SITE INFORMATION

Report Type: Work Plan 2RP-4959

General Site Information:						
Site:	**El Presidente State #4H**					
Company:	**Marathon Oil Permian, LLC**					
Section, Township and Range	**Unit O**	**Sec. 02**	**T 24S**	**R 27E**		
Lease Number:	**API No. 30-015-44165**					
County:	**Eddy County**					
GPS:	**32.2400799º N**			**104.153171º W**		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of US 285 and Black River Village Rd in Malaga, travel west on Black River Village for approximatey 1.7 mi, turn north onto Higby Hole Rd for approx. 2.85 mi, turn west and continue for 2.05 mi, turn south for 2.0 miles to location.					

Release Data:	
Date Released:	12/24/2017
Type Release:	Oil and Produced Water
Source of Contamination:	Oil Tank
Fluid Released:	91 bbls
Fluids Recovered:	13 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***	*50'-75'*
>100 ft.	0	
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*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	*0*
Total Ranking Score:	***10***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	1,000

TETRA TECH

May 7, 2018

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

Re: Work Plan for the Marathon Oil Company, El Presidente State #4H, Unit O, Section 02, Township 24 South, Range 27 East, Eddy County, New Mexico. 2RP-4557.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Marathon Oil Company (Marathon) to investigate and assess a release that occurred at the El Presidente State #4H, Unit O, Section 02, Township 24 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.2400799º, W 104.153171º. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on December 24, 2017, and released approximately ninety-one (91) barrels of fluids (89 bbls of oil and 2 bbls of produced water) due to a water hauler failing to disconnect from the load line prior to disembarking. Approximately thirteen (13) barrels of fluids were recovered. The release occurred on the pad area and measured approximately 150' x 200' and approximately 3.7 barrels of fluids migrated into the adjacent pasture impacting an area measuring approximately 30' x 125'. The initial C-141 form is included in Appendix A.

Groundwater

No wells are listed within Section 02 in the New Mexico Office of the State Engineers database, the USGS National Water Information System, or the Geology and Ground-Water Resources of Eddy County, NM (Report 3). However, the State Engineers database lists a well in Township 23 South, Range 27 East, Section 35, approximately 1.45 miles northwest of the site, with a reported depth to water of 67' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 50' and 75' below surface. The groundwater data is shown in Appendix B.

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

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 depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

On February 22, 2018, Tetra Tech personnel were onsite to evaluate and sample the release area. Eight auger holes (AH-1 through AH-8) were installed in the release footprint to total depths ranging from 6" to 4.5' below surface. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. 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 in Figure 3.

TPH

Referring to Table 1, the areas of auger holes (AH-1, AH-3, and AH-4) showed TPH highs below the RRAL with concentrations of 209 mg/kg (AH-1), 599 mg/kg (AH-3), and 18.0 mg/kg (AH-4). The remaining auger hole locations showed elevated TPH concentrations to the shallow soils. The areas of auger holes (AH-2, AH-5, AH-6, AH-7, and AH-8) showed TPH highs of 16,100 mg/kg (0-6"), 45,700 mg/kg (0-1'), 10,500 mg/kg (0-1'), 15,000 mg/kg (0-1'), and 7,640 mg/kg (0-1'), respectively. The TPH concentrations declined with depth in the areas of auger holes (AH-5, AH-5, AH-7, and AH-8) to below the RRAL at depths ranging from 1.0'-1.5' to 3.0'-3.5' below surface. However, deeper samples were not collected in the area of auger hole (AH-2) due to a dense formation and the impact was not vertically defined.

Benzene and Total BTEX

The areas of auger holes (AH-1, AH-2, and AH-3) did not show any benzene or total BTEX concentrations above the RRALs. The area of auger hole (AH-5) showed a benzene concentration of 28.3 mg/kg at 0-1', which declined with depth to 13.8 mg/kg at 1.0'-1.5' and <0.101 mg/kg at 2.0'-2.5' below surface. None of the remaining areas showed benzene concentrations above 10 mg/kg. Additionally, the areas of auger holes (AH-5, AH-6, AH-7, and AH-8) showed total BTEX concentrations above the RRAL in the shallow soils, with BTEX highs of 870 mg/kg (1.0'-1.5'), 309 mg/kg (0-1'), 412 mg/kg (0-1'), and 101 mg/kg (0-1'), respectively. The BTEX concentrations then declined with depth to below the RRAL's at depths between 1.0'-1.5' and 2.0'-2.5' below surface.

Chloride

The areas of auger holes (AH-1, AH-4, AH-5, AH-6, and AH-8) did not show elevated chloride concentrations above the 600 mg/kg threshold. However, a shallow chloride impact was detected in the areas of auger holes (AH-2, AH-3, and AH-7), with concentrations of 1,510 mg/kg, 2,000 mg/kg, and 2,900 mg/kg at 0-1' below surface, respectively. The chloride concentrations detected in auger hole (AH-7) declined with depth to 73.7 mg/kg at 1.0'-1.5' below surface. Deeper samples were not collected in the areas of auger holes (AH-2 and AH-3) due to a dense formation and the chloride impact was not vertically defined.

Work Plan

Based on the laboratory results, Marathon proposes to remove the impacted soils as shown on Figure 4 and highlighted (green) on Table 1. The areas of auger holes (AH-2, AH-3, AH-6, AH--7 and AH-8) will be excavated to approximately 1.0'-2.0' below surface and the area of auger hole (AH-5) will be excavated to approximately 2.0'-3.0' below surface. During the excavation activities, deeper samples will be collected using a backhoe in the areas of auger holes (AH-2 and AH-3) in order to vertically define the extents. Based on the results those areas will be excavated to the appropriate depths. The excavated areas will then be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns for onsite personnel. As such, Marathon will excavate the impacted soils to the maximum extent practicable.

Revegetation Plan

The backfilled areas in the pasture will be seeded in June 2018 in order to coincide with the rainy season in Southeastern New Mexico to aid in revegetation. Based on the soils at the site, the NMSLO Loamy (L) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix D.

TETRA TECH

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.

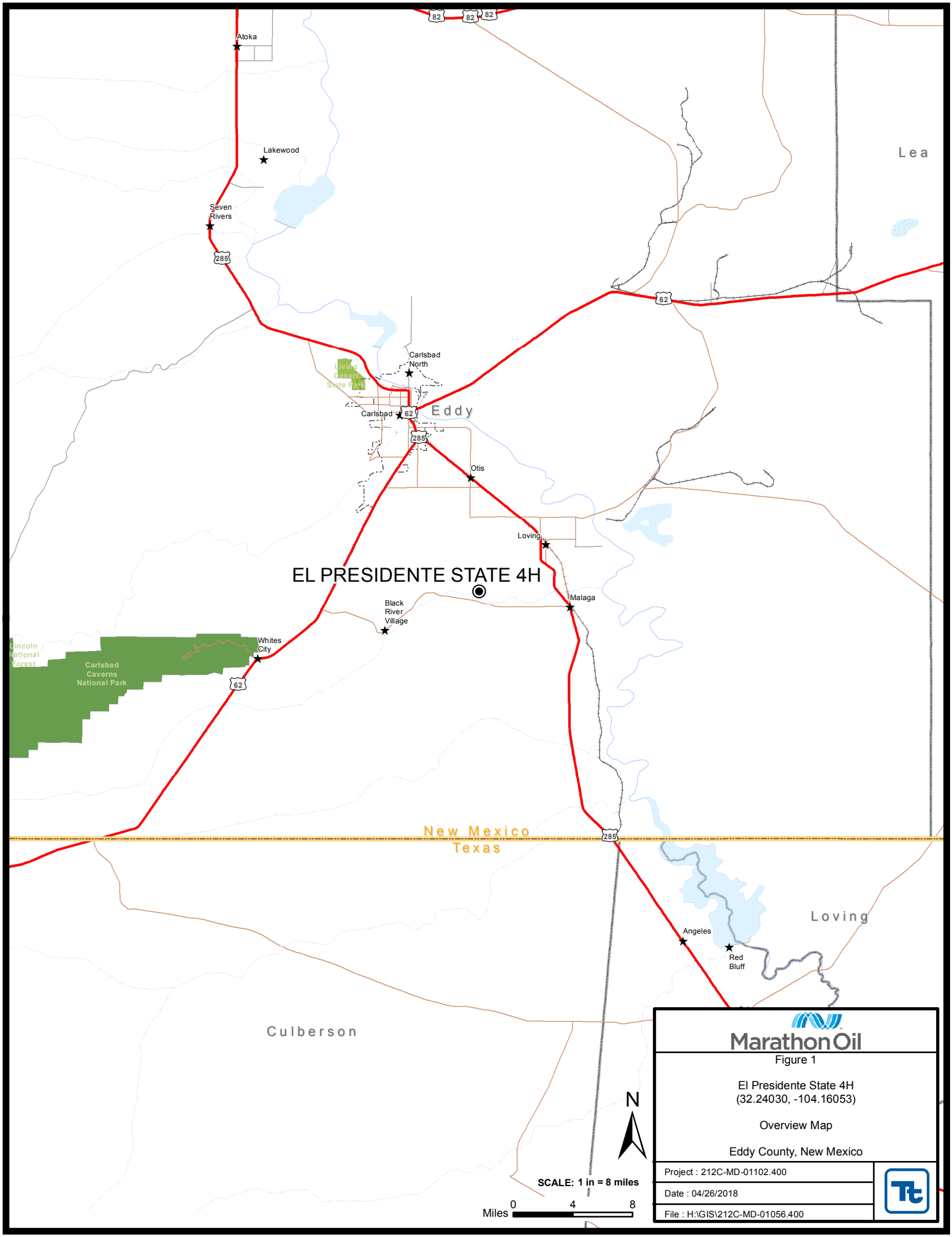
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

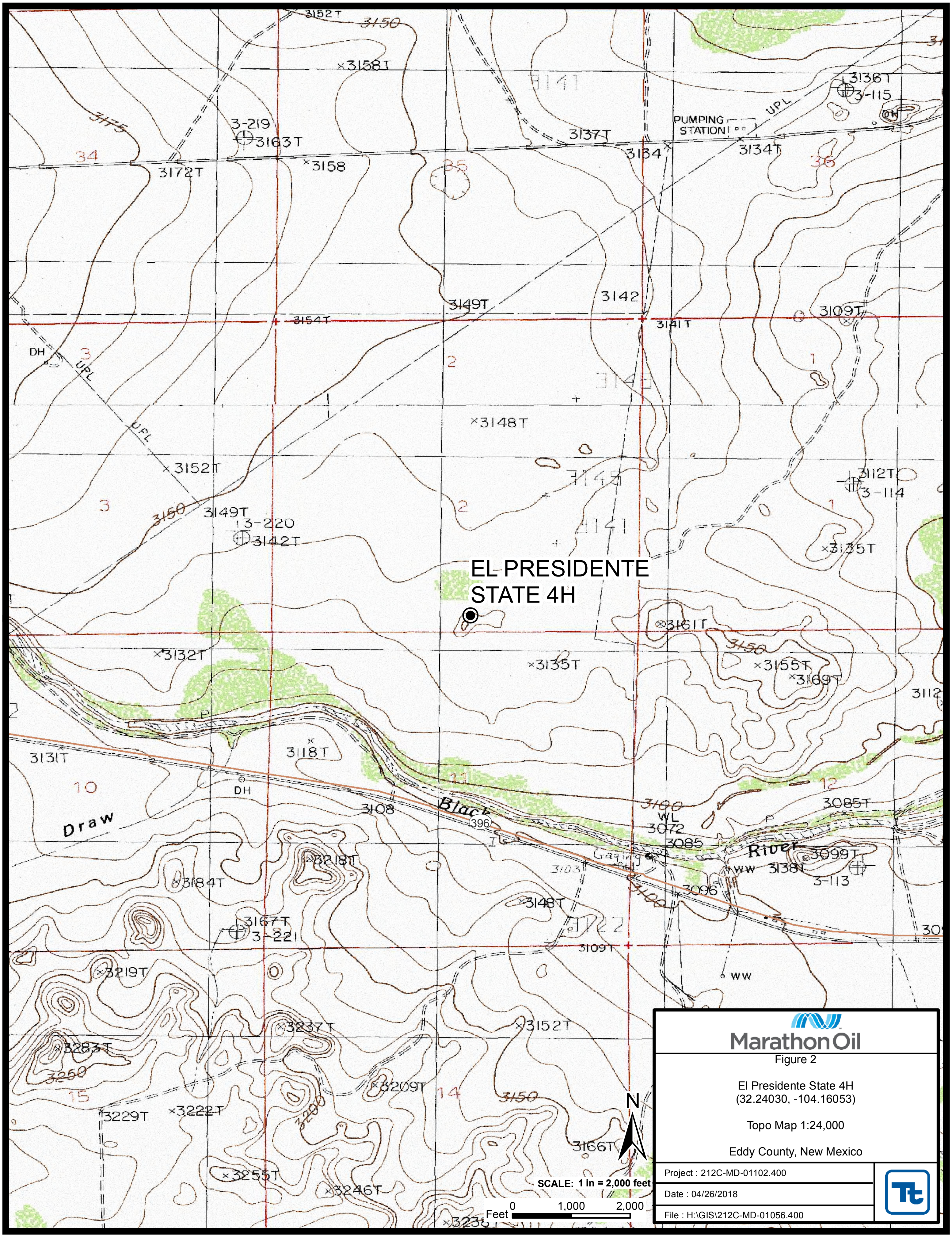
Ike Tavarez,
Senior Project Manager, P.G.

cc: Crystal Weaver – NMOCD
Ryan Mann - NMSLO
Callie Karrigan - Marathon

Figures



Mapped By: Isabel Marmolejo



Marathon Oil

Figure 2

El Presidente State 4H
(32.24030, -104.16053)

Topo Map 1:24,000

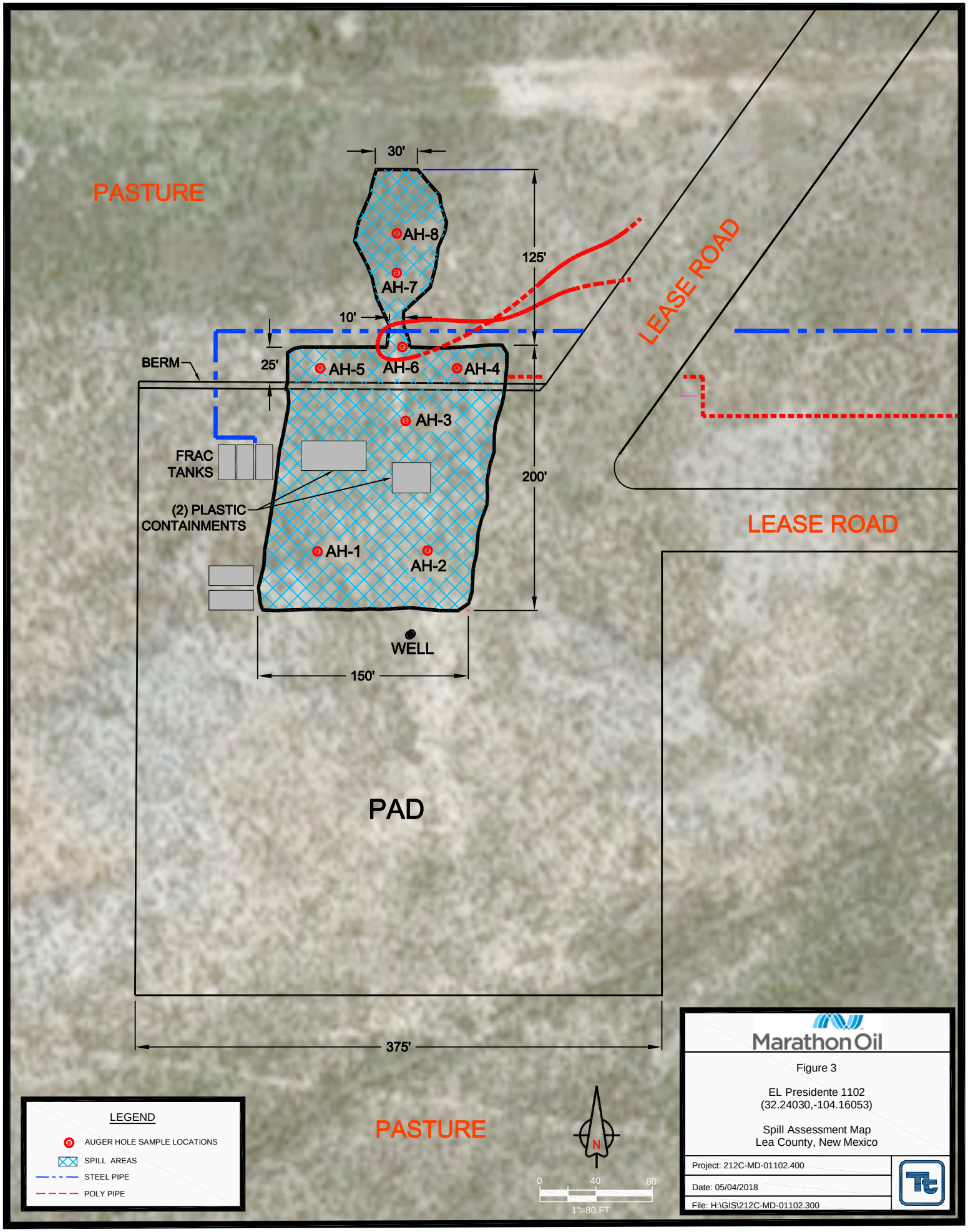
Eddy County, New Mexico

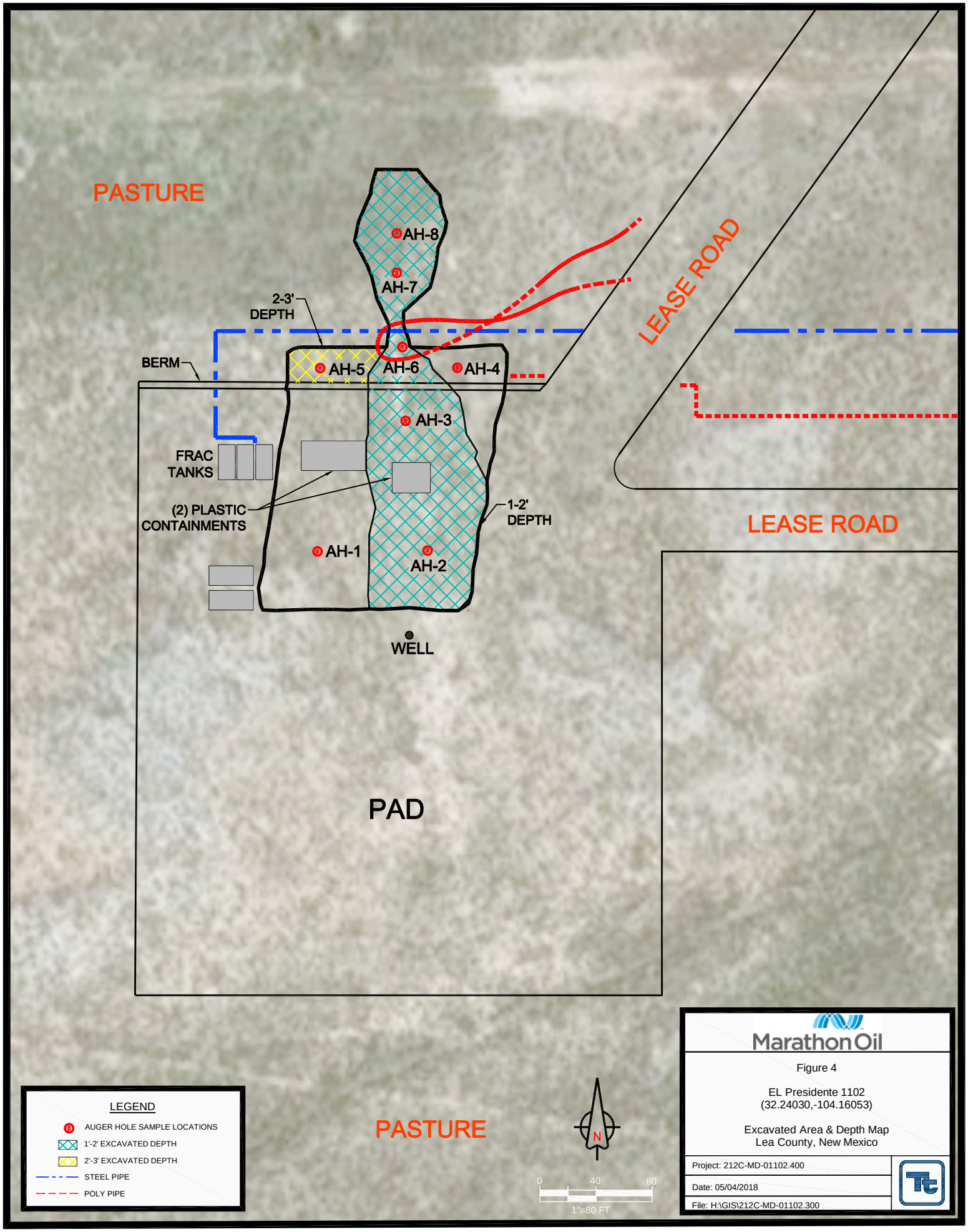
Project : 212C-MD-01102.400

Date : 04/26/2018

File : H:\GIS\212C-MD-01056.400

Mapped By: Isabel Marmolejo


PASTURE
30'
AH-8
AH-7
125'
10'
LEASE ROAD
BERM
25'
AH-5
AH-6
AH-4
AH-3
FRAC
TANKS
200'
(2) PLASTIC
CONTAINMENTS
LEASE ROAD
AH-1
AH-2
WELL
150'
PAD
375'
PASTURE
N
0
40
80
1"=80 FT
LEGEND
AUGER HOLE SAMPLE LOCATIONS
SPILL AREAS
STEEL PIPE
POLY PIPE
Marathon Oil
Figure 3
EL Presidente 1102
(32.24030,-104.16053)
Spill Assessment Map
Lea County, New Mexico
Project: 212C-MD-01102.400
Date: 05/04/2018
File: H:\GIS\212C-MD-01102.300


PASTURE
AH-8
AH-7
2-3'
DEPTH
LEASE ROAD
BERM
AH-5
AH-6
AH-4
AH-3
FRAC
TANKS
(2) PLASTIC
CONTAINMENTS
1-2'
DEPTH
LEASE ROAD
AH-1
AH-2
WELL
PAD
PASTURE
LEGEND
AUGER HOLE SAMPLE LOCATIONS
1'-2' EXCAVATED DEPTH
2'-3' EXCAVATED DEPTH
STEEL PIPE
POLY PIPE
N
0
40
80
1"=80 FT
Marathon Oil
Figure 4
EL Presidente 1102
(32.24030,-104.16053)
Excavated Area & Depth Map
Lea County, New Mexico
Project: 212C-MD-01102.400
Date: 05/04/2018
File: H:\GIS\212C-MD-01102.300

Tables

Table 1
Marathon Oil Company
El Presidente State #4H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	2/22/2018	0-6"	X		<15.0	194	15.2	209	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	47.9
AH-2	2/22/2018	0-6"	X		**1,100**	**14,600**	**407**	**16,100**	<0.00200	0.121	0.0547	0.680	0.856	**1,510**
AH-3	2/22/2018	0-6"	X		16.4	552	30.8	599	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**2,000**
AH-4	2/22/2018	0-1	X		<15.0	18.0	<15.0	18.0	<0.00201	<0.00201	<0.00201	0.00427	0.00427	36.9
	"	1-1.5	X		<14.9	<14.9	<14.9	<14.9	<0.00202	<0.00202	<0.00202	0.0150	0.0150	12.9
AH-5	2/22/2018	0-1	X		**18,700**	**26,600**	**366**	**45,700**	**28.3**	**255**	**42.5**	**435**	**761**	71.9
	"	1-1.5	X		**17,100**	**22,500**	**273**	**39,900**	**13.8**	**182**	**82.4**	**592**	**870**	7.60
	"	2-2.5	X		**652**	**2,000**	**85.8**	**2,740**	<0.101	0.612	1.15	11.9	13.7	53.2
	"	3-3.5	X		25.3	426	<14.9	451	-	-	-	-	-	33.5
AH-6	2/22/2018	0-1	X		**3,470**	**6,940**	**82**	**10,500**	<1.00	31.5	27.2	250	**309**	508
	"	1-1.5	X		**201**	**1,130**	**19.6**	**1,350**	<0.00200	0.140	0.0541	0.613	0.807	195
	"	2-2.5	X		28.8	306	19.8	355	-	-	-	-	-	16.2
	"	3-3.5	X		-	-	-	-	-	-	-	-	-	53.0
AH-7	2/22/2018	0-1	X		**5,180**	**9,640**	**176**	**15,000**	1.11	69.2	33.1	308	**412**	**2,900**
	"	1-1.5	X		43.6	272	<15.0	316	<0.00198	0.00823	0.00619	0.102	0.117	73.7
	"	2-2.5	X		-	-	-	-	-	-	-	-	-	45.7
	"	3-3.5	X		-	-	-	-	-	-	-	-	-	6.11
	"	4-4.5	X		-	-	-	-	-	-	-	-	-	91.8
AH-8	2/22/2018	0-1	X		**2,830**	**4,740**	**68.7**	**7,640**	<0.0992	10.5	7.10	83.1	**101**	268
	"	1-1.5	X		<15.0	76.6	<15.0	76.6	<0.00202	0.00367	<0.00202	0.0326	0.0363	13.4
	"	2-2.5	X		-	-	-	-	-	-	-	-	-	<5.00
	"	3-3.5	X		-	-	-	-	-	-	-	-	-	54.6

(-) Not Analyzed

BEB Below Excavation Bottom

Proposed Excavation

Photos

Marathon Oil Permian, LLC.
El Presidente State #4H
Eddy County, New Mexico

View East – Area of AH-1 and AH-2

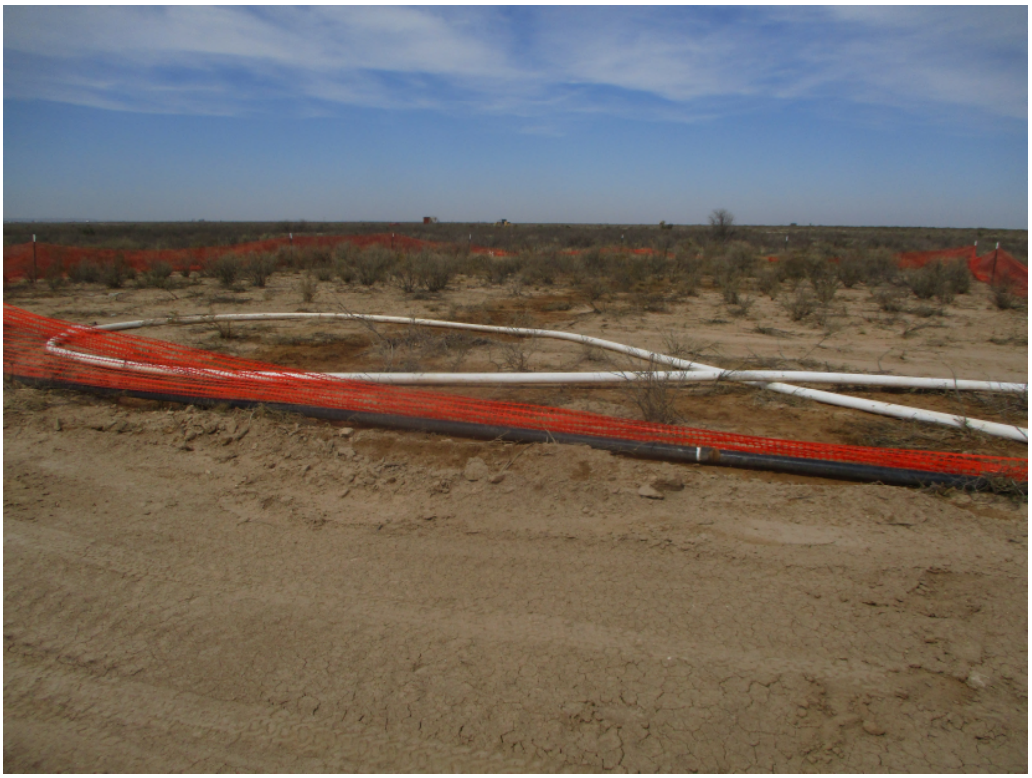
View West – Area of AH-3

Marathon Oil Permian, LLC.
El Presidente State #4H
Eddy County, New Mexico

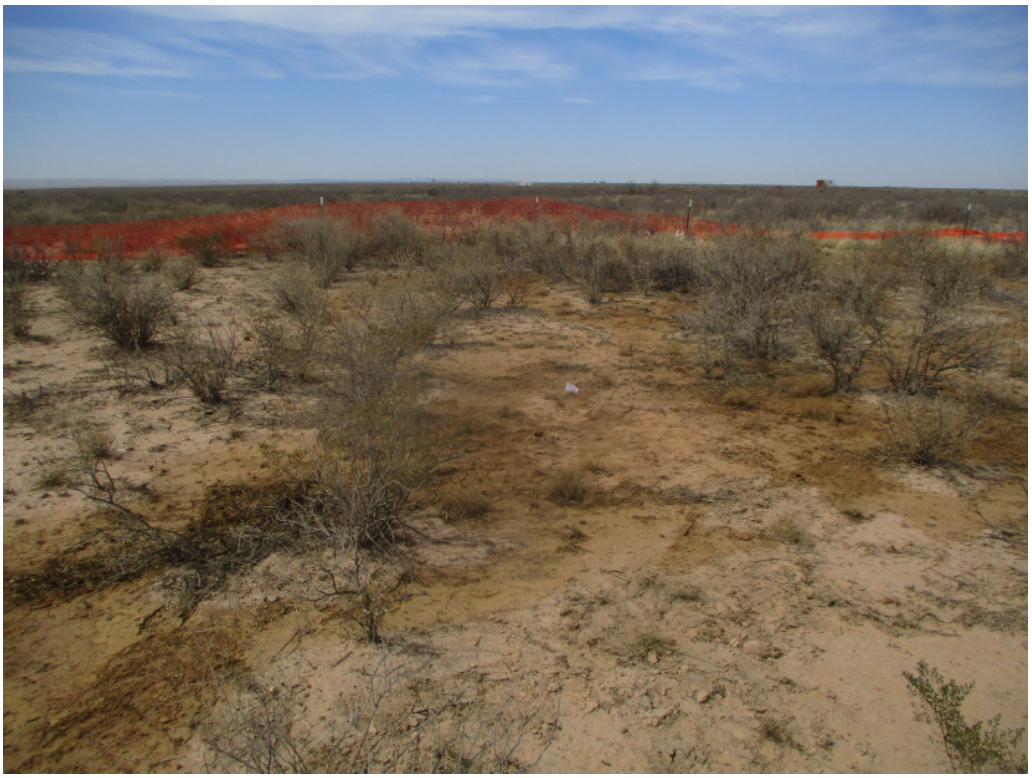
View South – Area of AH-4

View Southwest – Area of AH-5

Marathon Oil Permian, LLC.
El Presidente State #4H
Eddy County, New Mexico

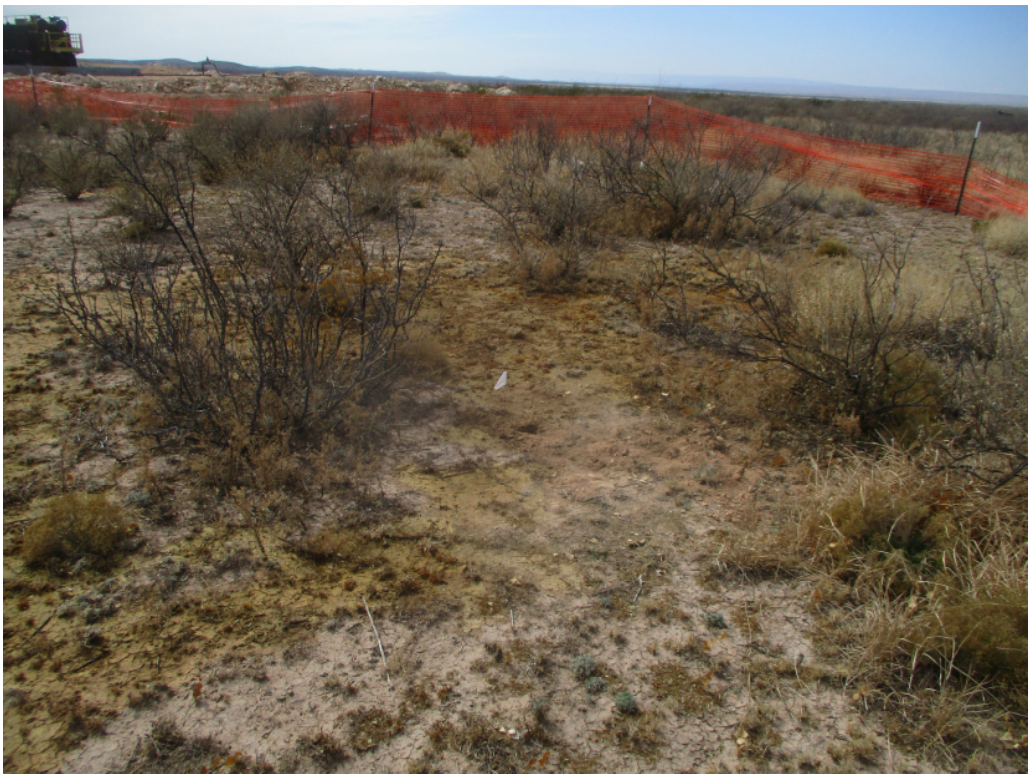


View North – Area of AH-6



View North – Area of AH-7

Marathon Oil Permian, LLC.
El Presidente State #4H
Eddy County, New Mexico



View Southwest – Area of AH-8

Appendix A

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 08 2018
RECEIVED

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

nAB1800929918

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Permian LLC 372098	Contact: Jason Wardell
Address: 5555 San Felipe St., Houston, TX 77056	Telephone No.: 575-297-0682
Facility Name: El Presidente State 4H	Facility Type: Oil Well

Surface Owner: State	Mineral Owner: State	API No.: 30-015-44165

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	02	24S	27E	330	FSL	2310	FEL	Eddy

Latitude 32.2400799999999 **Longitude** -104.153171 NAD83

NATURE OF RELEASE 89 bbls oil/2 bbls water 3.7 bbls oil

Type of Release: Crude Oil	Volume of Release: 91 bbls *	Volume Recovered: 13 bbls ?
Source of Release: Oil Tanks	Date and Hour of Occurrence: 12/24/17 – 2130 HRS	Date and Hour of Discovery: 12/14/17 – 2130 HRS
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Email to Crystal Weaver and Mike Bratcher	
By Whom? Jason Wardell	Date and Hour: 12/25/2017 1456 HRS	
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.*
A water hauler failed to disconnect from the water load line before driving off. As a result, the oil load line and the water load line were damaged and approximately91 bbls of produced fluid (89 bbls oil, 2 bbls water) was spilled onto location with approximately 3.7 bbls leaving location. ?↑

Describe Area Affected and Cleanup Action Taken.*
All but 3.7 bbls of the 91 spilled, remained on location. Impacted soil on location has been cleaned up and disposed of appropriately. Impacted area off of location has been fenced off pending an approved clean up and remediation plan.

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	
Printed Name: Jason Wardell	Approved by Environmental Specialist:	
Title: HES Professional	Approval Date: 1/9/18	Expiration Date: N/A
E-mail Address: jlwardell@marathonoil.com	Conditions of Approval: See attached	Attached ☐ RP-4557
Date: 01/08/2018 Phone: 575-297-06892		

* Attach Additional Sheets If Necessary

1/9/18 AB

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Marathon - El Presidente State #4H
Eddy County, New Mexico

23 South 26 East

6	5	4	3 220	2	1
7	8 267	9	10	11	12
18	17	16	15	14	13
19	20	21	22 224	23	24
30 99	29	28	27	26	25
31	32 223	33	34	35	36

23 South 27 East

6 Carlsbad	5 83	4 90	3	2 70	1 17
7	8	9	10	11	12 40
18	17	16	15	14 75	13
19	20	21	22	23 23	24 90
30	29 103	28	27	26	25
31	32	33	34	35 67	36

23 South 28 East

6 16.5	5	4	3	2	1
7 26.5	8	9	10	11 30.5	12 20
18 63	17	16	15 14	14	13 12 33
19	20 56	21	22 39	23	24 36
30	29 28.7	28 Loving	27	26	25 44
31	32	33	34	35	36

24 South 26 East

6 63	5	4	3	2	1
7 250	8 450	9	10	11	12
18 650	17	16	15	14 30	13
19	20	21	22	23 38 37	24 28 30
30 70	29 46	28	27 30	26	25
31	32 111 109	33	34	35	36

24 South 27 East

6	5	4	3	2	1
7	8 36 26	9 50 43	10	11	12 27
18 30 34	17	16	15	14	13 30 31
19	20	21	22 70	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 28 East

6 70	5 30	4 30	3	2 55	1 60
7	8 50	9	10 17	11 20	12 73
18	17 42	16 29	15 18	14 52	13 34
19	20 48	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 26 East

6	5	4	3 45	2	1
7 60	8	9 45	10	11	12
18	17	16	15	14	13
19	20	21	22 118	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 27 East

6	5	4	3	2	1
7	8	9	10	11	12 92
18	17	16	15	14	13
19	20 24	21	22 26	23	24 67
30	29	28	27 16	26	25 12
31	32	33 19	34	35	36

25 South 28 East

6	5 59	4 35	3 32	2	1 Site
7	8	9	10	11	12
18 67	17	16	15 48 49	14	13
19	20 96	21	22	23	24
30	29 15	28 90	27	26 40	25
31	32	33	34	35	36 40

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	Twn	Rng	X	Y		Depth Well	Depth Water	Water Column
C 00342	C	CUB	ED		4	1	13	24S	27E	580432	3565080*		2565		
C 00347		CUB	ED		1	1	13	24S	27E	580010	3565479*		60	30	30
C 00364	C	CUB	ED		1	2	09	24S	27E	575997	3567043*		2270		
C 00516		CUB	ED	1	3	4	08	24S	27E	574288	3565901*		105	36	69
C 00516 CLW201016	O		ED	1	3	4	08	24S	27E	574288	3565901*		62		
C 00516 CLW308590	O		ED	1	3	4	08	24S	27E	574288	3565901*		105	36	69
C 00516 POD6		CUB	ED	1	4	3	08	24S	27E	573885	3565895*		78	17	61
C 00516 S		CUB	ED	1	3	4	08	24S	27E	574288	3565901		50	17	33
C 00631		C	ED	3	3	4	08	24S	27E	574288	3565701*		50	24	26
C 00683		C	ED		4	3	08	24S	27E	573986	3565796*		50	17	33
C 00821		C	ED		3	2	09	24S	27E	575996	3566635*		97	50	47
C 00850		C	ED		2	3	09	24S	27E	575595	3566223*		108	35	73
C 00929		C	ED		3	3	18	24S	27E	572013	3564159*		54	33	21
C 01169		C	ED	1	4	3	18	24S	27E	572282	3564261*		55	35	20
C 01187		C	ED		4	3	08	24S	27E	573986	3565796*		108	17	91
C 01366		CUB	ED			4	08	24S	27E	574590	3566003*		60	35	25
C 01452		C	ED				22	24S	27E	577435	3563175*		95	70	25
C 01721		C	ED			1	25	24S	27E	580271	3562033*		170		
C 01841		C	ED			1	29	24S	27E	573806	3561953*		150		
C 01943		C	ED			1	13	24S	27E	580221	3565275*		30	25	5
C 02976		C	ED	4	2	3	12	24S	27E	580519	3566195*		57	27	30
C 03037		C	ED	4	3	4	12	24S	27E	580930	3565795*		116	25	91
C 03092		C	ED	4	3	1	08	24S	27E	573678	3566501*		54	37	17
C 03145		C	ED	3	1	4	13	24S	27E	580749	3564579*		103	40	63
C 03147		C	ED	3	3	3	12	24S	27E	579885	3565715		140		
C 03260 POD1		C	ED	3	3	3	12	24S	27E	579995	3565935		80	56	24
C 03260 POD2	O	C	ED	1	3	3	12	24S	27E	580100	3565984		80	56	24
C 03489 POD1		CUB	ED	2	4	3	08	24S	27E	574153	3565939		200		
C 03490 POD1		CUB	ED	3	4	3	08	24S	27E	573812	3565709		140	23	117
C 03560 POD1		C	ED	2	3	3	18	24S	27E	572009	3564150		68	28	40
C 03740 POD1		C	ED	4	4	4	12	24S	27E	581283	3565795		340		
C 04147 POD1		CUB	ED	4	1	3	24	24S	27E	580101	3562969		35		

Average Depth to Water: **33 feet**
Minimum Depth: **17 feet**
Maximum Depth: **70 feet**

Record Count: 32

PLSS Search:

Township: 24S **Range:** 27E

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

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	Twws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03031		C	ED	1	3	3	35	23S	27E	578315	3569206*	150	67	83

Average Depth to Water: **67 feet**

Minimum Depth: **67 feet**

Maximum Depth: **67 feet**

Record Count: 1

PLSS Search:

Section(s): 31-36 **Township:** 23S **Range:** 27E

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

Appendix C

Analytical Report 577383

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

El Presidente State 4H

212C-MD-01102

05-MAR-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-18-24), 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 (T104704400-18-14)
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)

05-MAR-18

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

Reference: XENCO Report No(s): **577383**
El Presidente State 4H
Project Address: Eddy Co, 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) 577383. 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. 577383 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 577383

Tetra Tech- Midland, Midland, TX

El Presidente State 4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-6")	S	02-22-18 00:00		577383-001
AH #2 (0-6")	S	02-22-18 00:00		577383-002
AH #3 (0-6")	S	02-22-18 00:00		577383-003
AH #4 (0-1')	S	02-22-18 00:00		577383-004
AH #4 (1-1.5')	S	02-22-18 00:00		577383-005
AH #5 (0-1')	S	02-22-18 00:00		577383-006
AH #5 (1-1.5')	S	02-22-18 00:00		577383-007
AH #5 (2-2.5')	S	02-22-18 00:00		577383-008
AH #5 (3-3.5')	S	02-22-18 00:00		577383-009
AH #6 (0-1')	S	02-22-18 00:00		577383-010
AH #6 (1-1.5')	S	02-22-18 00:00		577383-011
AH #6 (2-2.5')	S	02-22-18 00:00		577383-012
AH #6 (3-3.5')	S	02-22-18 00:00		577383-013
AH #7 (0-1')	S	02-22-18 00:00		577383-014
AH #7 (1-1.5')	S	02-22-18 00:00		577383-015
AH #7 (2-2.5')	S	02-22-18 00:00		577383-016
AH #7 (3-3.5')	S	02-22-18 00:00		577383-017
AH #7 (4-4.5')	S	02-22-18 00:00		577383-018
AH #8 (0-1')	S	02-22-18 00:00		577383-019
AH #8 (1-1.5')	S	02-22-18 00:00		577383-020
AH #8 (2-2.5')	S	02-22-18 00:00		577383-021
AH #8 (3-3.5')	S	02-22-18 00:00		577383-022

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3042214 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 1,4-Difluorobenzene recovered below QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 577383-006.

Dilutions necessitated by poor internal visibility at a lower dilution.

Batch: LBA-3042224 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 577383-002.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Lab Sample ID 577383-004 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 and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 577383-001, -002, -003, -004, -005, -011, -015, -020.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3042346 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Dilutions due to poor resolution of internal.

Batch: LBA-3042388 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 577383-007.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3042451 Inorganic Anions by EPA 300/300.1
Lab Sample ID 577383-012 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 577383-002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3042728 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Dilution due to excessive hydrocarbons.

Certificate of Analysis Summary 577383

Tetra Tech- Midland, Midland, TX

Project Name: El Presidente State 4H

Project Id: 212C-MD-01102
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-23-18 02:35 pm
Report Date: 05-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	577383-001		577383-002		577383-003		577383-004		577383-005		577383-006	
	Field Id:	AH #1 (0-6")		AH #2 (0-6")		AH #3 (0-6")		AH #4 (0-1')		AH #4 (1-1.5')		AH #5 (0-1')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-24-18 11:00		Feb-24-18 11:00		Feb-24-18 11:00		Feb-24-18 11:00		Feb-24-18 11:00		Feb-24-18 11:00	
	Analyzed:	Feb-24-18 21:07		Feb-24-18 21:26		Feb-24-18 21:44		Feb-24-18 20:49		Feb-24-18 22:03		Feb-25-18 17:33	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201	<0.00202	0.00202	28.3	20.0
Toluene		<0.00202	0.00202	0.121	0.00200	<0.00199	0.00199	<0.00201	0.00201	<0.00202	0.00202	255	20.0
Ethylbenzene		<0.00202	0.00202	0.0547	0.00200	<0.00199	0.00199	<0.00201	0.00201	<0.00202	0.00202	42.5	20.0
m,p-Xylenes		<0.00403	0.00403	0.464	0.00401	<0.00398	0.00398	0.00427	0.00402	0.0119	0.00404	315	40.1
o-Xylene		<0.00202	0.00202	0.216	0.00200	<0.00199	0.00199	<0.00201	0.00201	0.00311	0.00202	120	20.0
Total Xylenes		<0.00202	0.00202	0.680	0.00200	<0.00199	0.00199	0.00427	0.00201	0.0150	0.00202	435	20.0
Total BTEX		<0.00202	0.00202	0.856	0.00200	<0.00199	0.00199	0.00427	0.00201	0.0150	0.00202	761	20.0
Inorganic Anions by EPA 300/300.1	***Extracted:***	Feb-27-18 12:00		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20	
	Analyzed:	Feb-27-18 16:41		Feb-27-18 17:38		Feb-27-18 17:44		Feb-27-18 17:12		Feb-27-18 17:49		Feb-27-18 17:54	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		47.9	25.0	1510	25.0	2000	25.0	36.9	5.00	12.9	5.00	71.9	5.00
TPH By SW8015 Mod	***Extracted:***	Feb-23-18 15:00		Feb-23-18 15:00		Feb-23-18 15:00		Feb-23-18 15:00		Feb-23-18 15:00		Feb-23-18 15:00	
	Analyzed:	Feb-23-18 20:41		Feb-24-18 12:07		Feb-23-18 21:32		Feb-23-18 21:59		Feb-23-18 22:26		Feb-24-18 12:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons		<15.0	15.0	1100	74.9	16.4	15.0	<15.0	15.0	<14.9	14.9	18700	150
Diesel Range Organics		194	15.0	14600	74.9	552	15.0	18.0	15.0	<14.9	14.9	26600	150
Oil Range Hydrocarbons		15.2	15.0	407	74.9	30.8	15.0	<15.0	15.0	<14.9	14.9	366	150
Total TPH		209	15.0	16100	74.9	599	15.0	18.0	15.0	<14.9	14.9	45700	150

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 577383

Tetra Tech- Midland, Midland, TX

Project Name: El Presidente State 4H

Project Id: 212C-MD-01102
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-23-18 02:35 pm
Report Date: 05-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	577383-007		577383-008		577383-009		577383-010		577383-011		577383-012	
	Field Id:	AH #5 (1-1.5')		AH #5 (2-2.5')		AH #5 (3-3.5')		AH #6 (0-1')		AH #6 (1-1.5')		AH #6 (2-2.5')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-26-18 17:15		Mar-04-18 08:00				Feb-27-18 09:30		Feb-24-18 11:00			
	Analyzed:	Feb-28-18 15:36		Mar-04-18 14:25				Feb-27-18 15:10		Feb-24-18 22:40			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Benzene		13.8	1.99	<0.101	0.101			<1.00	1.00	<0.00200	0.00200		
Toluene		182	1.99	0.612	0.101			31.5	1.00	0.140	0.00200		
Ethylbenzene		82.4	1.99	1.15	0.101			27.2	1.00	0.0541	0.00200		
m,p-Xylenes		431	3.98	9.05	0.202			195	2.00	0.436	0.00399		
o-Xylene		161	1.99	2.88	0.101			55.2	1.00	0.177	0.00200		
Total Xylenes		592	1.99	11.9	0.101			250	1.00	0.613	0.00200		
Total BTEX		870	1.99	13.7	0.101			309	1.00	0.807	0.00200		
Inorganic Anions by EPA 300/300.1	***Extracted:***	Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20	
	Analyzed:	Feb-27-18 18:10		Feb-27-18 18:15		Feb-27-18 18:21		Feb-27-18 18:26		Feb-27-18 18:31		Feb-27-18 18:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7.60	5.00	53.2	5.00	33.5	5.00	508	5.00	195	5.00	16.2	5.00
TPH By SW8015 Mod	***Extracted:***	Feb-23-18 16:00		Feb-26-18 16:00		Mar-02-18 18:00		Feb-23-18 16:00		Feb-23-18 16:00		Feb-26-18 16:00	
	Analyzed:	Feb-24-18 12:58		Feb-27-18 08:17		Mar-03-18 14:56		Feb-24-18 13:23		Feb-24-18 09:31		Feb-27-18 08:43	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons		17100	150	652	15.0	25.3	14.9	3470	74.9	201	14.9	28.8	15.0
Diesel Range Organics		22500	150	2000	15.0	426	14.9	6940	74.9	1130	14.9	306	15.0
Oil Range Hydrocarbons		273	150	85.8	15.0	<14.9	14.9	81.9	74.9	19.6	14.9	19.8	15.0
Total TPH		39900	150	2740	15.0	451	14.9	10500	74.9	1350	14.9	355	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 577383

Tetra Tech- Midland, Midland, TX

Project Name: El Presidente State 4H

Project Id: 212C-MD-01102
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-23-18 02:35 pm
Report Date: 05-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	577383-013		577383-014		577383-015		577383-016		577383-017		577383-018	
	Field Id:	AH #6 (3-3.5')		AH #7 (0-1')		AH #7 (1-1.5')		AH #7 (2-2.5')		AH #7 (3-3.5')		AH #7 (4-4.5')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00	
BTEX by EPA 8021B	***Extracted:***			Feb-27-18 09:30		Feb-24-18 11:00							
	Analyzed:			Feb-27-18 15:29		Feb-24-18 22:58							
	Units/RL:			mg/kg	RL	mg/kg	RL						
Benzene				1.11	0.998	<0.00198	0.00198						
Toluene				69.2	0.998	0.00823	0.00198						
Ethylbenzene				33.1	0.998	0.00619	0.00198						
m,p-Xylenes				241	2.00	0.0685	0.00396						
o-Xylene				67.2	0.998	0.0337	0.00198						
Total Xylenes				308	0.998	0.102	0.00198						
Total BTEX				412	0.998	0.117	0.00198						
Inorganic Anions by EPA 300/300.1	***Extracted:***	Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20	
	Analyzed:	Feb-27-18 18:53		Feb-27-18 18:58		Feb-27-18 19:14		Feb-27-18 19:19		Feb-27-18 19:24		Feb-27-18 19:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		53.0	5.00	2900	25.0	73.7	5.00	45.7	5.00	6.11	5.00	91.8	5.00
TPH By SW8015 Mod	***Extracted:***			Feb-23-18 16:00		Feb-23-18 16:00							
	Analyzed:			Feb-24-18 13:50		Feb-24-18 10:23							
	Units/RL:			mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons				5180	74.7	43.6	15.0						
Diesel Range Organics				9640	74.7	272	15.0						
Oil Range Hydrocarbons				176	74.7	<15.0	15.0						
Total TPH				15000	74.7	316	15.0						

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 577383

Tetra Tech- Midland, Midland, TX

Project Name: El Presidente State 4H

Project Id: 212C-MD-01102
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-23-18 02:35 pm
Report Date: 05-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	577383-019		577383-020		577383-021		577383-022					
	Field Id:	AH #8 (0-1')		AH #8 (1-1.5')		AH #8 (2-2.5')		AH #8 (3-3.5')					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00		Feb-22-18 00:00					
BTEX by EPA 8021B	***Extracted:***	Feb-27-18 09:30		Feb-24-18 11:00									
	Analyzed:	Feb-27-18 17:13		Feb-24-18 23:17									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		<0.0992	0.0992	<0.00202	0.00202								
Toluene		10.5	0.0992	0.00367	0.00202								
Ethylbenzene		7.10	0.0992	<0.00202	0.00202								
m,p-Xylenes		67.9 D	0.994	0.0220	0.00403								
o-Xylene		15.2	0.0992	0.0106	0.00202								
Total Xylenes		83.1	0.0992	0.0326	0.00202								
Total BTEX		101	0.0992	0.0363	0.00202								
Inorganic Anions by EPA 300/300.1	***Extracted:***	Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 16:20		Feb-27-18 17:00					
	Analyzed:	Feb-27-18 19:35		Feb-27-18 19:40		Feb-27-18 19:45		Feb-27-18 20:17					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		268	5.00	13.4	5.00	<5.00	5.00	54.6	5.00				
TPH By SW8015 Mod	***Extracted:***	Feb-23-18 16:00		Feb-23-18 16:00									
	Analyzed:	Feb-24-18 10:49		Feb-24-18 11:14									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons		2830	15.0	<15.0	15.0								
Diesel Range Organics		4740	15.0	76.6	15.0								
Oil Range Hydrocarbons		68.7	15.0	<15.0	15.0								
Total TPH		7640	15.0	76.6	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042060 **Sample:** 577383-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 20:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.8	99.7	98	70-135	
o-Terphenyl	49.0	49.9	98	70-135	

Lab Batch #: 3042060 **Sample:** 577383-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 21:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	99.8	108	70-135	
o-Terphenyl	59.3	49.9	119	70-135	

Lab Batch #: 3042060 **Sample:** 577383-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 21:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.9	110	70-135	
o-Terphenyl	53.7	50.0	107	70-135	

Lab Batch #: 3042060 **Sample:** 577383-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 22:26

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.6	109	70-135	
o-Terphenyl	54.5	49.8	109	70-135	

Lab Batch #: 3042063 **Sample:** 577383-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 09:31

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.6	115	70-135	
o-Terphenyl	63.7	49.8	128	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042063 **Sample:** 577383-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 10:23

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	99.7	112	70-135	
o-Terphenyl	56.8	49.9	114	70-135	

Lab Batch #: 3042063 **Sample:** 577383-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 10:49

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.8	122	70-135	
o-Terphenyl	41.6	49.9	83	70-135	

Lab Batch #: 3042063 **Sample:** 577383-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 11:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.8	115	70-135	
o-Terphenyl	58.6	49.9	117	70-135	

Lab Batch #: 3042060 **Sample:** 577383-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 12:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.8	118	70-135	
o-Terphenyl	40.5	49.9	81	70-135	

Lab Batch #: 3042060 **Sample:** 577383-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 12:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	99.7	128	70-135	
o-Terphenyl	48.9	49.9	98	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042063 **Sample:** 577383-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 12:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.7	103	70-135	
o-Terphenyl	46.8	49.9	94	70-135	

Lab Batch #: 3042063 **Sample:** 577383-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 13:23

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.8	115	70-135	
o-Terphenyl	59.3	49.9	119	70-135	

Lab Batch #: 3042063 **Sample:** 577383-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 13:50

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.6	126	70-135	
o-Terphenyl	47.5	49.8	95	70-135	

Lab Batch #: 3042224 **Sample:** 577383-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 20:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0248	0.0300	83	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 3042224 **Sample:** 577383-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 21:07

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	0.0318	0.0300	106	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042224 **Sample:** 577383-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 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	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0780	0.0300	260	80-120	**

Lab Batch #: 3042224 **Sample:** 577383-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 21:44

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	0.0333	0.0300	111	80-120	

Lab Batch #: 3042224 **Sample:** 577383-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 22:03

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	0.0318	0.0300	106	80-120	

Lab Batch #: 3042224 **Sample:** 577383-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 22:40

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	0.0352	0.0300	117	80-120	

Lab Batch #: 3042224 **Sample:** 577383-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 22:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042224 **Sample:** 577383-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 23:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

Lab Batch #: 3042214 **Sample:** 577383-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/25/18 17:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0219	0.0300	73	80-120	***
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 3042220 **Sample:** 577383-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 08:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.8	125	70-135	
o-Terphenyl	64.9	49.9	130	70-135	

Lab Batch #: 3042220 **Sample:** 577383-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 08:43

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.7	115	70-135	
o-Terphenyl	59.0	49.9	118	70-135	

Lab Batch #: 3042346 **Sample:** 577383-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 15:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0226	0.0300	75	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

* 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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042346 **Sample:** 577383-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 15:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0248	0.0300	83	70-130	
4-Bromofluorobenzene	0.0380	0.0300	127	70-130	

Lab Batch #: 3042346 **Sample:** 577383-019 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 16:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0233	0.0300	78	70-130	
4-Bromofluorobenzene	0.0375	0.0300	125	70-130	

Lab Batch #: 3042346 **Sample:** 577383-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 17:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0238	0.0300	79	70-130	
4-Bromofluorobenzene	0.0373	0.0300	124	70-130	

Lab Batch #: 3042388 **Sample:** 577383-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/28/18 15:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0258	0.0300	86	70-130	
4-Bromofluorobenzene	0.0896	0.0300	299	70-130	**

Lab Batch #: 3042778 **Sample:** 577383-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 14:56

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	99.6	114	70-135	
o-Terphenyl	58.0	49.8	116	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042728 **Sample:** 577383-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/04/18 14:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0221	0.0300	74	70-130	
4-Bromofluorobenzene	0.0383	0.0300	128	70-130	

Lab Batch #: 3042060 **Sample:** 7639737-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/23/18 10:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	55.7	50.0	111	70-135	

Lab Batch #: 3042063 **Sample:** 7639738-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/23/18 23:45

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	54.8	50.0	110	70-135	

Lab Batch #: 3042224 **Sample:** 7639837-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/24/18 20:31

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	70-130	
4-Bromofluorobenzene	0.0300	0.0300	100	70-130	

Lab Batch #: 3042214 **Sample:** 7639819-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/25/18 10:23

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	0.0333	0.0300	111	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042220 **Sample:** 7639806-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/18 21:30

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	61.6	50.0	123	70-135	

Lab Batch #: 3042346 **Sample:** 7639907-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/27/18 09:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0258	0.0300	86	70-130	
4-Bromofluorobenzene	0.0284	0.0300	95	70-130	

Lab Batch #: 3042388 **Sample:** 7639915-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/28/18 05:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0239	0.0300	80	70-130	
4-Bromofluorobenzene	0.0280	0.0300	93	70-130	

Lab Batch #: 3042778 **Sample:** 7640127-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:04

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	100	100	70-135	
o-Terphenyl	52.4	50.0	105	70-135	

Lab Batch #: 3042728 **Sample:** 7640119-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/04/18 11:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0238	0.0300	79	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

* 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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042060 **Sample:** 7639737-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/23/18 11:24

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	52.3	50.0	105	70-135	

Lab Batch #: 3042063 **Sample:** 7639738-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/24/18 00:11

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	61.8	50.0	124	70-135	

Lab Batch #: 3042224 **Sample:** 7639837-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/24/18 18:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0360	0.0300	120	70-130	

Lab Batch #: 3042214 **Sample:** 7639819-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/25/18 08:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

Lab Batch #: 3042220 **Sample:** 7639806-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/18 21:55

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	55.6	50.0	111	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042346 **Sample:** 7639907-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/27/18 07:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0323	0.0300	108	70-130	

Lab Batch #: 3042388 **Sample:** 7639915-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/28/18 03:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0262	0.0300	87	70-130	
4-Bromofluorobenzene	0.0338	0.0300	113	70-130	

Lab Batch #: 3042778 **Sample:** 7640127-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	64.8	50.0	130	70-135	

Lab Batch #: 3042728 **Sample:** 7640119-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/04/18 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	0.0243	0.0300	81	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	70-130	

Lab Batch #: 3042060 **Sample:** 7639737-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/23/18 11:50

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	100	109	70-135	
o-Terphenyl	52.9	50.0	106	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042063 **Sample:** 7639738-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/24/18 00:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	126	100	126	70-135	
o-Terphenyl	63.6	50.0	127	70-135	

Lab Batch #: 3042224 **Sample:** 7639837-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/24/18 19:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	70-130	
4-Bromofluorobenzene	0.0359	0.0300	120	70-130	

Lab Batch #: 3042214 **Sample:** 7639819-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/25/18 09:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0360	0.0300	120	80-120	

Lab Batch #: 3042220 **Sample:** 7639806-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/18 22:22

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	100	118	70-135	
o-Terphenyl	58.8	50.0	118	70-135	

Lab Batch #: 3042346 **Sample:** 7639907-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/27/18 07:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

* 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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042388 **Sample:** 7639915-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/28/18 04:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	70-130	
4-Bromofluorobenzene	0.0349	0.0300	116	70-130	

Lab Batch #: 3042778 **Sample:** 7640127-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	100	116	70-135	
o-Terphenyl	59.1	50.0	118	70-135	

Lab Batch #: 3042728 **Sample:** 7640119-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/04/18 09:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	70-130	
4-Bromofluorobenzene	0.0355	0.0300	118	70-130	

Lab Batch #: 3042060 **Sample:** 577014-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 13:16

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.9	110	70-135	
o-Terphenyl	52.7	50.0	105	70-135	

Lab Batch #: 3042063 **Sample:** 577388-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 01:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.7	103	70-135	
o-Terphenyl	50.7	49.9	102	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042224 **Sample:** 577383-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 19:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

Lab Batch #: 3042214 **Sample:** 577310-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/25/18 09:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0332	0.0300	111	80-120	

Lab Batch #: 3042220 **Sample:** 577420-012 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/18 23:12

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.9	122	70-135	
o-Terphenyl	57.9	50.0	116	70-135	

Lab Batch #: 3042346 **Sample:** 577420-010 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/27/18 07:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	70-130	
4-Bromofluorobenzene	0.0343	0.0300	114	70-130	

Lab Batch #: 3042388 **Sample:** 577388-008 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/28/18 04:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

* 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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042778 **Sample:** 577595-021 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 05:49

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.9	117	70-135	
o-Terphenyl	56.6	50.0	113	70-135	

Lab Batch #: 3042728 **Sample:** 577777-010 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/04/18 09:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0237	0.0300	79	70-130	
4-Bromofluorobenzene	0.0374	0.0300	125	70-130	

Lab Batch #: 3042060 **Sample:** 577014-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/18 13:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.7	109	70-135	
o-Terphenyl	52.4	49.9	105	70-135	

Lab Batch #: 3042063 **Sample:** 577388-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 01:59

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	55.7	50.0	111	70-135	

Lab Batch #: 3042224 **Sample:** 577383-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/24/18 19:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0353	0.0300	118	70-130	

* 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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042214 **Sample:** 577310-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/25/18 09:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0242	0.0300	81	80-120	
4-Bromofluorobenzene	0.0331	0.0300	110	80-120	

Lab Batch #: 3042220 **Sample:** 577420-012 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/18 23:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.7	105	70-135	
o-Terphenyl	51.1	49.9	102	70-135	

Lab Batch #: 3042388 **Sample:** 577388-008 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/28/18 04:40

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	70-130	
4-Bromofluorobenzene	0.0337	0.0300	112	70-130	

Lab Batch #: 3042346 **Sample:** 577420-010 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/28/18 10:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0261	0.0300	87	70-130	
4-Bromofluorobenzene	0.0328	0.0300	109	70-130	

Lab Batch #: 3042778 **Sample:** 577595-021 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 06:15

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	99.7	114	70-135	
o-Terphenyl	53.8	49.9	108	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: El Presidente State 4H

Work Orders : 577383,

Project ID: 212C-MD-01102

Lab Batch #: 3042728 **Sample:** 577777-010 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/04/18 10:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	70-130	
4-Bromofluorobenzene	0.0367	0.0300	122	70-130	

* 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: El Presidente State 4H

Work Order #: 577383 **Project ID:** 212C-MD-01102

Analyst: ALJ **Date Prepared:** 02/24/2018 **Date Analyzed:** 02/25/2018

Lab Batch ID: 3042214 **Sample:** 7639819-1-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	<0.00202	0.101	0.0846	84	0.100	0.0712	71	17	70-130	35	
Toluene	<0.00202	0.101	0.0847	84	0.100	0.0705	71	18	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0907	90	0.100	0.0736	74	21	71-129	35	
m,p-Xylenes	<0.00403	0.202	0.175	87	0.200	0.144	72	19	70-135	35	
o-Xylene	<0.00202	0.101	0.0899	89	0.100	0.0762	76	16	71-133	35	

Analyst: ALJ **Date Prepared:** 02/24/2018 **Date Analyzed:** 02/24/2018

Lab Batch ID: 3042224 **Sample:** 7639837-1-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	0.0805	81	0.100	0.0762	76	5	70-130	35	
Toluene	<0.00200	0.0998	0.0851	85	0.100	0.0770	77	10	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0899	90	0.100	0.0820	82	9	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.174	87	0.201	0.160	80	8	70-130	35	
o-Xylene	<0.00200	0.0998	0.0902	90	0.100	0.0835	84	8	70-130	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: El Presidente State 4H

Work Order #: 577383 **Project ID:** 212C-MD-01102

Analyst: ALJ **Date Prepared:** 02/27/2018 **Date Analyzed:** 02/27/2018

Lab Batch ID: 3042346 **Sample:** 7639907-1-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	<0.00199	0.0996	0.0899	90	0.0994	0.0887	89	1	70-130	35	
Toluene	<0.00199	0.0996	0.0945	95	0.0994	0.0941	95	0	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.107	107	0.0994	0.107	108	0	70-130	35	
m,p-Xylenes	<0.00398	0.199	0.213	107	0.199	0.213	107	0	70-130	35	
o-Xylene	<0.00199	0.0996	0.104	104	0.0994	0.104	105	0	70-130	35	

Analyst: ALJ **Date Prepared:** 02/26/2018 **Date Analyzed:** 02/28/2018

Lab Batch ID: 3042388 **Sample:** 7639915-1-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	<0.00202	0.101	0.0833	82	0.100	0.0797	80	4	70-130	35	
Toluene	<0.00202	0.101	0.0877	87	0.100	0.0857	86	2	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0994	98	0.100	0.0970	97	2	70-130	35	
m,p-Xylenes	<0.00403	0.202	0.196	97	0.200	0.192	96	2	70-130	35	
o-Xylene	<0.00202	0.101	0.0981	97	0.100	0.0976	98	1	70-130	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: El Presidente State 4H

Work Order #: 577383 **Project ID:** 212C-MD-01102

Analyst: ALJ **Date Prepared:** 03/04/2018 **Date Analyzed:** 03/04/2018

Lab Batch ID: 3042728 **Sample:** 7640119-1-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	<0.00201	0.100	0.0887	89	0.101	0.0889	88	0	70-130	35	
Toluene	<0.00201	0.100	0.0951	95	0.101	0.0943	93	1	70-130	35	
Ethylbenzene	<0.00201	0.100	0.109	109	0.101	0.108	107	1	70-130	35	
m,p-Xylenes	<0.00402	0.201	0.215	107	0.202	0.213	105	1	70-130	35	
o-Xylene	<0.00201	0.100	0.106	106	0.101	0.104	103	2	70-130	35	

Analyst: OJS **Date Prepared:** 02/27/2018 **Date Analyzed:** 02/27/2018

Lab Batch ID: 3042428 **Sample:** 7639871-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	<5.00	250	262	105	250	258	103	2	90-110	20	

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: El Presidente State 4H

Work Order #: 577383 **Project ID:** 212C-MD-01102

Analyst: OJS **Date Prepared:** 02/27/2018 **Date Analyzed:** 02/27/2018

Lab Batch ID: 3042451 **Sample:** 7639872-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	<5.00	250	254	102	250	270	108	6	90-110	20	

Analyst: OJS **Date Prepared:** 02/27/2018 **Date Analyzed:** 02/27/2018

Lab Batch ID: 3042453 **Sample:** 7639873-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	<5.00	250	274	110	250	274	110	0	90-110	20	

Analyst: ARM **Date Prepared:** 02/23/2018 **Date Analyzed:** 02/23/2018

Lab Batch ID: 3042060 **Sample:** 7639737-1-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	<15.0	1000	883	88	1000	894	89	1	70-135	35	
Diesel Range Organics	<15.0	1000	900	90	1000	911	91	1	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

BS / BSD Recoveries

Project Name: El Presidente State 4H

Work Order #: 577383 **Project ID:** 212C-MD-01102

Analyst: ARM **Date Prepared:** 02/23/2018 **Date Analyzed:** 02/24/2018

Lab Batch ID: 3042063 **Sample:** 7639738-1-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	<15.0	1000	1040	104	1000	1050	105	1	70-135	35	
Diesel Range Organics	<15.0	1000	1080	108	1000	1090	109	1	70-135	35	

Analyst: ARM **Date Prepared:** 02/26/2018 **Date Analyzed:** 02/26/2018

Lab Batch ID: 3042220 **Sample:** 7639806-1-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	<15.0	1000	924	92	1000	980	98	6	70-135	35	
Diesel Range Organics	<15.0	1000	959	96	1000	1000	100	4	70-135	35	

Analyst: ARM **Date Prepared:** 03/02/2018 **Date Analyzed:** 03/03/2018

Lab Batch ID: 3042778 **Sample:** 7640127-1-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	<15.0	1000	1100	110	1000	1040	104	6	70-135	35	
Diesel Range Organics	<15.0	1000	1140	114	1000	1060	106	7	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: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042214 **QC- Sample ID:** 577310-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/25/2018 **Date Prepared:** 02/24/2018 **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	<0.00199	0.0996	0.0528	53	0.100	0.0624	62	17	70-130	35	X
Toluene	<0.00199	0.0996	0.0443	44	0.100	0.0578	58	26	70-130	35	X
Ethylbenzene	<0.00199	0.0996	0.0461	46	0.100	0.0583	58	23	71-129	35	X
m,p-Xylenes	<0.00398	0.199	0.0891	45	0.200	0.110	55	21	70-135	35	X
o-Xylene	<0.00199	0.0996	0.0476	48	0.100	0.0588	59	21	71-133	35	X

Lab Batch ID: 3042224 **QC- Sample ID:** 577383-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/24/2018 **Date Prepared:** 02/24/2018 **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	<0.00198	0.0992	0.0590	59	0.0998	0.0584	59	1	70-130	35	X
Toluene	<0.00198	0.0992	0.0583	59	0.0998	0.0465	47	23	70-130	35	X
Ethylbenzene	<0.00198	0.0992	0.0528	53	0.0998	0.0459	46	14	70-130	35	X
m,p-Xylenes	0.00427	0.198	0.103	50	0.200	0.0944	45	9	70-130	35	X
o-Xylene	<0.00198	0.0992	0.0532	54	0.0998	0.0488	49	9	70-130	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: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042346 **QC- Sample ID:** 577420-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **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	<0.00199	0.0996	0.0839	84	0.0998	0.0602	60	33	70-130	35	X
Toluene	<0.00199	0.0996	0.0875	88	0.0998	0.0402	40	74	70-130	35	XF
Ethylbenzene	<0.00199	0.0996	0.0987	99	0.0998	0.0647	65	42	70-130	35	XF
m,p-Xylenes	<0.00398	0.199	0.194	97	0.200	0.127	64	42	70-130	35	XF
o-Xylene	<0.00199	0.0996	0.0959	96	0.0998	0.0628	63	42	70-130	35	XF

Lab Batch ID: 3042388 **QC- Sample ID:** 577388-008 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/28/2018 **Date Prepared:** 02/26/2018 **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	<0.00199	0.0996	0.0794	80	0.0994	0.0699	70	13	70-130	35	
Toluene	<0.00199	0.0996	0.0844	85	0.0994	0.0739	74	13	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.0929	93	0.0994	0.0819	82	13	70-130	35	
m,p-Xylenes	<0.00398	0.199	0.183	92	0.199	0.161	81	13	70-130	35	
o-Xylene	<0.00199	0.0996	0.0913	92	0.0994	0.0793	80	14	70-130	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.

Form 3 - MS / MSD Recoveries

Project Name: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042728 **QC- Sample ID:** 577777-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/04/2018 **Date Prepared:** 03/04/2018 **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	<0.00200	0.0998	0.0693	69	0.100	0.0693	69	0	70-130	35	X
Toluene	<0.00200	0.0998	0.0728	73	0.100	0.0739	74	1	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0825	83	0.100	0.0832	83	1	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.162	81	0.200	0.165	83	2	70-130	35	
o-Xylene	<0.00200	0.0998	0.0806	81	0.100	0.0820	82	2	70-130	35	

Lab Batch ID: 3042428 **QC- Sample ID:** 577380-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	1230	250	1390	64	250	1470	96	6	90-110	20	X

Lab Batch ID: 3042428 **QC- Sample ID:** 577380-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	2690	250	2740	20	250	2830	56	3	90-110	20	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: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042451 **QC- Sample ID:** 577383-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	36.9	250	301	106	250	305	107	1	90-110	20	

Lab Batch ID: 3042451 **QC- Sample ID:** 577383-012 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	16.2	250	295	112	250	294	111	0	90-110	20	X

Lab Batch ID: 3042453 **QC- Sample ID:** 577383-022 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	54.6	250	303	99	250	311	103	3	90-110	20	

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: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042453 **QC- Sample ID:** 577388-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2018 **Date Prepared:** 02/27/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 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
Chloride	<5.00	250	268	107	250	262	105	2	90-110	20	

Lab Batch ID: 3042060 **QC- Sample ID:** 577014-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/23/2018 **Date Prepared:** 02/23/2018 **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	<15.0	999	880	88	997	885	89	1	70-135	35	
Diesel Range Organics	<15.0	999	988	99	997	984	99	0	70-135	35	

Lab Batch ID: 3042063 **QC- Sample ID:** 577388-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/24/2018 **Date Prepared:** 02/23/2018 **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	<15.0	997	879	88	999	987	99	12	70-135	35	
Diesel Range Organics	29.5	997	982	96	999	1080	105	10	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.

Form 3 - MS / MSD Recoveries

Project Name: El Presidente State 4H

Work Order # : 577383 **Project ID:** 212C-MD-01102

Lab Batch ID: 3042220 **QC- Sample ID:** 577420-012 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/26/2018 **Date Prepared:** 02/26/2018 **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	<15.0	999	1040	104	997	910	91	13	70-135	35	
Diesel Range Organics	<15.0	999	1160	116	997	1040	104	11	70-135	35	

Lab Batch ID: 3042778 **QC- Sample ID:** 577595-021 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/03/2018 **Date Prepared:** 03/02/2018 **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	<15.0	999	1060	106	997	1030	103	3	70-135	35	
Diesel Range Organics	<15.0	999	1100	110	997	1050	105	5	70-135	35	

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.

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

577383

Client Name: Marathon

Site Manager: Ike Tavarez

Project Name: El Presidente State 4H

Project Location: (county, state) Eddy Co., NM

Project #: 212C-MD-01102

Invoice to: Tetra Tech

Receiving Laboratory: Xenco

Sampler Signature:

Comments:

Run deeper sample if Benzene exceeds 10 mg/kg, total BTEX exceeds 50 mg/kg, or TPH exceeds 1000 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	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 - 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	PCBs 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	AH #1 (0-6")	2/22/2018			x			x	1		x		x												x				
	AH #2 (0-6")	2/22/2018			x			x	1		x		x												x				
	AH #3 (0-6")	2/22/2018			x			x	1		x		x												x				
	AH #4 (0-1')	2/22/2018			x			x	1		x		x												x				
	AH #4 (1-1.5')	2/22/2018			x			x	1		x		x												x				
	AH #5 (0-1')	2/22/2018			x			x	1		x		x												x				
	AH #5 (1.1.5')	2/22/2018			x			x	1		x		x												x				
	AH #5 (2-2.5')	2/22/2018			x			x	1																x				
	AH #5 (3-3.5')	2/22/2018			x			x	1																x				
	AH #6 (0-1')	2/22/2018			x			x	1		x		x												x				

Relinquished by: Date: 2/20/18 Time: 1435

Received by: Date: 2/23/18 Time: 1435

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB USE ONLY

Sample Temperature

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

Temp: 4.5 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.3

Final 1.000

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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

577383

Client Name: Marathon

Site Manager: Ike Tavarez

Project Name: El Presidente State 4H

Project Location: (county, state) Eddy Co., NM

Project #: 212C-MD-01102

Invoice to: Tetra Tech

Receiving Laboratory: Xenco

Sampler Signature:

Comments:

Run deeper sample if Benzene exceeds 10 mg/kg, total BTEX exceeds 50 mg/kg, or TPH exceeds 1000 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	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 - 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')	2/22/2018			x			x	1		x			x												x								
	AH #6 (2-2.5')	2/22/2018			x			x	1																	x								
	AH #6 (3-3.5')	2/22/2018			x			x	1																	x								
	AH #7 (0-1')	2/22/2018			x			x	1		x			x												x								
	AH #7 (1-1.5')	2/22/2018			x			x	1		x			x												x								
	AH #7 (2-2.5')	2/22/2018			x			x	1																	x								
	AH #7 (3-3.5')	2/22/2018			x			x	1																	x								
	AH #7 (4-4.5')	2/22/2018			x			x	1																	x								
	AH #8 (0-1')	2/22/2018			x			x	1		x			x												x								
	AH #8 (1-1.5')	2/22/2018			x			x	1		x			x												x								

Relinquished by:	Date:	Time:	Received by:
	2/23/18	1435	2/23/18 1435
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

LAB USE ONLY

Sample Temperature

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

Temp: 4.5 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C) 4.3
Corrected Temp:

Final 1.000

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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

577383

Client Name: Marathon

Site Manager: Ike Tavarez

Project Name: El Presidente State 4H

Project Location: (county, state) Eddy Co., NM

Project #: 212C-MD-01102

Invoice to: Tetra Tech

Receiving Laboratory: Xenco

Sampler Signature: Johnathan P. Kell

Comments:

Run deeper sample if Benzene exceeds 10 mg/kg, total BTEX exceeds 50 mg/kg, or TPH exceeds 1000 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)
	AH #8 (2-2.5')	2/22/2018			x				x			1	
	AH #8 (3-3.5')	2/22/2018			x				x			1	

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
														x							
														x							

Relinquished by: J. Kell 2/23/18 Date: Time: 1435
Received by: Kathleen 2/23/18 Date: Time: 1435

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

LAB USE ONLY
Sample Temperature

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

Temp: 4.5 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.3

Final 1.000

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 02/23/2018 02:35:00 PM

Work Order #: 577383

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)?	4.3
#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: Connie Hernandez Date: 02/23/2018

Checklist reviewed by: Kelsey Brooks Date: 03/01/2018

Appendix D

Eddy Area, New Mexico

RE—Reagan-Upton association, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: 1w5d
Elevation: 1,100 to 5,400 feet
Mean annual precipitation: 6 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reagan and similar soils: 70 percent
Upton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reagan

Setting

Landform: Fan remnants, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: Loamy (R070DY153NM)

Hydric soil rating: No

Description of Upton

Setting

Landform: Ridges, fans
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow Loamy (R070DY159NM)
Hydric soil rating: No

Minor Components

Pima

Percent of map unit:
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: No

Atoka

Percent of map unit:
Ecological site: Loamy (R042XC007NM)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 13, Sep 9, 2017

NMSLO Seed Mix — Loamy (L)

LOAMY (L) SITES SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
Grasses:			
Black grama	VNS, Southern	1.0	D
Blue grama	Lovington	1.0	D
Sideoats grama	Vaughn, El Reno	4.0	F
Sand dropseed	VNS, Southern	2.0	S
Alkali sacaton	VNS, Southern	1.0	
Little bluestem	Cimarron, Pastura	1.5	F
Forbs:			
Firewheel (*Gaillardia*)	VNS, Southern	1.0	D
Shrubs:			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
	Total PLS/acre	**18.0**	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box
VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at http://plants.usda.gov.