SITE INFORMATION

Report Type: Closure Report 2RP-4196

General Site Information:						
Site:	**Darner 9 State #1**					
Company:	**Cimarex Energy**					
Section, Township and Range	**Unit M**	**Sec. 09**	**R 17S**	**R 29E**		
Lease Number:	**API No. 30-015-37633**					
County:	**Eddy**					
GPS:	**32.8428116º N**			**104.0857773º W**		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Lovington Hwy & CR 211 (Old Loco Rd N), travel north on CR 211 for 2.40 mi, turn east onto lease road for 0.70 mi, turn south onto lease road for 0.20 mi to location.					

Release Data:	
Date Released:	5/1/2017
Type Release:	Oil
Source of Contamination:	Tank
Fluid Released:	16 bbls
Fluids Recovered:	5 bbls

Official Communication:			
Name:	Christine Alderman		Ike Tavarez
Company:	Cimarex Energy		Tetra Tech
Address:	600 N. Marienfield St.		4000 N. Big Spring
	Ste 600		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 853-7059		(432) 687-8110
Fax:			
Email:	calderman@cimarex.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

November 20, 2017

Christine Alderman
ESH Supervisor – Permian Basin
Cimarex Energy
600 N. Marienfeld St.
Midland, Texas 79701

Re: Closure Report for the Cimarex Energy, Darner 9 State #1, Unit M, Section 09, Township 17 South, Range 29 East, Eddy County, New Mexico. 2RP-4196.

Ms. Alderman:

Tetra Tech, Inc. (Tetra Tech) was contacted by Cimarex Energy (Cimarex) to assess and evaluate a release that occurred at the Darner 9 State #1, Unit M, Section 09, Township 17 South, Range 29 East, Eddy County, New Mexico (site). The spill site coordinates are N 32.8428116 º, W 104.0857773 º. 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 May 1, 2017, and released approximately sixteen (16) barrels of oil due to an oil tank that developed a hole. Approximately five (5) barrels was recovered. The release occurred inside the lined facility, however tears in the liner were discovered. The release impacted an area measuring approximately 10' x 95'. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 09 on the New Mexico Office of the State Engineer's website. Additionally, no wells are listed on the USGS National Water Information System. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is between 50' and 75' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

On October 13, 2017, Tetra Tech personnel were onsite to evaluate and sample the release area. Two (2) boreholes (BH-1 and BH-2) were installed in the spill foot print to total depths of 34'-35' and 29'-30', respectively. The boreholes were installed using a truck mounted air rotary rig. Selected samples were analyzed for TPH analysis by EPA Method 8015 modified and BTEX by EPA Method 8021B. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown in Figure 3.

Referring to Table 1, the areas of boreholes (BH-1 and BH-2) did not show any benzene or total BTEX concentrations above the laboratory reporting limits. Additionally, the area of borehole (BH-1) showed TPH concentrations below the laboratory reporting limits. However, TPH concentrations slightly above the RRAL was detected in the area of borehole (BH-2) with concentrations of 1,060 mg/kg at 0'-1' and 1,000 mg/kg at 2'-3' below surface. The TPH concentrations declined with depth to below the laboratory reporting limits at 4'-5' below surface.

Conclusions and Recommendations

The depth to groundwater appears to be sparse and limited in the area. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is between 50' and 75' below surface. Based on the estimated depth to groundwater in the area, the proposed RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, and 1,000 mg/kg for TPH. None of the samples exceeded the laboratory reporting limit for benzene or total BTEX. However, the area of borehole (BH-2) did show TPH concentrations at or slightly above the TPH RRAL with concentrations of 1,060 mg/kg (0'-1') and 1,000 mg/kg (2'-3').

TETRA TECH

Based on the approximate depth to groundwater and the laboratory results, Cimarex proposes to allow the hydrocarbon impact to naturally attenuate over time and requests closure of this spill issue. In addition, Cimarex will inspect the integrity of the liner and repair any breaches found in the liner. The final C-141 form is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

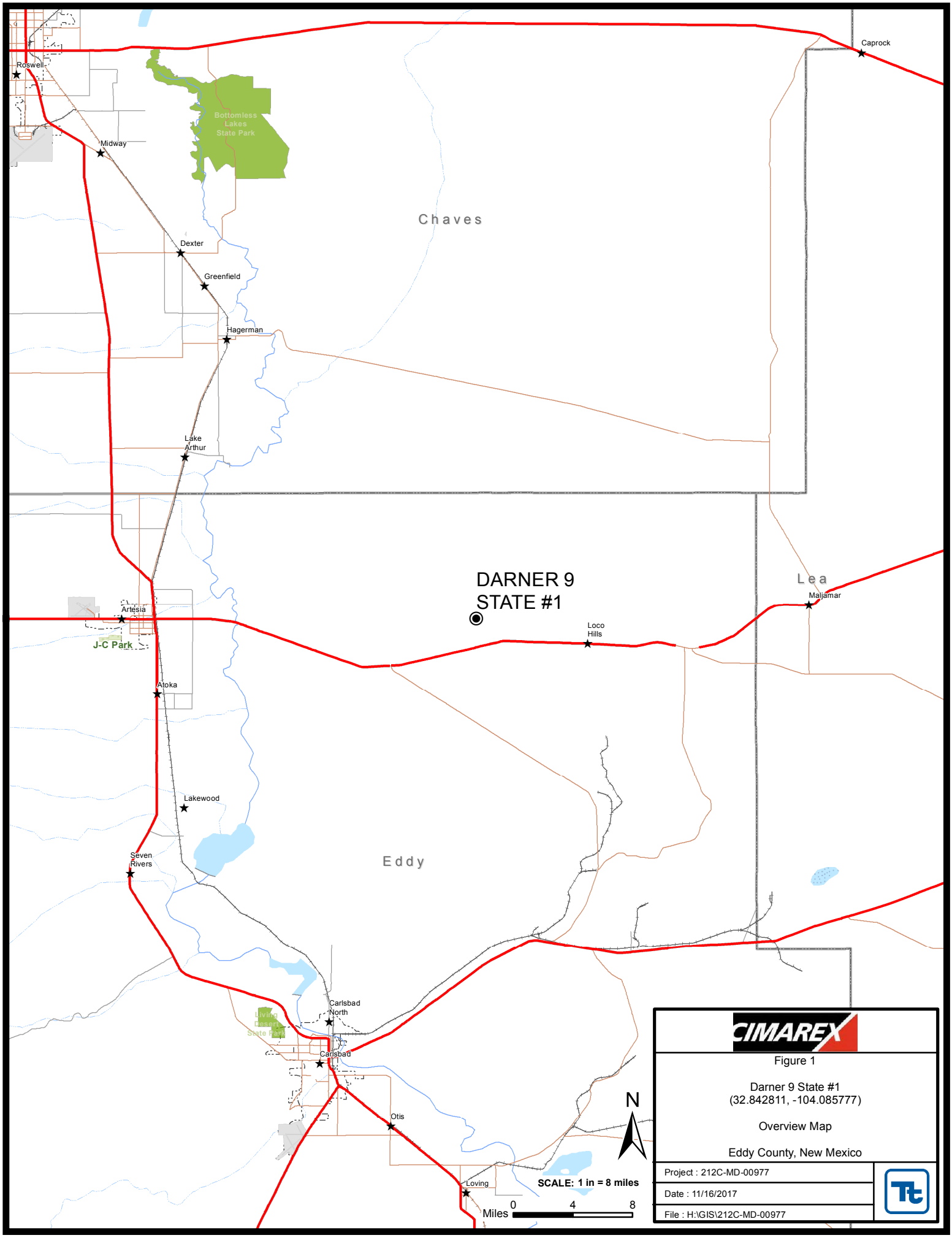
Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

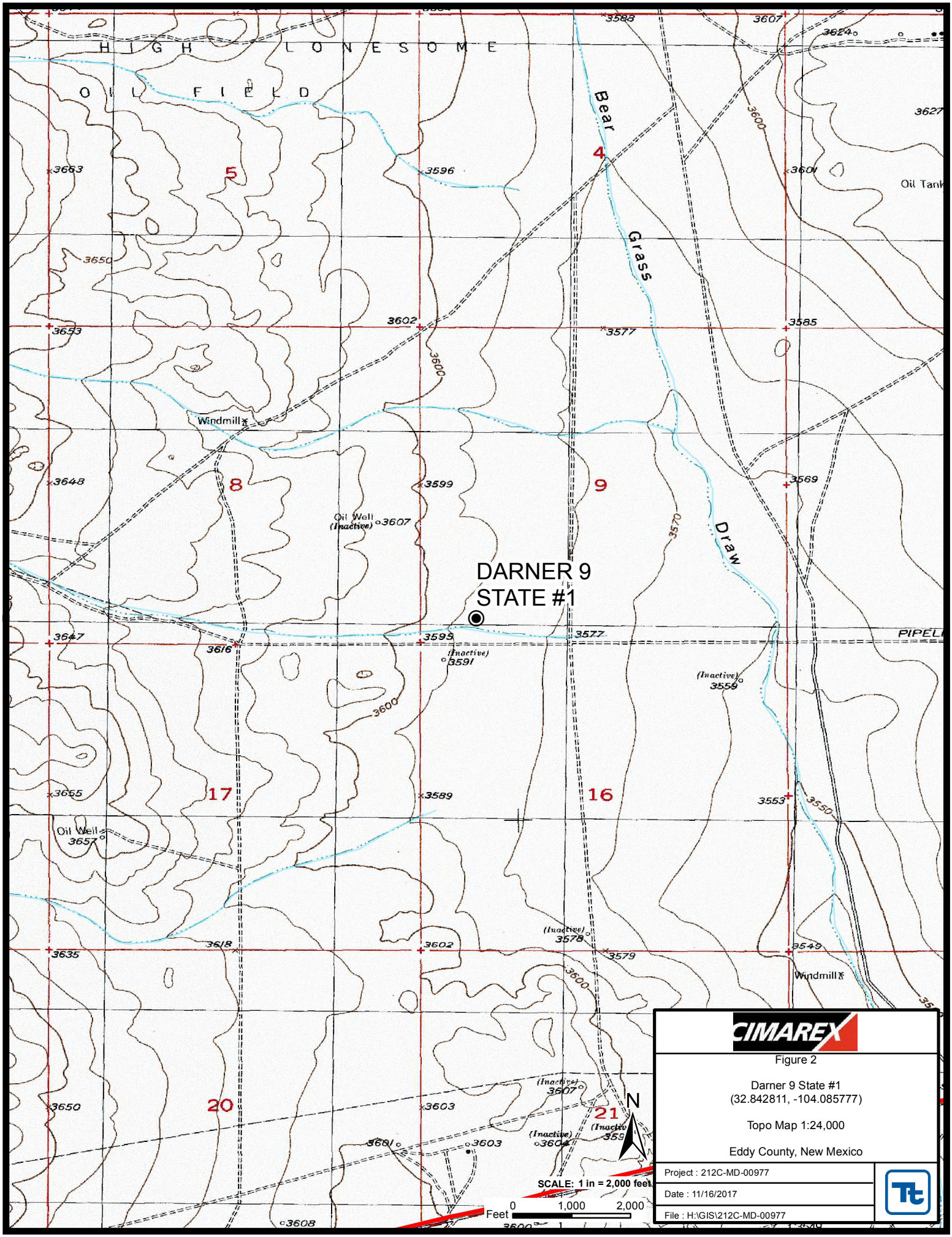
Clair Gonzales,
Geologist I

cc: Amber Groves – SLO

Figures



Mapped By: Isabel Marmolejo



CIMAREX

Figure 2

Darner 9 State #1
(32.842811, -104.085777)

Topo Map 1:24,000

Eddy County, New Mexico

Project : 212C-MD-00977	
Date : 11/16/2017	
File : H:\GIS\212C-MD-00977	

Mapped By: Isabel Marmolejo

Mapped By: Isabel Marmolejo

Tables

Table 1
Cimarex
Darner 9 State #1
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total					
BH-1	10/13/2017	0-1	-	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198
	"	2-3	-	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202
	"	4-5	-	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	"	6-7	-	X		-	-	-	-	-	-	-	-	-
	"	9-10	-	X		-	-	-	-	-	-	-	-	-
	"	14-15	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199
	"	19-20	-	X		-	-	-	-	-	-	-	-	-
	"	24-25	-	X		-	-	-	-	-	-	-	-	-
	"	29-30	-	X		-	-	-	-	-	-	-	-	-
	"	34-35	-	X		-	-	-	-	-	-	-	-	-
BH-2	10/13/2017	0-1	-	X		<14.9	**769**	**291**	**1,060**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	"	2-3	-	X		<14.9	**761**	**242**	**1,000**	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201
	"	4-5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198
	"	6-7	-	X		-	-	-	-	-	-	-	-	-
	"	9-10	-	X		-	-	-	-	-	-	-	-	-
	"	14-15	-	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202
	"	19-20	-	X		-	-	-	-	-	-	-	-	-
	"	24-25	-	X		-	-	-	-	-	-	-	-	-
	"	29-30	-	X		-	-	-	-	-	-	-	-	-

Proposed Natural Attenuation

(-) Not Analyzed

Photos

Cimarex Energy
Darner 9 State #1
Eddy County, New Mexico

View East – Release Area

View West – Release Area

Cimarex Energy
Darner 9 State #1
Eddy County, New Mexico

View Northeast – Area of BH-1

View North – Area of BH-2

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

Initial only

OPERATOR

☒ Initial Report ~~☒ Final Report~~

Name of Company Cimarex Energy	Contact Christine Alderman
Address 600 N Marienfeld Ste 600 Midland TX	Telephone No. 432-853-7059
Facility Name Darner 9 State #1	Facility Type production

Surface Owner	Mineral Owner	API No. 30-015-37633

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	09	17S	29E	330	s	810	W	Eddy

Latitude_32.8428116_Longitude -104.0857773

NATURE OF RELEASE

Type of Release crude oil	Volume of Release 16 bbls	Volume Recovered 5 bbls
Source of Release tank	Date and Hour of Occurrence 5/1/2017	Date and ~~Hour of Discovery~~ 5/1/2017
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? M Bratcher/C Weaver	
By Whom? Christine Alderman	Date and Hour 5/1/2017	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully. NA

Describe Cause of Problem and Remedial Action Taken.*
A steel oil stock tank developed a hole due to corrosion.

Describe Area Affected and Cleanup Action Taken.*
The fluids were contained within an intact lined berm. The soil/gravel inside the berm soaked up most of the oil, and it will be removed, disposed of and replaced with fresh.

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: Christine Alderman	OIL CONSERVATION DIVISION
Printed Name: Christine Alderman	Approved by Environmental Specialist: Crystal Weaver
Title: ESH Supervisor	Approval Date: 5/2/17 Expiration Date: N/A
E-mail Address: calderman@cimarex.com	Conditions of Approval: see attached Attached ☒
Date: 5/1/2017 Phone: 432-853-7059	

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **Cimarex Energy**	Contact **Christine Alderman**
Address **600 N Marienfeld Ste 600, Midland, TX**	Telephone No. **(432) 853-7059**
Facility Name Darner 9 State #1	Facility Type **Tank Battery**

Surface Owner: State	Mineral Owner	API No. 30-015-37633

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	09	17S	29E	330	S	810	W	Eddy

Latitude N 32.8428116° **Longitude** W 104.0857773°

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 16 bbls	Volume Recovered 5 bbls
Source of Release: Tank	Date and Hour of Occurrence 05/01/2017	Date and Hour of Discovery 05/01/2017
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? **Mike Bratcher / Crystal Weaver**	
By Whom? Christine Alderman	Date and Hour 05/01/2017	
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 steel oil stock tank developed a hole due to corrosion. The fluids were contained inside the lined berm, however tears were identified in the liner.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extents. Tetra Tech prepared closure report and submitted to NMOCD for review.

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: 	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 11/20/17 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Cimarex - Darner 9 State #1
Eddy County, New Mexico

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 **61**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 110	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

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

17 South 28 East

6	5	4	3	2 28	1
7	8	9	10	11	12
18	17	16	15	14 80	13
19 224	20	21	22 45 79	23	24
30	29	28	27	26	25
31	32	33	34	35 **258**	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 76 80	23	24
30	29 210 **208**	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 80	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 28 East

6	5	4 **108**	3	2 55	1
7 **49**	8 81 **69**	9	10	11	12
18	17	16	15 80	14	13
19	20	21 **226**	22	23	24
30 137	29	28	27	26	25
31	32	33	34	35 65	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24 158
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

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

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

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 11807 POD1		ED	1	2	3	22	17S	29E	587360	3631585	131	76	55

Average Depth to Water: **76 feet**

Minimum Depth: **76 feet**

Maximum Depth: **76 feet**

Record Count: 1

PLSS Search:

Township: 17S **Range:** 29E

Appendix C

Analytical Report 565671

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

Cimarex- Darner 9 State #1

212c-MD-00977

19-OCT-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

19-OCT-17

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

Reference: XENCO Report No(s): **565671**
Cimarex- Darner 9 State #1
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) 565671. 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. 565671 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 565671

Tetra Tech- Midland, Midland, TX

Cimarex- Darner 9 State #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH #1 (0-1')	S	10-13-17 00:00		565671-001
BH #1 (2-3')	S	10-13-17 00:00		565671-002
BH #1 (4-5')	S	10-13-17 00:00		565671-003
BH #1 (14-15')	S	10-13-17 00:00		565671-006
BH #2 (0-1')	S	10-13-17 00:00		565671-011
BH #2 (2-3')	S	10-13-17 00:00		565671-012
BH #2 (4-5')	S	10-13-17 00:00		565671-013
BH #2 (14-15')	S	10-13-17 00:00		565671-016
BH #1 (6-7')	S	10-13-17 00:00		Not Analyzed
BH #1 (9-10')	S	10-13-17 00:00		Not Analyzed
BH #1 (19-20')	S	10-13-17 00:00		Not Analyzed
BH #1 (24-25')	S	10-13-17 00:00		Not Analyzed
BH #1 (29-30')	S	10-13-17 00:00		Not Analyzed
BH #1 (34-35')	S	10-13-17 00:00		Not Analyzed
BH #2 (6-7')	S	10-13-17 00:00		Not Analyzed
BH #2 (9-10')	S	10-13-17 00:00		Not Analyzed
BH #2 (19-20')	S	10-13-17 00:00		Not Analyzed
BH #2 (24-25')	S	10-13-17 00:00		Not Analyzed
BH #2 (29-30')	S	10-13-17 00:00		Not Analyzed

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3030705 BTEX by EPA 8021B

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

Certificate of Analysis Summary 565671

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Darner 9 State #1

Project Id: 212c-MD-00977
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Mon Oct-16-17 01:48 pm
Report Date: 19-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	565671-001		565671-002		565671-003		565671-006		565671-011		565671-012	
	Field Id:	BH #1 (0-1')		BH #1 (2-3')		BH #1 (4-5')		BH #1 (14-15')		BH #2 (0-1')		BH #2 (2-3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-13-17 00:00		Oct-13-17 00:00		Oct-13-17 00:00		Oct-13-17 00:00		Oct-13-17 00:00		Oct-13-17 00:00	
BTEX by EPA 8021B	***Extracted:***	Oct-17-17 08:30		Oct-17-17 08:30		Oct-17-17 08:30		Oct-17-17 08:30		Oct-17-17 08:30		Oct-17-17 08:30	
	Analyzed:	Oct-17-17 11:13		Oct-17-17 11:31		Oct-17-17 11:50		Oct-17-17 12:09		Oct-17-17 12:28		Oct-17-17 14:25	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Toluene		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Ethylbenzene		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
m,p-Xylenes		<0.00396	0.00396	<0.00403	0.00403	<0.00401	0.00401	<0.00398	0.00398	<0.00399	0.00399	<0.00402	0.00402
o-Xylene		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Total Xylenes		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Total BTEX		<0.00198	0.00198	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
TPH By SW8015 Mod	***Extracted:***	Oct-17-17 11:01		Oct-17-17 11:01		Oct-17-17 11:01		Oct-17-17 11:01		Oct-17-17 11:01		Oct-17-17 11:01	
	Analyzed:	Oct-17-17 20:40		Oct-17-17 21:00		Oct-17-17 22:03		Oct-17-17 22:23		Oct-17-17 22:43		Oct-17-17 23:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<14.9	14.9	<14.9	14.9
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	769	14.9	761	14.9
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	291	14.9	242	14.9
Total TPH		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	1060	14.9	1000	14.9

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 565671

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Darner 9 State #1

Project Id: 212c-MD-00977
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Mon Oct-16-17 01:48 pm
Report Date: 19-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	565671-013		565671-016					
	Field Id:	BH #2 (4-5')		BH #2 (14-15')					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	Oct-13-17 00:00		Oct-13-17 00:00					
BTEX by EPA 8021B	***Extracted:***	Oct-17-17 08:30		Oct-17-17 08:30					
	Analyzed:	Oct-17-17 14:44		Oct-17-17 15:03					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00198	0.00198	<0.00202	0.00202				
Toluene		<0.00198	0.00198	<0.00202	0.00202				
Ethylbenzene		<0.00198	0.00198	<0.00202	0.00202				
m,p-Xylenes		<0.00397	0.00397	<0.00403	0.00403				
o-Xylene		<0.00198	0.00198	<0.00202	0.00202				
Total Xylenes		<0.00198	0.00198	<0.00202	0.00202				
Total BTEX		<0.00198	0.00198	<0.00202	0.00202				
TPH By SW8015 Mod	***Extracted:***	Oct-17-17 11:01		Oct-17-17 11:01					
	Analyzed:	Oct-17-17 23:26		Oct-17-17 23:46					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0				
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0				
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0				
Total TPH		<15.0	15.0	<15.0	15.0				

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Form 2 - Surrogate Recoveries

Project Name: Cimarex- Darner 9 State #1

Work Orders : 565671,

Project ID: 212c-MD-00977

Lab Batch #: 3030705 **Sample:** 565671-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 11:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 3030705 **Sample:** 565671-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 11:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 3030705 **Sample:** 565671-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 11:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 3030705 **Sample:** 565671-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 12:09

SURROGATE RECOVERY STUDY

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

Lab Batch #: 3030705 **Sample:** 565671-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 12:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Cimarex- Darner 9 State #1

Work Orders : 565671,

Project ID: 212c-MD-00977

Lab Batch #: 3030705 **Sample:** 565671-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 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	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 3030705 **Sample:** 565671-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 14:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 3030705 **Sample:** 565671-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 15:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3030727 **Sample:** 565671-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 20:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	99.8	92	70-135	
o-Terphenyl	44.8	49.9	90	70-135	

Lab Batch #: 3030727 **Sample:** 565671-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 21:00

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.8	106	70-135	
o-Terphenyl	49.8	49.9	100	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: Cimarex- Darner 9 State #1

Work Orders : 565671,

Project ID: 212c-MD-00977

Lab Batch #: 3030727 **Sample:** 565671-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 22:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.6	101	70-135	
o-Terphenyl	49.2	49.8	99	70-135	

Lab Batch #: 3030727 **Sample:** 565671-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 22:23

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.9	104	70-135	
o-Terphenyl	45.4	50.0	91	70-135	

Lab Batch #: 3030727 **Sample:** 565671-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 22:43

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	48.9	49.8	98	70-135	

Lab Batch #: 3030727 **Sample:** 565671-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 23:06

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	99.6	92	70-135	
o-Terphenyl	43.1	49.8	87	70-135	

Lab Batch #: 3030727 **Sample:** 565671-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 23:26

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.7	104	70-135	
o-Terphenyl	46.5	49.9	93	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: Cimarex- Darner 9 State #1

Work Orders : 565671,

Project ID: 212c-MD-00977

Lab Batch #: 3030727 **Sample:** 565671-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 23:46

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	100	106	70-135	
o-Terphenyl	46.3	50.0	93	70-135	

Lab Batch #: 3030705 **Sample:** 7632782-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 09:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0256	0.0300	85	80-120	

Lab Batch #: 3030727 **Sample:** 7632786-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 16:16

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.1	100	93	70-135	
o-Terphenyl	45.8	50.0	92	70-135	

Lab Batch #: 3030705 **Sample:** 7632782-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 08:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

Lab Batch #: 3030727 **Sample:** 7632786-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 16:36

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.4	100	98	70-135	
o-Terphenyl	46.6	50.0	93	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: Cimarex- Darner 9 State #1

Work Orders : 565671,

Project ID: 212c-MD-00977

Lab Batch #: 3030705 **Sample:** 7632782-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 08:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 3030727 **Sample:** 7632786-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/17/17 16:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	47.5	50.0	95	70-135	

Lab Batch #: 3030705 **Sample:** 565667-003 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 08:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 3030727 **Sample:** 565630-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 17:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.9	106	70-135	
o-Terphenyl	49.6	50.0	99	70-135	

Lab Batch #: 3030705 **Sample:** 565667-003 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 09:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0324	0.0300	108	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	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: Cimarex- Darner 9 State #1

Work Orders : 565671, **Project ID:** 212c-MD-00977

Lab Batch #: 3030727 **Sample:** 565630-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/17/17 17:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.9	106	70-135	
o-Terphenyl	50.9	50.0	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.

BS / BSD Recoveries

Project Name: Cimarex- Darner 9 State #1

Work Order #: 565671 **Project ID:** 212c-MD-00977

Analyst: ALJ **Date Prepared:** 10/17/2017 **Date Analyzed:** 10/17/2017

Lab Batch ID: 3030705 **Sample:** 7632782-1-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	0.123	122	0.101	0.125	124	2	70-130	35	
Toluene	<0.00202	0.101	0.119	118	0.101	0.118	117	1	70-130	35	
Ethylbenzene	<0.00202	0.101	0.117	116	0.101	0.116	115	1	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.233	115	0.201	0.231	115	1	70-135	35	
o-Xylene	<0.00202	0.101	0.112	111	0.101	0.111	110	1	71-133	35	

Analyst: ARM **Date Prepared:** 10/17/2017 **Date Analyzed:** 10/17/2017

Lab Batch ID: 3030727 **Sample:** 7632786-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	882	88	1000	933	93	6	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1050	105	1000	1010	101	4	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: Cimarex- Darner 9 State #1

Work Order # : 565671 **Project ID:** 212c-MD-00977

Lab Batch ID: 3030705 **QC- Sample ID:** 565667-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **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	0.100	0.102	102	0.100	0.126	126	21	70-130	35	
Toluene	<0.00200	0.100	0.0914	91	0.100	0.0978	98	7	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0844	84	0.100	0.0847	85	0	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.167	84	0.200	0.158	79	6	70-135	35	
o-Xylene	<0.00200	0.100	0.0811	81	0.100	0.0732	73	10	71-133	35	

Lab Batch ID: 3030727 **QC- Sample ID:** 565630-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	1070	107	999	1090	109	2	70-135	35	
Diesel Range Organics (DRO)	<15.0	999	1140	114	999	1140	114	0	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.

Cimarex	Site Manager: Ike Tavarez
Project Name: Darner 9 State #1	
Project Location: (county, state) Eddy County, New Mexico	Project #: 212C-MD-00977
Invoice to:	
Receiving Laboratory: Xenco Midland Tx	Sampler Signature: Mike Carmona
Comments:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX			PRESERVATIVE METHOD						
		YEAR: 2017											
		DATE	TIME	WATER	SOIL		HCL	HNO_3	ICE	None		# CONTAINERS	FILTERED (Y/N)
	BH #1 (0-1')	10/13/2017			X				X			1	N
	BH #1 (2-3')	10/13/2017			X				X			1	N
	BH #1 (4-5')	10/13/2017			X				X			1	N
	BH #1 (6-7')	10/13/2017			X				X			1	N
	BH #1 (9-10')	10/13/2017			X				X			1	N
	BH #1 (14-15')	10/13/2017			X				X			1	N
	BH #1 (19-20')	10/13/2017			X				X			1	N
	BH #1 (24-25')	10/13/2017			X				X			1	N
	BH #1 (29-30')	10/13/2017			X				X			1	N
	BH #1 (34-35')	10/13/2017			X				X			1	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
X		X				
X		X				
X		X				

Relinquished by: Mike Carmona Date: 10/16/17 Time: 1348

Received by: Corrine Hurley Date: 10/16 Time: 13:48

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature

(Circ

Final 1.000

Page 16 of 18

Cimarex	Site Manager: Ike Tavarez
Project Name: Darner 9 State #1	
Project Location: (county, state) Eddy County, New Mexico	Project #: 212C-MD-00977
Invoice to:	
Receiving Laboratory: Xenco Midland Tx	Sampler Signature: Mike Carmona
Comments:	

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LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2017 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	PRESERVATIVE METHOD	# 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
	BH #2 (0-1')	10/13/2017			X				X			1	N	X		X			
	BH #2 (2-3')	10/13/2017			X				X			1	N	X		X			
	BH #2 (4-5')	10/13/2017			X				X			1	N	X		X			
	BH #2 (6-7')	10/13/2017			X				X			1	N						
	BH #2 (9-10')	10/13/2017			X				X			1	N						
	BH #2 (14-15')	10/13/2017			X				X			1	N	X		X			
	BH #2 (19-20')	10/13/2017			X				X			1	N						
	BH #2 (24-25')	10/13/2017			X				X			1	N						
	BH #2 (29-30')	10/13/2017			X				X			1	N						
		10/13/2017			X				X			1	N						

Relinquished by: Date: 10/16/17 Time: 1348 — Received by: Date: 10/16 Time: 13:48

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

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

LAB USE ONLY

Sample Temperature

Final 1.000

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 10/16/2017 01:48:00 PM

Work Order #: 565671

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

Temperature Measuring device used : R8

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Connie Hernandez Date: 10/16/2017

Checklist reviewed by: Kelsey Brooks Date: 10/17/2017