0 D	1.00	0.0193	0.00199	0.00280	0.00200	0.00581	0.00202
Total Xylenes		241	0.994	180	0.998	68.0	1.00	0.0605	0.00199	0.00874	0.00200	0.0164	0.00202
Total BTEX		567	0.994	462	0.998	118	0.00200	0.141	0.00199	0.0351	0.00200	0.0277	0.00202
TPH By SW8015 Mod	***Extracted:***	Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00	
	Analyzed:	Jan-26-18 16:00		Jan-26-18 16:20		Jan-26-18 16:40		Jan-26-18 17:02		Jan-26-18 18:02		Jan-26-18 18:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		1480	75.0	2010	74.9	93.1	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		3650	75.0	3290	74.9	302	15.0	116	14.9	<15.0	15.0	68.5	15.0
Oil Range Hydrocarbons (ORO)		575	75.0	492	74.9	41.6	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		5710	75.0	5790	74.9	437	15.0	116	14.9	<15.0	15.0	68.5	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 574500

Tetra Tech- Midland, Midland, TX

Project Name: Marathon-Green Frog Cafe Federal #1H

Project Id:

Contact: Ike Tavarez

Project Location: Lea County NM

Date Received in Lab: Thu Jan-25-18 09:35 am

Report Date: 01-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	574500-013		574500-014		574500-015		574500-016		574500-017		574500-018	
	Field Id:	AH #7 (1-1.5') 1'BEB		AH #8 (0-1')0.5' BEB		AH #8 (1-1.5') 0.5' BEB		AH #9 (0-1') 1'BEB		AH #9 (1-1.5') 1'BEB		AH #10 (0-1') 1'BEB	
	Depth:	1-1.5 ft		0-1 ft		1-1.5 ft		0-1 ft		1-1.5 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00		Jan-23-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00		Jan-25-18 16:00	
	Analyzed:	Jan-26-18 02:11		Jan-26-18 02:30		Jan-26-18 02:49		Jan-26-18 03:08		Jan-26-18 03:27		Jan-26-18 03:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	0.00438	0.00199	<0.00198	0.00198	0.00350	0.00201	<0.00202	0.00202	0.00360	0.00200
Toluene		0.00349	0.00201	0.00704	0.00199	0.00227	0.00198	0.0454	0.00201	0.00217	0.00202	0.107	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00199	0.00199	<0.00198	0.00198	0.0413	0.00201	<0.00202	0.00202	0.0773	0.00200
m,p-Xylenes		0.00404	0.00402	<0.00398	0.00398	<0.00397	0.00397	0.0702	0.00402	<0.00403	0.00403	0.122	0.00401
o-Xylene		<0.00201	0.00201	<0.00199	0.00199	<0.00198	0.00198	0.0330	0.00201	<0.00202	0.00202	0.0587	0.00200
Total Xylenes		0.00404	0.00201	<0.00199	0.00199	<0.00198	0.00198	0.103	0.00201	<0.00202	0.00202	0.181	0.00200
Total BTEX		0.00753	0.00201	0.0114	0.00199	0.00227	0.00198	0.193	0.00201	0.00217	0.00202	0.369	0.00200
TPH By SW8015 Mod	***Extracted:***	Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00		Jan-26-18 08:00	
	Analyzed:	Jan-26-18 18:44		Jan-26-18 19:04		Jan-26-18 19:27		Jan-26-18 19:48		Jan-26-18 20:08		Jan-26-18 20:29	
	Units/RL:	mg/kg	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	<14.9	14.9	30.7	15.0	<15.0	15.0	38.9	15.0
Diesel Range Organics (DRO)		28.4	15.0	167	15.0	<14.9	14.9	137	15.0	<15.0	15.0	186	15.0
Oil Range Hydrocarbons (ORO)		<15.0	15.0	55.4	15.0	<14.9	14.9	16.6	15.0	<15.0	15.0	26.2	15.0
Total TPH		28.4	15.0	222	15.0	<14.9	14.9	184	15.0	<15.0	15.0	251	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 574500

Tetra Tech- Midland, Midland, TX

Project Name: Marathon-Green Frog Cafe Federal #1H

Project Id:
Contact: Ike Tavarez
Project Location: Lea County NM

Date Received in Lab: Thu Jan-25-18 09:35 am
Report Date: 01-FEB-18
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	574500-019					
	Field Id:	AH #10 (1-1.5') 1'BEB					
	Depth:	1-1.5 ft					
	Matrix:	SOIL					
	Sampled:	Jan-23-18 00:00					
BTEX by EPA 8021B	***Extracted:***	Jan-25-18 16:00					
	Analyzed:	Jan-26-18 04:06					
	Units/RL:	mg/kg	RL				
Benzene		<0.00199	0.00199				
Toluene		0.00207	0.00199				
Ethylbenzene		<0.00199	0.00199				
m,p-Xylenes		<0.00398	0.00398				
o-Xylene		<0.00199	0.00199				
Total Xylenes		<0.00199	0.00199				
Total BTEX		0.00207	0.00199				
TPH By SW8015 Mod	***Extracted:***	Jan-26-18 08:00					
	Analyzed:	Jan-26-18 20:50					
	Units/RL:	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0				
Diesel Range Organics (DRO)		<15.0	15.0				
Oil Range Hydrocarbons (ORO)		<15.0	15.0				
Total TPH		<15.0	15.0				

Kelsey Brooks
Project Manager

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

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039315 **Sample:** 574500-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 21:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0258	0.0300	86	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 3039315 **Sample:** 574500-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 23:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0246	0.0300	82	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 3039364 **Sample:** 574500-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 23:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0246	0.0300	82	80-120	
4-Bromofluorobenzene	0.0343	0.0300	114	80-120	

Lab Batch #: 3039364 **Sample:** 574500-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 23:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 3039364 **Sample:** 574500-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 00:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0321	0.0300	107	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039315 **Sample:** 574500-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 00:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 3039315 **Sample:** 574500-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 01:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0250	0.0300	83	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 3039315 **Sample:** 574500-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 01:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	80-120	
4-Bromofluorobenzene	0.0257	0.0300	86	80-120	

Lab Batch #: 3039315 **Sample:** 574500-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 02:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0267	0.0300	89	80-120	

Lab Batch #: 3039315 **Sample:** 574500-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 02:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0254	0.0300	85	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039315 **Sample:** 574500-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 02:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0252	0.0300	84	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 3039315 **Sample:** 574500-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 03:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 3039315 **Sample:** 574500-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 03:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0242	0.0300	81	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 3039315 **Sample:** 574500-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 03:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0246	0.0300	82	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 3039315 **Sample:** 574500-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 04:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0249	0.0300	83	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039409 **Sample:** 574500-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 13:19

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	51.7	50.0	103	70-135	

Lab Batch #: 3039409 **Sample:** 574500-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 14:19

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	99.8	112	70-135	
o-Terphenyl	57.4	49.9	115	70-135	

Lab Batch #: 3039409 **Sample:** 574500-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 14:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.8	109	70-135	
o-Terphenyl	55.9	49.9	112	70-135	

Lab Batch #: 3039409 **Sample:** 574500-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 14:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	99.9	114	70-135	
o-Terphenyl	58.4	50.0	117	70-135	

Lab Batch #: 3039409 **Sample:** 574500-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 15:20

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	99.7	108	70-135	
o-Terphenyl	55.7	49.9	112	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039409 **Sample:** 574500-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 15:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.7	106	70-135	
o-Terphenyl	54.7	49.9	110	70-135	

Lab Batch #: 3039409 **Sample:** 574500-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 16:00

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	62.5	50.0	125	70-135	

Lab Batch #: 3039409 **Sample:** 574500-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 16:20

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.9	115	70-135	
o-Terphenyl	57.9	50.0	116	70-135	

Lab Batch #: 3039409 **Sample:** 574500-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 16:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	55.2	50.0	110	70-135	

Lab Batch #: 3039364 **Sample:** 574500-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 16:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039409 **Sample:** 574500-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 17:02

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.6	99.6	100	70-135	
o-Terphenyl	50.9	49.8	102	70-135	

Lab Batch #: 3039364 **Sample:** 574500-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 17:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 3039409 **Sample:** 574500-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:02

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	52.8	50.0	106	70-135	

Lab Batch #: 3039364 **Sample:** 574500-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 3039409 **Sample:** 574500-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:22

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.8	102	70-135	
o-Terphenyl	50.6	49.9	101	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039364 **Sample:** 574500-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 3039409 **Sample:** 574500-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:44

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.8	105	70-135	
o-Terphenyl	52.3	49.9	105	70-135	

Lab Batch #: 3039364 **Sample:** 574500-007 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 18:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0252	0.0300	84	80-120	
4-Bromofluorobenzene	0.0332	0.0300	111	80-120	

Lab Batch #: 3039409 **Sample:** 574500-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 19:04

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.8	99.8	99	70-135	
o-Terphenyl	50.2	49.9	101	70-135	

Lab Batch #: 3039364 **Sample:** 574500-008 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 19:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0250	0.0300	83	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039364 **Sample:** 574500-009 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 19:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0246	0.0300	82	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 3039409 **Sample:** 574500-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 19:27

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.2	99.6	91	70-135	
o-Terphenyl	46.7	49.8	94	70-135	

Lab Batch #: 3039409 **Sample:** 574500-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 19:48

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	52.2	49.9	105	70-135	

Lab Batch #: 3039409 **Sample:** 574500-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 20:08

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

Lab Batch #: 3039409 **Sample:** 574500-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 20:29

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.7	107	70-135	
o-Terphenyl	55.1	49.9	110	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039409 **Sample:** 574500-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 20:50

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.9	99.8	98	70-135	
o-Terphenyl	50.0	49.9	100	70-135	

Lab Batch #: 3039315 **Sample:** 7638086-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/25/18 21:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0259	0.0300	86	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 3039364 **Sample:** 7638117-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 10:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 3039409 **Sample:** 7638140-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 12:19

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	59.6	50.0	119	70-135	

Lab Batch #: 3039315 **Sample:** 7638086-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/25/18 19:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039364 **Sample:** 7638117-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 08:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 3039409 **Sample:** 7638140-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 12:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	50.7	50.0	101	70-135	

Lab Batch #: 3039315 **Sample:** 7638086-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/25/18 19:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 3039364 **Sample:** 7638117-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 09:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 3039409 **Sample:** 7638140-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/26/18 12:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	56.5	50.0	113	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039315 **Sample:** 574500-019 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 20:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

Lab Batch #: 3039364 **Sample:** 574549-006 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 09:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

Lab Batch #: 3039409 **Sample:** 574500-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 13:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.6	130	70-135	
o-Terphenyl	55.6	49.8	112	70-135	

Lab Batch #: 3039315 **Sample:** 574500-019 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/25/18 20:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0323	0.0300	108	80-120	

Lab Batch #: 3039364 **Sample:** 574549-006 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 09:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0340	0.0300	113	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Orders : 574500,

Project ID:

Lab Batch #: 3039409 **Sample:** 574500-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/26/18 13:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.7	107	70-135	
o-Terphenyl	52.3	49.9	105	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Order #: 574500 **Project ID:**

Analyst: ALJ **Date Prepared:** 01/25/2018 **Date Analyzed:** 01/25/2018

Lab Batch ID: 3039315 **Sample:** 7638086-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.0872	87	0.101	0.0898	89	3	70-130	35	
Toluene	<0.00200	0.100	0.0897	90	0.101	0.0947	94	5	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0966	97	0.101	0.0978	97	1	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.190	95	0.202	0.194	96	2	70-135	35	
o-Xylene	<0.00200	0.100	0.0948	95	0.101	0.0973	96	3	71-133	35	

Analyst: ALJ **Date Prepared:** 01/26/2018 **Date Analyzed:** 01/26/2018

Lab Batch ID: 3039364 **Sample:** 7638117-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.0998	0.0936	94	0.100	0.0912	91	3	70-130	35	
Toluene	<0.00200	0.0998	0.0969	97	0.100	0.0944	94	3	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.103	103	0.100	0.101	101	2	71-129	35	
m,p-Xylenes	<0.00399	0.200	0.203	102	0.201	0.200	100	1	70-135	35	
o-Xylene	<0.00200	0.0998	0.100	100	0.100	0.0991	99	1	71-133	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Order #: 574500 **Project ID:**

Analyst: ARM **Date Prepared:** 01/26/2018 **Date Analyzed:** 01/26/2018

Lab Batch ID: 3039409 **Sample:** 7638140-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	920	92	1000	850	85	8	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1040	104	1000	946	95	9	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Order # : 574500 **Project ID:**

Lab Batch ID: 3039315 **QC- Sample ID:** 574500-019 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/25/2018 **Date Prepared:** 01/25/2018 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.0778	77	0.101	0.0684	68	13	70-130	35	X
Toluene	0.00207	0.101	0.0792	76	0.101	0.0695	67	13	70-130	35	X
Ethylbenzene	<0.00202	0.101	0.0835	83	0.101	0.0711	70	16	71-129	35	X
m,p-Xylenes	<0.00404	0.202	0.164	81	0.201	0.138	69	17	70-135	35	X
o-Xylene	<0.00202	0.101	0.0815	81	0.101	0.0698	69	15	71-133	35	X

Lab Batch ID: 3039364 **QC- Sample ID:** 574549-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/26/2018 **Date Prepared:** 01/26/2018 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00201	0.100	0.0729	73	0.101	0.0767	76	5	70-130	35	
Toluene	<0.00201	0.100	0.0745	75	0.101	0.0781	77	5	70-130	35	
Ethylbenzene	0.00442	0.100	0.0767	72	0.101	0.0799	75	4	71-129	35	
m,p-Xylenes	0.0124	0.201	0.151	69	0.201	0.157	72	4	70-135	35	X
o-Xylene	0.00981	0.100	0.0773	67	0.101	0.0850	74	9	71-133	35	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Marathon-Green Frog Cafe Federal #1H

Work Order # : 574500 **Project ID:**

Lab Batch ID: 3039409 **QC- Sample ID:** 574500-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/26/2018 **Date Prepared:** 01/26/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<14.9	996	971	97	997	935	94	4	70-135	35	
Diesel Range Organics (DRO)	137	996	1150	102	997	1130	100	2	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland,Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

574500

Client Name: Marathon	Site Manager: Ike Tavarez
Project Name: Green Frog Café Federal #1H	
Project Location: (county, state) Lea County, New Mexico	Project #:
Invoice to: Tetra Tech, Inc.	
Receiving Laboratory: Xenco Midland Tx	Sampler Signature: Mike Carmona
Comments:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None		# CONTAINERS	FILTERED (Y/N)	BTEX 8260B	BTEX 8021B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
		YEAR: 2017																																	
	AH #1 (0-1')	1/23/2018			X				X			1	N	X		X																			
	AH #1 (1'-1.5')	1/23/2018			X				X			1	N	X		X																			
	AH #2 (0-6")	1/23/2018			X				X			1	N	X		X																			
	AH #3 (0-1')	1/23/2018			X				X			1	N	X		X																			
	AH #3 (1'-1.5')	1/23/2018			X				X			1	N	X		X																			
	AH #4 (0-1')	1/23/2018			X				X			1	N	X		X																			
	AH #5 (0-1') 4.5'BEB	1/23/2018			X				X			1	N	X		X																			
	AH #5 (1'-1.5') 4.5' BEB	1/23/2018			X				X			1	N	X		X																			
	AH #5 (2'-2.5') 4.5' BEB	1/23/2018			X				X			1	N	X		X																			
	AH #6 (0-1') 1.5' BEB	1/23/2018			X				X			1	N	X		X																			

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Mike Carmona	Date: 1-25-18	Time: 935
Relinquished by:	Date:	Time:
Relinquished by:	Date:	Time:
Received by: PKRAMER	Date:	Time:
Received by:	Date:	Time:
Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

REMARKS:

STANDARD

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) H

Temp: 0.4 IR ID:R-8

CF:(0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: 0.2

ORIGINAL COPY

Final 1.000

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland,Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

574500

Client Name: Marathon	Site Manager: Ike Tavarez
Project Name: Green Frog Café Federal #1H	
Project Location: (county, state) Lea County, New Mexico	Project #:
Invoice to: Tetra Tech, Inc.	
Receiving Laboratory: Xenco Midland Tx	Sampler Signature: Mike Carmona
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2017 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None		# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	AH #6 (1'-1.5') 1.5' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #7 (0-1') 1' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #7 (1'-1.5') 1' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #8 (0-1') 0.5' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #8 (1'-1.5') 0.5' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #9 (0-1') 1' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #9 (1'-1.5') 1' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #10 (0-1') 1' BEB	1/23/2018			X				X			1	N	X		X																		
	AH #10 (1'-1.5') 1' BEB	1/23/2018			X				X			1	N	X		X																		

Relinquished by: Mike Carmona	Date: 1-25-18	Time: 935	Received by: DKRAMER
Relinquished by:	Date:	Time:	Received by: Date: Time:
Relinquished by:	Date:	Time:	Received by: Date: Time:

LAB USE ONLY

Sample Temperature

REMARKS:

STANDARD

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND D

Temp: 0.4 IR ID:R-8

CF:(0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: 0.2

ORIGINAL COPY

Final 1.000

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 01/25/2018 09:35:00 AM

Work Order #: 574500

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: Jessica Kramer Date: 01/25/2018

Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 01/25/2018

Kelsey Brooks