SITE INFORMATION

Report Type: Closure Report 1RP-4296

General Site Information:						
Site:	**Double X 25 Federal #4H**					
Company:	**Cimarex Energy**					
Section, Township and Range	**Unit C**	**Sec. 25**	**T 24S**	**R 32E**		
Lease Number:	**API No. 30-025-40690**					
County:	**Lea County**					
GPS:	**32.195124° N**			**103.630256° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of HWY 128 & CR 1 (J-1), travel EAST on HWY 128 for approximately 3.0 miles, turn SOUTH onto lease road for 1.10 mi, turn WEST onto lease road for 0.60 mi to location on north side of lease road					

Release Data:	
Date Released:	5/28/2016
Type Release:	Produced Water
Source of Contamination:	Well
Fluid Released:	10 bbls
Fluids Recovered:	5 bbls

Official Communication:			
Name:	Gloria Garza		Clair Gonzales
Company:	Cimarex Energy		Tetra Tech
Address:	600 N. Marienfield St.		901 W. Wall St.
	Ste 400		Ste 100
City:	Midland Texas, 79701		Midland, Texas, 79701
Phone number:	(432) 234-3204		(432) 687-8123
Fax:			
Email:	ggarza@cimarex.com		Clair.Gonzales@Tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	*100'*
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:	***0***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	5,000

TETRA TECH

November 9, 2018

Gloria Garza
ESH Specialist – Permian Basin
Cimarex Energy
600 N. Marienfeld St.
Midland, Texas 79701

Re: Revised Closure Report for the Cimarex Energy, Double X 25 Federal #4H, Unit C, Section 25, Township 24 South, Range 32 East, Lea County, New Mexico.
1RP-4296.

Ms. Garza:

Tetra Tech, Inc. (Tetra Tech) was contacted by Cimarex Energy (Cimarex) to prepare a closure report for a spill at the Double X 25 Federal #4H, Unit C, Section 25, Township 24 South, Range 32 East, Lea County, New Mexico (site). The spill site coordinates are N 32.195124 º, W 103.630256 º. The site location is shown on Maps 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on May 28, 2016, and released approximately ten (10) barrels of produced water due to a failed float switch causing a release at the stuffing box. Approximately five (5) barrels of produced water was recovered. The release occurred and remained on the pad area measuring approximately 70'x75'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells were listed within Section 25 on the New Mexico Office of the State Engineer's website, the USGS National Water Information System, or the Geology and Ground-Water Conditions in Southern Lea County, New Mexico (Report 6). The nearest well is listed on the USGS National Water Information System in Township 24 South, Range 33 East, Section 33, approximately 3.6 miles southeast of the site, and has a reported depth to groundwater of 93.2 feet below ground surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is approximately 100' below surface. The groundwater data is shown in Appendix B.

TETRA TECH

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 5,000 mg/kg.

Soil Assessment and Analytical Results

Auger Holes

On June 19, 2017, Tetra Tech personnel were onsite to evaluate and sample the release area. Two (2) auger holes (AH-1 and AH-2) were installed in the spill foot print to total depths of 2.0'-2.5' and 0'-1.0' below surface, respectively. Deeper samples were not collected due to a dense caliche formation in the area. A stainless steel hand auger was used to manually collect discrete soil samples from selected depth intervals. 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 laboratory analysis and chain-of-custody documentation are included. The results of the sampling are summarized in Table 1. The sample locations are shown in Plat 3.

Referring to Table 1, the samples collected at 0-1' below surface in the areas of auger holes (AH-1 and AH-2) showed benzene and total BTEX concentrations below the laboratory reporting limits and total TPH concentrations of <15.0 mg/kg and 196 mg/kg, respectively. Minimal chloride concentrations were detected in the shallow soils, with chloride highs of 24.1 mg/kg at 2.0'-2.5' (AH-1) and 18.2 mg/kg at 0'-1' (AH-2).

Trenches

On August 31, 2017 Tetra Tech personnel returned to the site to collect deeper samples in order to vertically define the release to the NMOCD directives. Two (2) sample trenches, T-1 (AH-1) and T-2 (AH-2), were installed in the release area to total depths of 5.0' and 4.0' below surface, respectively. Deeper samples were not collected due to a dense caliche formation in the area. 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 laboratory analysis and chain-of-custody documentation are included. The results of the sampling are summarized in Table 1. The sample locations are shown in Plat 3.

Referring to Table 1, the bottom trench samples in the areas of trenches (T-1 and T-2) showed TPH, benzene, and total BTEX concentrations below the laboratory reporting

limits. Additionally, the area of trench (T-1) did not show any significant chloride concentrations, with a chloride high of 331 mg/kg at 5.0' below surface. The area of trench (T-2) showed a chloride high of 717 mg/kg at 2.0', which declined with depth and showed a bottom trench concentration of 506 mg/kg.

Horizontal Sampling

A Closure Report was previously submitted on December 7, 2017. This request for closure was denied, per NMOCD's request for additional soil sampling to complete horizontal delineation.

On September 27, 2018, Tetra Tech Personnel returned to the site to collect four (4) auger hole samples (AH-1 (West), AH-2 (North), AH-3 (East), and AH-4 (South)) around the perimeter of the release area to total depth of 0-6", in order to complete horizontal delineation, as requested by NMOCD. All 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 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 Plat 3.

Referring to Table 1, all horizontal confirmation samples (AH-1 (West), AH-2 (North), AH-3 (East), and AH-4 (South)) showed benzene and total BTEX concentrations below the laboratory reporting limits. The areas of AH-2 (North) and AH-3 (East) showed total TPH concentrations below the reporting limits. Additionally, no significant chloride concentrations were detected, with a chloride high of 205 mg/kg in the area of AH-4 (South).

Conclusion and Recommendations

Based on the laboratory results, Cimarex requests closure of this spill issue. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment activities for this site, please call us at (432) 682-4559.

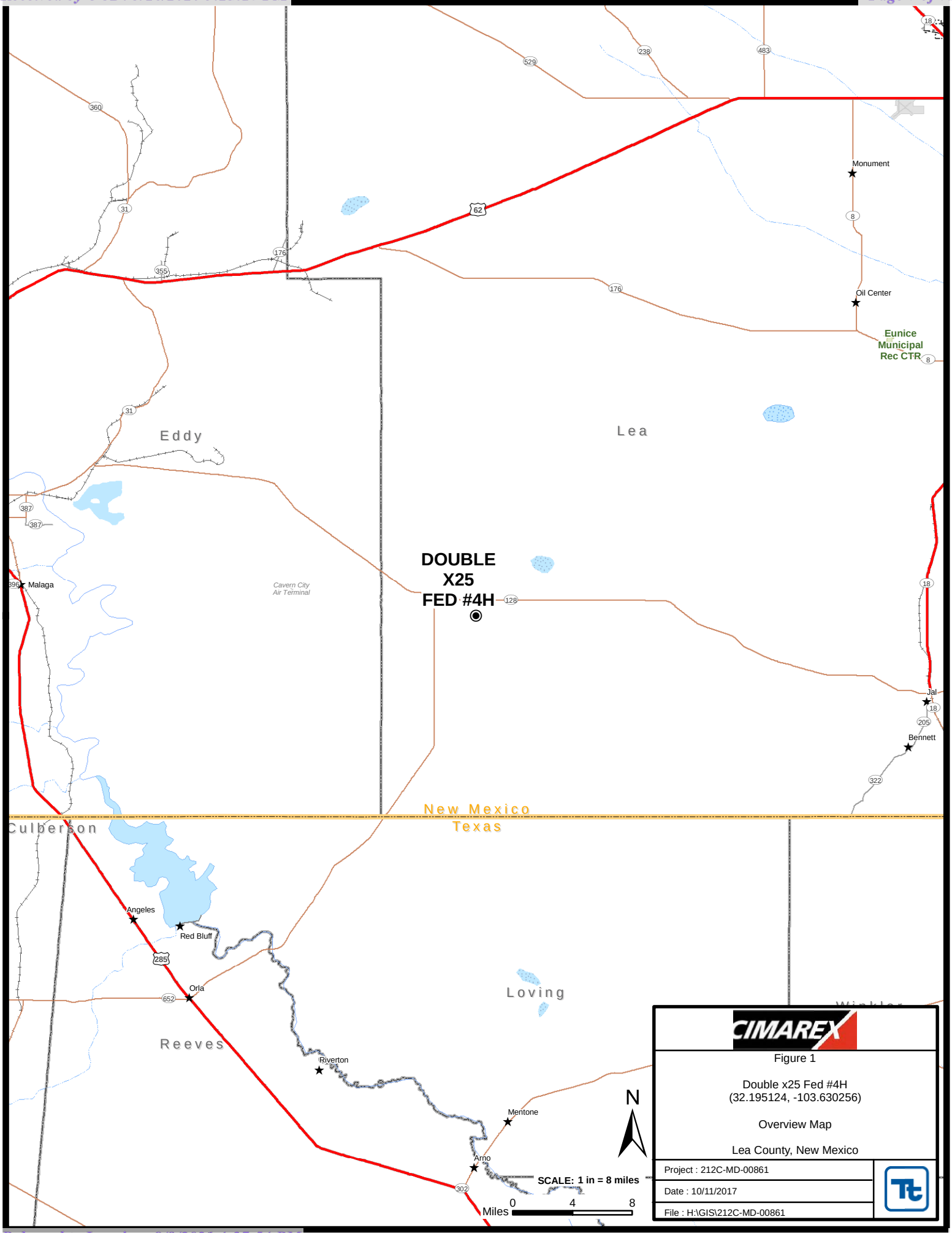
Respectfully submitted,
TETRA TECH

Clair Gonzales
Project Manager

Johnathon Kell,
Geologist II

cc: Shelly Tucker – BLM
Christina Hernandez - NMOCD

Maps/Plats



CIMAREX

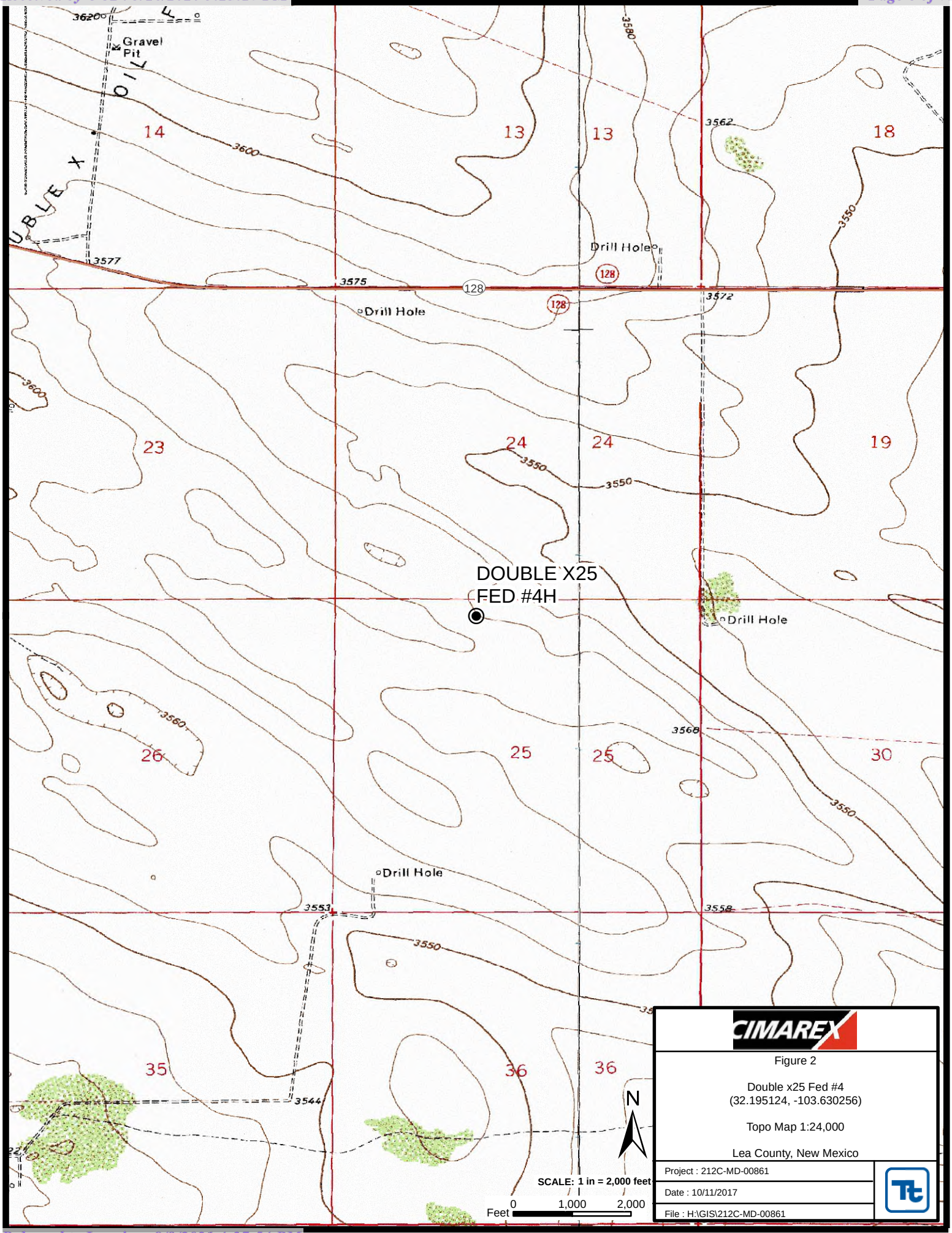
Figure 1

Double x25 Fed #4H
(32.195124, -103.630256)

Overview Map

Lea County, New Mexico

Project : 212C-MD-00861	
Date : 10/11/2017	
File : H:\GIS\212C-MD-00861	



CIMAREX

Figure 2

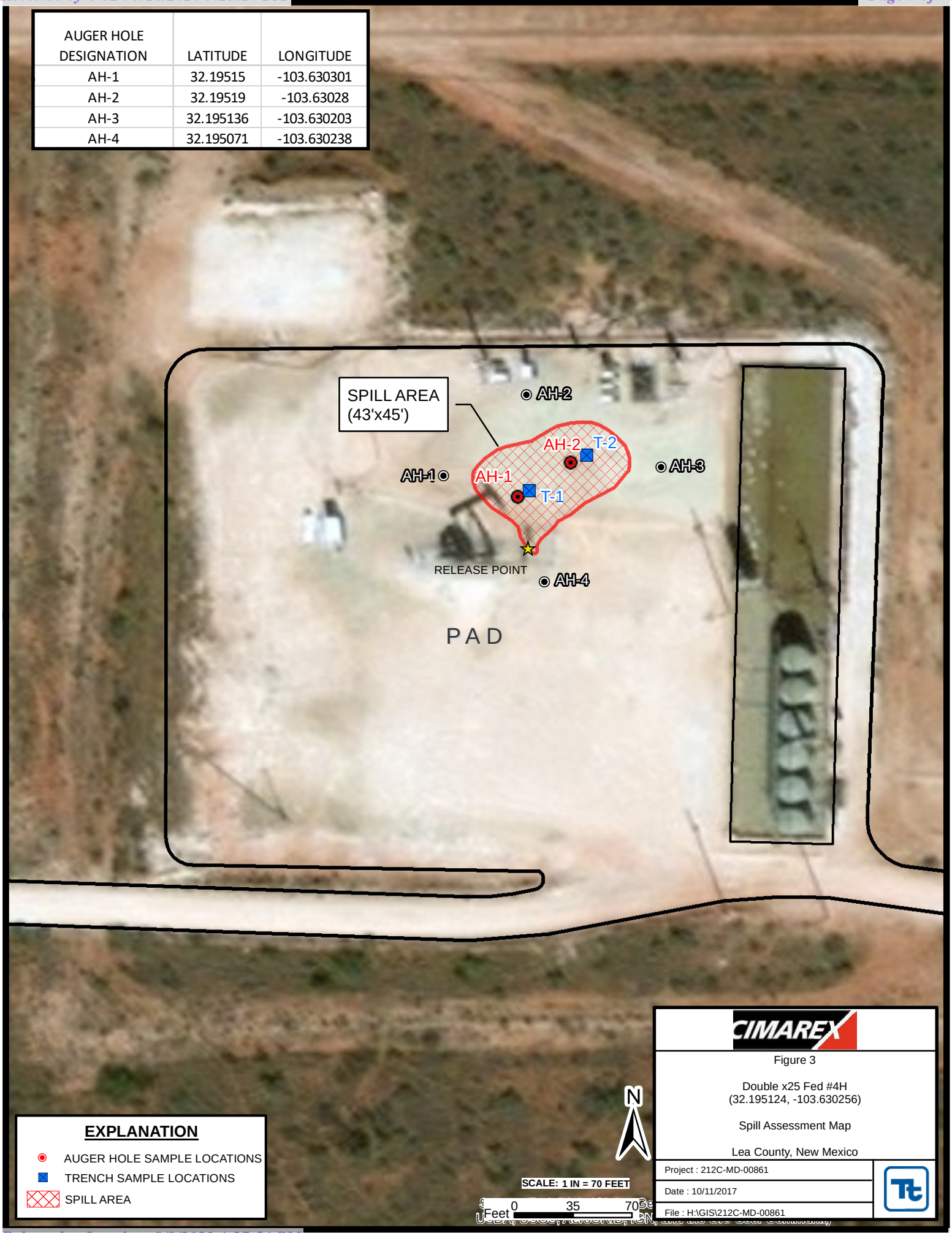
Double x25 Fed #4
(32.195124, -103.630256)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00861	
Date : 10/11/2017	
File : H:\GIS\212C-MD-00861	

AUGER HOLE DESIGNATION	LATITUDE	LONGITUDE
AH-1	32.19515	-103.630301
AH-2	32.19519	-103.63028
AH-3	32.195136	-103.630203
AH-4	32.195071	-103.630238



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 70 FEET

0 35 70 Feet

CIMAREX

Figure 3

Double x25 Fed #4H
(32.195124, -103.630256)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00861

Date : 10/11/2017

File : H:\GIS\212C-MD-00861

Lab Analysis

Table 1
Cimarex
Double X25 Federal #4H
Lea 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)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	6/19/2017	0-1	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	8.51
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	7.12
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	24.1
T-1	8/31/2017	0-1	-	X		-	-	-	-	-	-	-	-	-	<4.99
	"	1	-	X		-	-	-	-	-	-	-	-	-	<4.93
	"	2	-	X		-	-	-	-	-	-	-	-	-	81.7
	"	3	-	X		-	-	-	-	-	-	-	-	-	102
	"	4	-	X		-	-	-	-	-	-	-	-	-	292
	"	5	-	X		<14.9	<14.9	<14.9	<14.9	<0.00344	<0.00344	<0.00344	<0.00344	<0.00344	331
AH-2	6/19/2017	0-1	-	X		<15.0	168	27.5	196	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	18.2
T-2	8/31/2017	0-1	-	X		-	-	-	-	-	-	-	-	-	24.5
	"	1	-	X		-	-	-	-	-	-	-	-	-	<4.96
	"	2	-	X		-	-	-	-	-	-	-	-	-	717
	"	3	-	X		-	-	-	-	-	-	-	-	-	305
	"	4	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	506
AH-1 (West)	9/27/2018	0-.5	-	X		<15.0	51.3	<15.0	51.3	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<5.01
AH-2 (North)	9/27/2018	0-.5	-	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	25.7
AH-3 (East)	9/27/2018	0-.5	-	X		<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	37.6
AH-4 (South)	9/27/2018	0-.5	-	X		<15.0	22.0	<15.0	22.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	205

212C-MD-00861
Xenco Labs

Analytical Report 555866

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

Cimarex- Double X25 Fed #4H

212C-MD-00861

29-JUN-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

29-JUN-17

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

Reference: XENCO Report No(s): **555866**
Cimarex- Double X25 Fed #4H
Project Address: Lea 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) 555866. 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. 555866 will be filed for 60 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 555866

Tetra Tech- Midland, Midland, TX

Cimarex- Double X25 Fed #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	06-19-17 00:00	0 - 1 ft	555866-001
AH #1 (1-1.5')	S	06-19-17 00:00	1 - 1.5 ft	555866-002
AH #1 (2-2.5')	S	06-19-17 00:00	2 - 2.5 ft	555866-003
AH #2 (0-1')	S	06-19-17 00:00	0 - 1 ft	555866-004

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Cimarex- Double X25 Fed #4H

Project ID: *212C-MD-00861*
Work Order Number(s): *555866*

Report Date: *29-JUN-17*
Date Received: *06/21/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3020665 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3021020 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 555866

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Double X25 Fed #4H

Project Id: 212C-MD-00861
Contact: Ike Tavarez
Project Location: Lea Co, NM

Date Received in Lab: Wed Jun-21-17 12:00 pm
Report Date: 29-JUN-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	555866-001		555866-002		555866-003		555866-004					
	Field Id:	AH #1 (0-1')		AH #1 (1-1.5')		AH #1 (2-2.5')		AH #2 (0-1')					
	Depth:	0-1 ft		1-1.5 ft		2-2.5 ft		0-1 ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Jun-19-17 00:00		Jun-19-17 00:00		Jun-19-17 00:00		Jun-19-17 00:00					
BTEX by EPA 8021B	***Extracted:***	Jun-24-17 11:30						Jun-27-17 17:45					
	Analyzed:	Jun-25-17 07:25						Jun-28-17 12:39					
	Units/RL:	mg/kg	RL					mg/kg	RL				
Benzene		<0.00201	0.00201					<0.00199	0.00199				
Toluene		<0.00201	0.00201					<0.00199	0.00199				
Ethylbenzene		<0.00201	0.00201					<0.00199	0.00199				
m,p-Xylenes		<0.00402	0.00402					<0.00398	0.00398				
o-Xylene		<0.00201	0.00201					<0.00199	0.00199				
Total Xylenes		<0.00201	0.00201					<0.00199	0.00199				
Total BTEX		<0.00201	0.00201					<0.00199	0.00199				
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jun-28-17 15:30		Jun-28-17 15:30		Jun-28-17 15:30		Jun-28-17 15:30					
	Analyzed:	Jun-28-17 17:38		Jun-28-17 18:01		Jun-28-17 18:09		Jun-28-17 18:16					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		8.51	4.92	7.12	4.98	24.1	4.96	18.2	4.97				
TPH By SW8015 Mod	***Extracted:***	Jun-24-17 16:00						Jun-24-17 16:00					
	Analyzed:	Jun-25-17 07:58						Jun-25-17 08:18					
	Units/RL:	mg/kg	RL					mg/kg	RL				
Gasoline Range Hydrocarbons		<15.0	15.0					<15.0	15.0				
Diesel Range Organics		<15.0	15.0					168	15.0				
Oil Range Hydrocarbons		<15.0	15.0					27.5	15.0				
Total TPH		<15.0	15.0					196	15.0				

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

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: Cimarex- Double X25 Fed #4H

Work Orders : 555866, 555866 **Project ID:** 212C-MD-00861

Lab Batch #: 3020665 **Sample:** 555866-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 07:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 3020771 **Sample:** 555866-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 07:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.7	101	70-135	
o-Terphenyl	51.5	49.9	103	70-135	

Lab Batch #: 3020771 **Sample:** 555866-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 08:18

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	51.5	50.0	103	70-135	

Lab Batch #: 3021020 **Sample:** 555866-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/17 12:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	

Lab Batch #: 3020771 **Sample:** 726685-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 00:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	70-135	
o-Terphenyl	60.9	50.0	122	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- Double X25 Fed #4H

Work Orders : 555866, 555866 **Project ID:** 212C-MD-00861

Lab Batch #: 3020665 **Sample:** 726706-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 05:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 3021020 **Sample:** 726890-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/17 07:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 3020771 **Sample:** 726685-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 00:55

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	50.1	50.0	100	70-135	

Lab Batch #: 3020665 **Sample:** 726706-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 03:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 3021020 **Sample:** 726890-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/17 04:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	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- Double X25 Fed #4H

Work Orders : 555866, 555866 **Project ID:** 212C-MD-00861

Lab Batch #: 3020771 **Sample:** 726685-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 01:16

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	53.7	50.0	107	70-135	

Lab Batch #: 3020665 **Sample:** 726706-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/25/17 04:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0277	0.0300	92	80-120	

Lab Batch #: 3021020 **Sample:** 726890-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/17 04:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0344	0.0300	115	80-120	

Lab Batch #: 3020771 **Sample:** 555795-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 01:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.7	107	70-135	
o-Terphenyl	50.3	49.9	101	70-135	

Lab Batch #: 3020665 **Sample:** 556138-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 04:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0349	0.0300	116	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- Double X25 Fed #4H

Work Orders : 555866, 555866 **Project ID:** 212C-MD-00861

Lab Batch #: 3021020 **Sample:** 556211-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/17 11:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0346	0.0300	115	80-120	
4-Bromofluorobenzene	0.0344	0.0300	115	80-120	

Lab Batch #: 3020771 **Sample:** 555795-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 02:19

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.4	99.8	100	70-135	
o-Terphenyl	49.0	49.9	98	70-135	

Lab Batch #: 3020665 **Sample:** 556138-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/25/17 04:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0335	0.0300	112	80-120	
4-Bromofluorobenzene	0.0335	0.0300	112	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.

BS / BSD Recoveries

Project Name: Cimarex- Double X25 Fed #4H

Work Order #: 555866, 555866 **Project ID:** 212C-MD-00861

Analyst: ALJ **Date Prepared:** 06/24/2017 **Date Analyzed:** 06/25/2017

Lab Batch ID: 3020665 **Sample:** 726706-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.107	107	0.0994	0.0950	96	12	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.0994	0.0876	88	14	70-130	35	
Ethylbenzene	<0.00200	0.100	0.111	111	0.0994	0.0966	97	14	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.200	100	0.199	0.173	87	14	70-135	35	
o-Xylene	<0.00200	0.100	0.106	106	0.0994	0.0914	92	15	71-133	35	

Analyst: ALJ **Date Prepared:** 06/27/2017 **Date Analyzed:** 06/28/2017

Lab Batch ID: 3021020 **Sample:** 726890-1-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	0.101	0.0952	94	0.101	0.104	103	9	70-130	35	
Toluene	<0.00201	0.101	0.0831	82	0.101	0.0935	93	12	70-130	35	
Ethylbenzene	<0.00201	0.101	0.0885	88	0.101	0.100	99	12	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.151	75	0.201	0.174	87	14	70-135	35	
o-Xylene	<0.00201	0.101	0.0854	85	0.101	0.100	99	16	71-133	35	

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

BS / BSD Recoveries

Project Name: Cimarex- Double X25 Fed #4H

Work Order #: 555866, 555866 **Project ID:** 212C-MD-00861

Analyst: MGO **Date Prepared:** 06/28/2017 **Date Analyzed:** 06/28/2017

Lab Batch ID: 3021044 **Sample:** 726898-1-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	245	98	250	243	97	1	90-110	20	

Analyst: ARM **Date Prepared:** 06/24/2017 **Date Analyzed:** 06/25/2017

Lab Batch ID: 3020771 **Sample:** 726685-1-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	992	99	1000	1020	102	3	70-135	35	
Diesel Range Organics	<15.0	1000	1010	101	1000	979	98	3	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 Recoveries

Project Name: Cimarex- Double X25 Fed #4H

Work Order #: 555866

Lab Batch #: 3021020 **Project ID:** 212C-MD-00861

Date Analyzed: 06/28/2017 **Date Prepared:** 06/27/2017 **Analyst:** ALJ

QC- Sample ID: 556211-002 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

BTEX by EPA 8021B	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Benzene	<0.00201	0.100	0.0827	83	70-130	
Toluene	<0.00201	0.100	0.0753	75	70-130	
Ethylbenzene	<0.00201	0.100	0.0795	80	71-129	
m,p-Xylenes	<0.00402	0.201	0.143	71	70-135	
o-Xylene	<0.00201	0.100	0.0774	77	71-133	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: Cimarex- Double X25 Fed #4H

Work Order # : 555866 **Project ID:** 212C-MD-00861

Lab Batch ID: 3020665 **QC- Sample ID:** 556138-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/25/2017 **Date Prepared:** 06/24/2017 **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	0.0785	79	0.100	0.0898	90	13	70-130	35	
Toluene	<0.00200	0.100	0.0785	79	0.100	0.0795	80	1	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0770	77	0.100	0.0764	76	1	71-129	35	
m,p-Xylenes	0.00688	0.200	0.144	69	0.200	0.135	64	6	70-135	35	X
o-Xylene	<0.00200	0.100	0.0771	77	0.100	0.0762	76	1	71-133	35	

Lab Batch ID: 3021044 **QC- Sample ID:** 555866-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/28/2017 **Date Prepared:** 06/28/2017 **Analyst:** MGO

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	8.51	246	251	99	246	255	100	2	90-110	20	

Lab Batch ID: 3020771 **QC- Sample ID:** 555795-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/25/2017 **Date Prepared:** 06/24/2017 **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	<15.0	997	1060	106	998	974	98	8	70-135	35	
Diesel Range Organics	<15.0	997	998	100	998	987	99	1	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

PAGE: | OF:

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

555826

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Cimarex | SITE MANAGER: Ike Tavarez

PROJECT NO.: 212C-MD-00801 | PROJECT NAME: Cimarex Dubdx 25 Fed. #4H Lea Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TX1005 (Ext. to C35) TPH 8015 MOD.	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
	6/19/17		S		X	AH # 1 (0-1')	1	N			X		X	X											X				
						AH # 1 (1-1.5')	1	N			X														X				
						AH # 1 (2-2.5')	1	N			X														X				
						AH # 2 (0-1')	1	N			X		X	X											X				

Temp: 29 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2.7

RELINQUISHED BY: (Signature) — Date: 6-21-17 Time: 1200
RECEIVED BY: (Signature) — Date: 6/21/17 Time: 12:00
SAMPLED BY: (Print & Initial) NM — Date: 6-19-17 Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:
OTHER:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:

RECEIVING LABORATORY: XENCO
ADDRESS:
CITY: MIDLAND STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: Run deeper Samples: if TPH exceed 1,000 mg/kg and if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 06/21/2017 12:00:00 PM

Work Order #: 555866

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)?	2.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**N/A**
#21 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: Marithza Anaya Date: 06/21/2017

Marithza Anaya

Checklist reviewed by: Kelsey Brooks Date: 06/22/2017

Kelsey Brooks

Analytical Report 561984

for

Tetra Tech- Midland

Project Manager: Clair Gonzales

Cimarex- Double X 25 Fed #4H

212C-MD-00861

14-SEP-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

14-SEP-17

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

Reference: XENCO Report No(s): **561984**
Cimarex- Double X 25 Fed #4H
Project Address: Lea Co,NM

Clair Gonzales:

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) 561984. 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. 561984 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 561984

Tetra Tech- Midland, Midland, TX

Cimarex- Double X 25 Fed #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1 (0-1)	S	08-31-17 00:00		561984-001
T1 (1')	S	08-31-17 00:00		561984-002
T1 (2')	S	08-31-17 00:00		561984-003
T1 (3')	S	08-31-17 00:00		561984-004
T1 (4')	S	08-31-17 00:00		561984-005
T1 (5')	S	08-31-17 00:00		561984-006
T2 (0-1)	S	08-31-17 00:00		561984-007
T2 (1')	S	08-31-17 00:00		561984-008
T2 (2')	S	08-31-17 00:00		561984-009
T2 (3')	S	08-31-17 00:00		561984-010
T2 (4')	S	08-31-17 00:00		561984-011

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Cimarex- Double X 25 Fed #4H

Project ID: *212C-MD-00861*
Work Order Number(s): *561984*

Report Date: *14-SEP-17*
Date Received: *09/05/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3027028 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3027189 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 561984

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Double X 25 Fed #4H

Project Id: 212C-MD-00861
Contact: Clair Gonzales
Project Location: Lea Co,NM

Date Received in Lab: Tue Sep-05-17 04:30 pm
Report Date: 14-SEP-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	561984-001		561984-002		561984-003		561984-004		561984-005		561984-006	
	Field Id:	T1 (0-1)		T1 (1')		T1 (2')		T1 (3')		T1 (4')		T1 (5')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00	
BTEX by EPA 8021B	***Extracted:***											Sep-08-17 08:30	
	Analyzed:											Sep-08-17 11:24	
	Units/RL:											mg/kg	RL
Benzene												<0.00344	0.00344
Toluene												<0.00344	0.00344
Ethylbenzene												<0.00344	0.00344
m,p-Xylenes												<0.00687	0.00687
o-Xylene												<0.00344	0.00344
Total Xylenes												<0.00344	0.00344
Total BTEX												<0.00344	0.00344
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15	
	Analyzed:	Sep-11-17 18:37		Sep-11-17 19:01		Sep-11-17 19:09		Sep-11-17 19:34		Sep-11-17 19:42		Sep-11-17 19:50	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<4.99	4.99	<4.93	4.93	81.7	4.90	102	4.95	292	4.96	331	4.95
TPH By SW8015 Mod	***Extracted:***											Sep-09-17 18:00	
	Analyzed:											Sep-10-17 14:26	
	Units/RL:											mg/kg	RL
Gasoline Range Hydrocarbons (GRO)												<14.9	14.9
Diesel Range Organics (DRO)												<14.9	14.9
Oil Range Hydrocarbons (ORO)												<14.9	14.9
Total TPH												<14.9	14.9

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

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 561984

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Double X 25 Fed #4H

Project Id: 212C-MD-00861
Contact: Clair Gonzales
Project Location: Lea Co,NM

Date Received in Lab: Tue Sep-05-17 04:30 pm
Report Date: 14-SEP-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	561984-007		561984-008		561984-009		561984-010		561984-011	
	Field Id:	T2 (0-1)		T2 (1')		T2 (2')		T2 (3')		T2 (4')	
	Depth:										
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00		Aug-31-17 00:00	
BTEX by EPA 8021B	***Extracted:***									Sep-07-17 08:00	
	Analyzed:									Sep-07-17 19:14	
	Units/RL:									mg/kg	RL
Benzene										<0.00201	0.00201
Toluene										<0.00201	0.00201
Ethylbenzene										<0.00201	0.00201
m,p-Xylenes										<0.00402	0.00402
o-Xylene										<0.00201	0.00201
Total Xylenes										<0.00201	0.00201
Total BTEX										<0.00201	0.00201
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15		Sep-11-17 15:15		Sep-12-17 15:30	
	Analyzed:	Sep-11-17 19:58		Sep-11-17 20:07		Sep-11-17 20:15		Sep-11-17 20:23		Sep-12-17 21:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		24.5	4.94	<4.96	4.96	717	4.92	305	4.91	506	4.97
TPH By SW8015 Mod	***Extracted:***									Sep-09-17 18:00	
	Analyzed:									Sep-10-17 14:46	
	Units/RL:									mg/kg	RL
Gasoline Range Hydrocarbons (GRO)										<15.0	15.0
Diesel Range Organics (DRO)										<15.0	15.0
Oil Range Hydrocarbons (ORO)										<15.0	15.0
Total TPH										<15.0	15.0

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

Kelsey Brooks
Project Manager

Final 1.000

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: Cimarex- Double X 25 Fed #4H

Work Orders : 561984,

Project ID: 212C-MD-00861

Lab Batch #: 3027028 **Sample:** 561984-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/07/17 19:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0259	0.0300	86	80-120	

Lab Batch #: 3027189 **Sample:** 561984-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/08/17 11:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0247	0.0300	82	80-120	

Lab Batch #: 3027224 **Sample:** 561984-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/10/17 14:26

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	99.6	108	70-135	
o-Terphenyl	54.2	49.8	109	70-135	

Lab Batch #: 3027224 **Sample:** 561984-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/10/17 14:46

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.9	105	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

Lab Batch #: 3027028 **Sample:** 730538-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/07/17 10:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0282	0.0300	94	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- Double X 25 Fed #4H

Work Orders : 561984,

Project ID: 212C-MD-00861

Lab Batch #: 3027189 **Sample:** 730642-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/08/17 09:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0241	0.0300	80	80-120	

Lab Batch #: 3027224 **Sample:** 730691-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/10/17 12:27

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	53.5	50.0	107	70-135	

Lab Batch #: 3027028 **Sample:** 730538-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/07/17 07:48

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 #: 3027189 **Sample:** 730642-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/08/17 07:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

Lab Batch #: 3027224 **Sample:** 730691-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/10/17 12:47

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	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: Cimarex- Double X 25 Fed #4H

Work Orders : 561984,

Project ID: 212C-MD-00861

Lab Batch #: 3027028 **Sample:** 730538-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/07/17 08:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 3027189 **Sample:** 730642-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/08/17 08:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0263	0.0300	88	80-120	

Lab Batch #: 3027224 **Sample:** 730691-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 09/10/17 13:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	48.9	50.0	98	70-135	

Lab Batch #: 3027028 **Sample:** 561863-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/07/17 08:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0271	0.0300	90	80-120	

Lab Batch #: 3027189 **Sample:** 562130-006 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/08/17 08:28

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	0.0265	0.0300	88	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- Double X 25 Fed #4H

Work Orders : 561984,

Project ID: 212C-MD-00861

Lab Batch #: 3027224 **Sample:** 562162-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/10/17 13:47

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.9	99.7	98	70-135	
o-Terphenyl	44.4	49.9	89	70-135	

Lab Batch #: 3027028 **Sample:** 561863-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/07/17 08:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 3027189 **Sample:** 562130-006 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/08/17 08:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 3027224 **Sample:** 562162-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 09/10/17 14:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.9	109	70-135	
o-Terphenyl	43.3	50.0	87	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- Double X 25 Fed #4H

Work Order #: 561984 **Project ID:** 212C-MD-00861

Analyst: ALJ **Date Prepared:** 09/07/2017 **Date Analyzed:** 09/07/2017

Lab Batch ID: 3027028 **Sample:** 730538-1-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	0.106	105	0.0998	0.106	106	0	70-130	35	
Toluene	<0.00202	0.101	0.102	101	0.0998	0.101	101	1	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0994	98	0.0998	0.0992	99	0	71-129	35	
m,p-Xylenes	<0.00403	0.202	0.194	96	0.200	0.193	97	1	70-135	35	
o-Xylene	<0.00202	0.101	0.0929	92	0.0998	0.0931	93	0	71-133	35	

Analyst: ALJ **Date Prepared:** 09/08/2017 **Date Analyzed:** 09/08/2017

Lab Batch ID: 3027189 **Sample:** 730642-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.119	119	0.101	0.108	107	10	70-130	35	
Toluene	<0.00200	0.100	0.110	110	0.101	0.101	100	9	70-130	35	
Ethylbenzene	<0.00200	0.100	0.107	107	0.101	0.0984	97	8	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.208	104	0.202	0.191	95	9	70-135	35	
o-Xylene	<0.00200	0.100	0.0995	100	0.101	0.0920	91	8	71-133	35	

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

BS / BSD Recoveries

Project Name: Cimarex- Double X 25 Fed #4H

Work Order #: 561984 **Project ID:** 212C-MD-00861

Analyst: MNV **Date Prepared:** 09/11/2017 **Date Analyzed:** 09/11/2017

Lab Batch ID: 3027427 **Sample:** 730722-1-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	253	101	250	252	101	0	90-110	20	

Analyst: MNV **Date Prepared:** 09/12/2017 **Date Analyzed:** 09/12/2017

Lab Batch ID: 3027515 **Sample:** 730869-1-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	249	100	250	251	100	1	90-110	20	

Analyst: ARM **Date Prepared:** 09/09/2017 **Date Analyzed:** 09/10/2017

Lab Batch ID: 3027224 **Sample:** 730691-1-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	1110	111	1000	1110	111	0	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1190	119	1000	1180	118	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

Form 3 - MS / MSD Recoveries

Project Name: Cimarex- Double X 25 Fed #4H

Work Order # : 561984 **Project ID:** 212C-MD-00861

Lab Batch ID: 3027028 **QC- Sample ID:** 561863-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/07/2017 **Date Prepared:** 09/07/2017 **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	<0.00351	0.175	0.211	121	0.173	0.148	86	35	70-130	35	
Toluene	<0.00351	0.175	0.166	95	0.173	0.136	79	20	70-130	35	
Ethylbenzene	<0.00351	0.175	0.127	73	0.173	0.129	75	2	71-129	35	
m,p-Xylenes	<0.00702	0.351	0.239	68	0.346	0.251	73	5	70-135	35	X
o-Xylene	<0.00351	0.175	0.134	77	0.173	0.126	73	6	71-133	35	

Lab Batch ID: 3027189 **QC- Sample ID:** 562130-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/08/2017 **Date Prepared:** 09/08/2017 **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	0.0998	0.0668	67	0.0994	0.0830	84	22	70-130	35	X
Toluene	<0.00200	0.0998	0.0614	62	0.0994	0.0756	76	21	70-130	35	X
Ethylbenzene	<0.00200	0.0998	0.0581	58	0.0994	0.0702	71	19	71-129	35	X
m,p-Xylenes	<0.00399	0.200	0.114	57	0.199	0.137	69	18	70-135	35	X
o-Xylene	<0.00200	0.0998	0.0559	56	0.0994	0.0669	67	18	71-133	35	X

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: Cimarex- Double X 25 Fed #4H

Work Order # : 561984 **Project ID:** 212C-MD-00861

Lab Batch ID: 3027427 **QC- Sample ID:** 561862-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/11/2017 **Date Prepared:** 09/11/2017 **Analyst:** MNV

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	76.6	249	341	106	249	342	107	0	90-110	20	

Lab Batch ID: 3027427 **QC- Sample ID:** 561984-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/11/2017 **Date Prepared:** 09/11/2017 **Analyst:** MNV

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	<4.99	250	267	107	250	268	107	0	90-110	20	

Lab Batch ID: 3027515 **QC- Sample ID:** 562132-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/12/2017 **Date Prepared:** 09/12/2017 **Analyst:** MNV

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	19.8	249	286	107	249	285	107	0	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: Cimarex- Double X 25 Fed #4H

Work Order # : 561984 **Project ID:** 212C-MD-00861

Lab Batch ID: 3027224 **QC- Sample ID:** 562162-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/10/2017 **Date Prepared:** 09/09/2017 **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	997	1080	108	999	972	97	11	70-135	35	
Diesel Range Organics (DRO)	<15.0	997	1050	105	999	1050	105	0	70-135	35	

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

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

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

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

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

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

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

561984

Cimarex | Site Manager: Clair Gonzales

Project Name: Double X25 Fed # 4H

Project Location: (county, state) Lea Co, NM | Project #: 212c-MD-00861

Invoice to: Bill to Cimarex

Receiving Laboratory: XENCO | Sampler Signature: Mathew McDaniel

Comments:

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: DATE	TIME	MATRIX WATER	SOIL		PRESERVATIVE METHOD HCL	HNO_3	ICE		# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - 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
	T1 (0-1)	8/31/2017			x				x		1	n															x								
	T1 (1')	8/31/17			x				x		1	n															x								
	T1 (2')	8/31/17			x				x		1	n															x								
	T1 (3')	8/31/17			x				x		1	n															x								
	T1 (4')	8/31/17			x				x		1	n															x								
	T1 (5')	8/31/17			x				x		1	n															x								
	T2 (0-1)	8/31/17			x				x		1	n	x		x												x								
	T2 (1')	8/31/17			x				x		1	n															x								
	T2 (2')	8/31/17			x				x		1	n															x								
	T2 (3')	8/31/17			x				x		1	n															x								

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9-5-17	16:30		9-5-17	16:30
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

(Circle) HA

REMARKS: Standard

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Special Report

Temp: 5.6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 5.4

ORIGINAL COPY

Final 1.000

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

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

561984

Cimarex | Site Manager: Clair Gonzales

Project Name: Double X25 Fed # 4H

Project Location: (county, state) Lea Co, NM | Project #: 212c-MD-00861

Invoice to: Bill to Cimarex

Receiving Laboratory: XENCO | Sampler Signature: Mathew McDaniel

Comments:

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	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	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
	T2 (4')	8/31/2017			x				x		1	n	x		x												x								

Relinquished by: Date: 9-5-17 Time: 1630 | Received by: Date: 9-5-17 Time: 16:30

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

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

ORIGINAL COPY

LAB USE ONLY

Sample Temperature

REMARKS: Standard

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

Temp: 5.6 IR ID:R-8

CF:(0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: 5.4

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 09/05/2017 04:30:00 PM

Work Order #: 561984

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)?	5.4
#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: Shawnee Smith Date: 09/06/2017

Shawnee Smith

Checklist reviewed by: Kelsey Brooks Date: 09/06/2017

Kelsey Brooks

Certificate of Analysis Summary 600594

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Double X Federal #4H

Project Id: 212C-MD-00861
Contact: Clair Gonzales
Project Location: Lea CO. NM

Date Received in Lab: Thu Sep-27-18 03:47 pm
Report Date: 09-OCT-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	600594-001		600594-002		600594-003		600594-004					
	Field Id:	AH#1 (0-6")		AH#2 (0-6")		AH#3 (0-6")		AH#4 (0-6")					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Sep-27-18 00:00		Sep-27-18 00:00		Sep-27-18 00:00		Sep-27-18 00:00					
BTEX by EPA 8021B	***Extracted:***	Oct-05-18 14:00		Oct-05-18 14:00		Oct-05-18 14:00		Oct-05-18 14:00					
	Analyzed:	Oct-05-18 19:16		Oct-05-18 19:38		Oct-05-18 19:59		Oct-05-18 20:21					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Toluene		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Ethylbenzene		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
m,p-Xylenes		<0.00402	0.00402	<0.00399	0.00399	<0.00398	0.00398	<0.00400	0.00400				
o-Xylene		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Total Xylenes		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Total BTEX		<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	Oct-01-18 09:15		Oct-01-18 09:15		Oct-01-18 09:15		Oct-01-18 09:15					
	Analyzed:	Oct-01-18 12:35		Oct-01-18 12:40		Oct-01-18 12:46		Oct-01-18 12:52					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		<5.01	5.01	25.7	4.95	37.6	4.98	205	4.95				
TPH By SW8015 Mod	***Extracted:***	Sep-29-18 10:00		Sep-29-18 10:00		Sep-29-18 10:00		Sep-29-18 10:00					
	Analyzed:	Sep-30-18 21:15		Sep-30-18 22:11		Sep-30-18 22:29		Sep-30-18 22:48					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0				
Diesel Range Organics (DRO)		51.3	15.0	<14.9	14.9	<14.9	14.9	22.0	15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0				
Total TPH		51.3	15.0	<14.9	14.9	<14.9	14.9	22.0	15.0				

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

Kelsey Brooks
Project Manager

Final 1.000

Analytical Report 600594

for

Tetra Tech- Midland

Project Manager: Clair Gonzales

Cimarex- Double X Federal #4H

212C-MD-00861

09-OCT-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

09-OCT-18

Project Manager: **Clair Gonzales**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **600594**
Cimarex- Double X Federal #4H
Project Address: Lea CO. NM

Clair Gonzales:

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) 600594. 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. 600594 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 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH#1 (0-6")	S	09-27-18 00:00		600594-001
AH#2 (0-6")	S	09-27-18 00:00		600594-002
AH#3 (0-6")	S	09-27-18 00:00		600594-003
AH#4 (0-6")	S	09-27-18 00:00		600594-004

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Cimarex- Double X Federal #4H

Project ID: *212C-MD-00861*
Work Order Number(s): *600594*

Report Date: *09-OCT-18*
Date Received: *09/27/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3065657 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Lab Sample ID 600594-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Benzene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 600594-001, -002, -003, -004.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#1 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-001	Date Collected:	09.27.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	CHE	Date Prep:	10.01.18 09.15	Basis:	Wet Weight
Seq Number:	3064901				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.01	5.01	mg/kg	10.01.18 12.35	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.29.18 10.00	Basis:	Wet Weight
Seq Number:	3064935				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.30.18 21.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	**51.3**	15.0	mg/kg	09.30.18 21.15		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.30.18 21.15	U	1
Total TPH	PHC635	**51.3**	15.0	mg/kg	09.30.18 21.15		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	09.30.18 21.15	
o-Terphenyl	84-15-1	99	%	70-135	09.30.18 21.15	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#1 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-001	Date Collected:	09.27.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.05.18 14.00	Basis:	Wet Weight
Seq Number:	3065657				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.05.18 19.16	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.05.18 19.16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	116	%	70-130	10.05.18 19.16	
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.05.18 19.16	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id: **AH#2 (0-6")** Matrix: Soil Date Received:09.27.18 15.47

Lab Sample Id: 600594-002 Date Collected: 09.27.18 00.00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: CHE Date Prep: 10.01.18 09.15 Basis: Wet Weight

Seq Number: 3064901

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.7**	4.95	mg/kg	10.01.18 12.40		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 09.29.18 10.00 Basis: Wet Weight

Seq Number: 3064935

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	09.30.18 22.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	09.30.18 22.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.30.18 22.11	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	09.30.18 22.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	09.30.18 22.11	
o-Terphenyl	84-15-1	96	%	70-135	09.30.18 22.11	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#2 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-002	Date Collected:	09.27.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.05.18 14.00	Basis:	Wet Weight
Seq Number:	3065657				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.05.18 19.38	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.05.18 19.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	10.05.18 19.38	
4-Bromofluorobenzene	460-00-4	94	%	70-130	10.05.18 19.38	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#3 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-003	Date Collected:	09.27.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	CHE	Date Prep:	10.01.18 09.15	Basis:	Wet Weight
Seq Number:	3064901				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**37.6**	4.98	mg/kg	10.01.18 12.46		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.29.18 10.00	Basis:	Wet Weight
Seq Number:	3064935				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	09.30.18 22.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	09.30.18 22.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.30.18 22.29	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	09.30.18 22.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	09.30.18 22.29	
o-Terphenyl	84-15-1	98	%	70-135	09.30.18 22.29	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#3 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-003	Date Collected:	09.27.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.05.18 14.00	Basis:	Wet Weight
Seq Number:	3065657				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.05.18 19.59	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.05.18 19.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	10.05.18 19.59	
4-Bromofluorobenzene	460-00-4	93	%	70-130	10.05.18 19.59	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id: **AH#4 (0-6")** Matrix: Soil Date Received:09.27.18 15.47

Lab Sample Id: 600594-004 Date Collected: 09.27.18 00.00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: CHE Date Prep: 10.01.18 09.15 Basis: Wet Weight

Seq Number: 3064901

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**205**	4.95	mg/kg	10.01.18 12.52		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 09.29.18 10.00 Basis: Wet Weight

Seq Number: 3064935

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.30.18 22.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	**22.0**	15.0	mg/kg	09.30.18 22.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.30.18 22.48	U	1
Total TPH	PHC635	**22.0**	15.0	mg/kg	09.30.18 22.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	09.30.18 22.48	
o-Terphenyl	84-15-1	96	%	70-135	09.30.18 22.48	

Certificate of Analytical Results 600594

Tetra Tech- Midland, Midland, TX

Cimarex- Double X Federal #4H

Sample Id:	**AH#4 (0-6")**	Matrix:	Soil	Date Received:	09.27.18 15.47
Lab Sample Id:	600594-004	Date Collected:	09.27.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.05.18 14.00	Basis:	Wet Weight
Seq Number:	3065657				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	10.05.18 20.21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.05.18 20.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	120	%	70-130	10.05.18 20.21	
4-Bromofluorobenzene	460-00-4	102	%	70-130	10.05.18 20.21	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 600594

Tetra Tech- Midland

Cimarex- Double X Federal #4H

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3064901 — Matrix: Solid — Date Prep: 10.01.18
MB Sample Id: 7663267-1-BLK — LCS Sample Id: 7663267-1-BKS — LCSD Sample Id: 7663267-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	258	103	259	104	90-110	0	20	mg/kg	10.01.18 10:13	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3064901 — Matrix: Soil — Date Prep: 10.01.18
Parent Sample Id: 600488-005 — MS Sample Id: 600488-005 S — MSD Sample Id: 600488-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1200	253	1400	79	1400	79	90-110	0	20	mg/kg	10.01.18 11:49	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3064901 — Matrix: Soil — Date Prep: 10.01.18
Parent Sample Id: 600661-012 — MS Sample Id: 600661-012 S — MSD Sample Id: 600661-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	247	99	248	99	90-110	0	20	mg/kg	10.01.18 10:30	

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3064935 — Matrix: Solid — Date Prep: 09.29.18
MB Sample Id: 7663258-1-BLK — LCS Sample Id: 7663258-1-BKS — LCSD Sample Id: 7663258-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	966	97	967	97	70-135	0	20	mg/kg	09.30.18 20:38	
Diesel Range Organics (DRO)	<8.13	1000	996	100	1000	100	70-135	0	20	mg/kg	09.30.18 20:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		116		112		70-135	%	09.30.18 20:38
o-Terphenyl	107		103		106		70-135	%	09.30.18 20:38

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

QC Summary 600594

Tetra Tech- Midland

Cimarex- Double X Federal #4H

Analytical Method: TPH By SW8015 Mod | Prep Method: TX1005P
Seq Number: 3064935 | Matrix: Soil | Date Prep: 09.29.18
Parent Sample Id: 600594-001 | MS Sample Id: 600594-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	911	91	70-135	mg/kg	09.30.18 21:34	
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	921	92	70-135	mg/kg	09.30.18 21:52	
Diesel Range Organics (DRO)	51.3	1000	971	92	70-135	mg/kg	09.30.18 21:34	
Diesel Range Organics (DRO)	51.3	1000	989	94	70-135	mg/kg	09.30.18 21:52	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		70-135	%	09.30.18 21:34
1-Chlorooctane	128		70-135	%	09.30.18 21:52
o-Terphenyl	107		70-135	%	09.30.18 21:34
o-Terphenyl	103		70-135	%	09.30.18 21:52

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3065657 | Matrix: Solid | Date Prep: 10.05.18
MB Sample Id: 7663732-1-BLK | LCS Sample Id: 7663732-1-BKS | LCSD Sample Id: 7663732-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0874	88	0.0926	93	70-130	6	35	mg/kg	10.05.18 17:10	
Toluene	<0.00200	0.0998	0.0781	78	0.0838	84	70-130	7	35	mg/kg	10.05.18 17:10	
Ethylbenzene	<0.00200	0.0998	0.0922	92	0.0991	99	70-130	7	35	mg/kg	10.05.18 17:10	
m,p-Xylenes	<0.00399	0.200	0.184	92	0.199	100	70-130	8	35	mg/kg	10.05.18 17:10	
o-Xylene	<0.00200	0.0998	0.0928	93	0.100	100	70-130	7	35	mg/kg	10.05.18 17:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	123		122		124		70-130	%	10.05.18 17:10
4-Bromofluorobenzene	94		108		114		70-130	%	10.05.18 17:10

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3065657 | Matrix: Soil | Date Prep: 10.05.18
Parent Sample Id: 600594-001 | MS Sample Id: 600594-001 S | MSD Sample Id: 600594-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0761	75	0.0677	67	70-130	12	35	mg/kg	10.05.18 17:52	X
Toluene	<0.00202	0.101	0.0544	54	0.0460	46	70-130	17	35	mg/kg	10.05.18 17:52	X
Ethylbenzene	<0.00202	0.101	0.0500	50	0.0408	40	70-130	20	35	mg/kg	10.05.18 17:52	X
m,p-Xylenes	<0.00403	0.202	0.0904	45	0.0729	36	70-130	21	35	mg/kg	10.05.18 17:52	X
o-Xylene	<0.00202	0.101	0.0514	51	0.0434	43	70-130	17	35	mg/kg	10.05.18 17:52	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	117		114		70-130	%	10.05.18 17:52
4-Bromofluorobenzene	111		113		70-130	%	10.05.18 17:52

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Analysis Request of Chain of Custody Record

600594

Tetra Tech, Inc.

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

Client Name: Cimarex	**Site Manager:** Clair Gonzales
Project Name: Double X Federal #4H	
Project Location: (county, state) Lea CO. NM	**Project #:** 212C-MD-00861
Invoice to: Cimarex - Christine Alderman	
Receiving Laboratory: Xenco	**Sampler Signature:** Conner Moehring
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2018 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	AH #1 (0-6")	9/27/2018			X				X		1	N	X		X												X							
	AH #2 (0-6")	9/27/2018			X				X		1	N	X		X												X							
	AH #3 (0-6")	9/27/2018			X				X		1	N	X		X												X							
	AH #4 (0-6")	9/27/2018			X				X		1	N	X		X												X							

Relinquished by:	Date: 9/27/18	Time: 1517
Relinquished by:	Date:	Time:
Relinquished by:	Date:	Time:
Received by:	Date: 9/27/18	Time: 15:47
Received by:	Date:	Time:
Received by:	Date:	Time:

LAB USE ONLY
Sample Temperature 4.9

REMARKS:
- [X] STANDARD
- [ ] 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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 09/27/2018 03:47:00 PM

Work Order #: 600594

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)?	4.9
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 09/27/2018

Brianna Teel

Checklist reviewed by: Kelsey Brooks Date: 09/28/2018

Kelsey Brooks

Photos

Cimarex Energy
Double X 25 Federal #4H
Lea County, New Mexico

TETRA TECH

View Southeast – Area of release.

View Northeast – Area of release.

Appendix A: Agency Forms

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Cimarex Energy	Contact: Gloria Garza
Address: 600 N Marienfeld Ste 600 Midland TX	Telephone No. 432-234-3204
Facility Name: Double X 25 Federal No. 4H	Facility Type: Well

Surface Owner: Federal	Mineral Owner	API No.: 30-025-40690

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	25	24S	32E	330	FNL	2055	FWL	Lea

Latitude: 32.11' 42" N __Longitude: -103. 37' 48" W __

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 10 BBLS	Volume Recovered: 5 BBLS
Source of Release: Well	Date and Hour of Occurrence: 5/28/2016 8:30 AM	Date and Hour of Discovery: 5/28/2016 8:30 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Shelly Tucker/Jamie Keyes	
By Whom? Gloria Garza	Date and Hour: 5/29/2016 4:00 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
We were having issues at the well, the float switch did kill the well but the unit kept flowing causing the stuffing box to burn up releasing fluid out of stuffing box containment.

Describe Area Affected and Cleanup Action Taken.*
We will remediate the impacted soil.

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: Gloria Garza

Printed Name: Gloria Garza

Title: ESH Specialist

E-mail Address: ggarza@cimarex.com

Date: 5/29/16 Phone: 432-234-3204

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: Expiration Date:

Conditions of Approval: Attached ☐

Attach Additional Sheets If Necessary

Site- 19002100
Lab- 600
Reporting $1600

Cimarex Energy Co.
Form: Cimarex Incident Report
v3.0

Hobbs East
2020 W. Bender Blvd
Hobbs NM
88240

Phone: +1 (575) 393-1020
Fax:
Client No.: Hobbs E

Completed by: Osborne, John
Completed on: 2016-05-28 14:08
Number: XEC02313

INCIDENT TIMING	
Today's Date	2016-05-28
Date of Incident	2016-05-28
Time of Incident	08:30
DEPARTMENT	
Select Department	Production
REPORTING	
REPORTED BY	
First Name	John
Last Name	Davis
Phone Number	575-200-4880
REPORTED TO	
First Name	John
Last Name	Osborne
Phone Number	575-390-8978
Was ES&H notified immediately?	No
INCIDENT DETAILS	
Operation At Time Of Incident?	Producing Well.
LOCATION OF INCIDENT	
Where Did Incident Occur?	Lease
Lease Name	Double X 25 Federal 4H
State	NM - New Mexico
City	
County	Lea
Section-Block-Lat-Long	
Section	25
Township (NM, OK, KS, LA, KY, MI)	24 S
Range	32 E
Block (TX Only)	
GPS Location	
Apple Device	No
Latitude	32°11'42" N
Longitude	-103°37'48" W
TYPE OF INCIDENT	
Type of Incident?	Spill / Release
Date Spill/Release Discovered	2016-05-28
Time Spill/Release Discovered	08:30
TYPE OF MATERIAL SPILLED/RELEASED (1)	
Type of Material Spilled / Released?	Produced Water
Quantity Spilled	10
Quantity Recovered	5
Unit of Measure	Barrels (bbls)
CAUSE OF SPILL/RELEASE	

Cause of Spill/Release (State the facts only)	Stuffing box packing burned up, Containment did shut well down but well kept flowing.
Was Spill/Release Contained?	Yes
AFFECTED AREA INFORMATION (1)	
What Type of Area Was Affected?	Location Pad
In Feet, Specify Area Affected (length, width, & depth)	50'x20'x2"
NOTIFICATIONS	
Has Landowner been Informed?	No
Has the State Oil & Gas Commission Been Notified?	No
Has the BLM/BIA been notified, if applicable?	No
Witnesses to the Incident	
Were there Witnesses to the Incident?	No
WEATHER CONDITIONS - If Known	
Outside Air Temperature (deg F)	70
Weather Conditions	Clear
Wind - If Known	
Speed (MPH)	5
Direction	Out of the Southwest
INCIDENT DESCRIPTION	
Describe the Incident (State the Facts Only)	Stuffing box packing burned up. Float switch did kill the unit but the well kept flowing. Have video of the well flowing.
CONTRACTORS INVOLVED	
What Contractors were Involved?	
COMMENTS	
Enter any additional comments (facts only)	
PICTURE (1)	
Attach Pictures	
Picture Comment	

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: _____ Title: _____

Signature: gloria garza Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: garcia garza _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Bradford Billings Date: 09/08/2021

Printed Name: Bradford Billings Title: Envi.Spec.A

Appendix B: Groundwater Data

Water Well Data
Average Depth to Groundwater (ft)
Cimarex - Double X 25 Federal $4H
Lea County, New Mexico

23 South 31 East

6	5	4	3	2	1
85	354	168			
7	8	9	10	11	12
140					
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
		400			
30	29	28	27	26	25
31	32	33	34	35	36

23 South 33 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

24 South 31 East

6	5	4	3	2	1
				192	
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

24 South 32 East

6	5	4	3	2	1
	380				
7	8	9	10	11	12
			20		
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
		290			

24 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
			24.6		
18	17	16	15	14	13
19	20	21	22	23	24
				208	16.9
30	29	28	27	26	25
31	32	33	34	35	36
		93.2			

25 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 390	22	23	24
		290			
30	29	28	27	26	25
31	32	33	34	35	36

25 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
	290				

25 South 33 East

6	5	4	3	2	1
			172		
7	8	9	10	11	12
				140	200
18	17	16	15	14	13
19	20	21	22	23	24
	200	120			
30	29	28	27	26	25
			125		
31	32	33	34	35	36
257					

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

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

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

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 01932		C	ED		3	1	12	24S	32E	628633	3567188*	492		
C 02350			ED		4	3	10	24S	32E	625826	3566333*	60		
C 03527 POD1		C	LE	1	2	3	03	24S	32E	625770	3568487	500		
C 03528 POD1		C	LE	1	1	2	15	24S	32E	626040	3566129	541		
C 03530 POD1		C	LE	3	4	3	07	24S	32E	620886	3566156	550		
C 03555 POD1		C	LE	2	2	1	05	24S	32E	622709	3569231	600	380	220

Average Depth to Water: **380 feet**
Minimum Depth: **380 feet**
Maximum Depth: **380 feet**

Record Count: 6

PLSS Search:

Township: 24S **Range:** 32E

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

National Water Information System: Web Interface

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 321017103343201

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

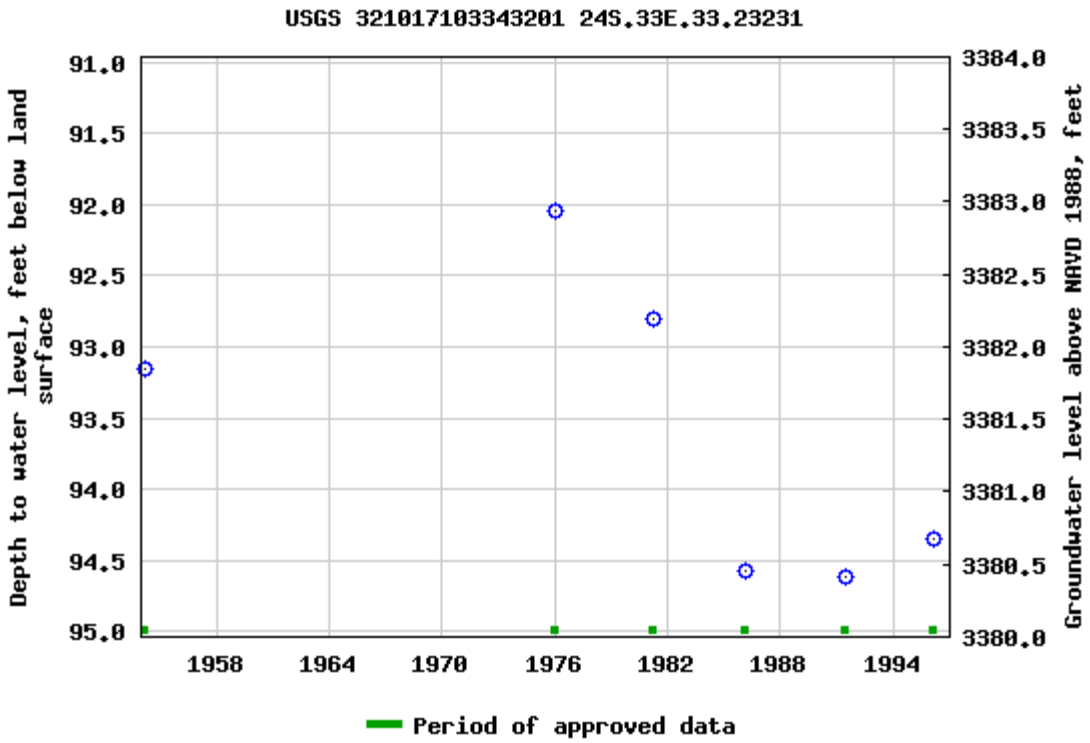
USGS 321017103343201 24S.33E.33.23231

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°10'17", Longitude 103°34'32" NAD27
Land-surface elevation 3,475 feet above NAVD88
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

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



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

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

Title: Groundwater for New Mexico: Water Levels
URL: https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?

Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2018-04-25 12:25:25 EDT
1.15 1.02 nadww01

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 4542
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	None	9/8/2021