

## SITE INFORMATION

**Report Type: Closure Report    1RP-4845**

### General Site Information:

<b>Site:</b>	Cochise 2 State 4				
<b>Company:</b>	Saber Oil & Gas Ventures, LLC.				
<b>Section, Township and Range</b>	Unit G	Sec. 02	T 19S	R 32E	
<b>Lease Number:</b>	API No. 30-025-31670				
<b>County:</b>	Lea County				
<b>GPS:</b>	32.692152° N			103.7347785° W	
<b>Surface Owner:</b>	State				
<b>Mineral Owner:</b>					
<b>Directions:</b>	From the intersection of 126A and Dry Lake Rd in rural Lea County, travel east on Dry Lake Rd for approximately 5.10 mi, turn north onto lease road and continue for 2.25 mi, turn west onto lease road and continue for 1.20 mi to the location.				

### Release Data:

<b>Date Released:</b>	Unknown
<b>Type Release:</b>	Produced Water and Oil
<b>Source of Contamination:</b>	Flowline
<b>Fluid Released:</b>	Unknown
<b>Fluids Recovered:</b>	None

### Official Communication:

<b>Name:</b>	Nelson Patton	Ike Tavaréz
<b>Company:</b>	Saber Oil & Gas	Tetra Tech
<b>Address:</b>	400 West Illinois Ave., Ste 950	4000 N. Big Spring Ste 401
<b>City:</b>	Midland Texas, 79701	Midland, Texas
<b>Phone number:</b>	(432) 685-0169	(432) 687-8110
<b>Fax:</b>		
<b>Email:</b>	<a href="mailto:nelson@saberoqv.com">nelson@saberoqv.com</a>	<a href="mailto:Ike.Tavaréz@tetrattech.com">Ike.Tavaréz@tetrattech.com</a>

### Ranking Criteria

<b>Depth to Groundwater:</b>	<b>Ranking Score</b>	<b>Site Data</b>
<50 ft	20	
50-99 ft	10	
>100 ft.	0	250'-275'
<b>WellHead Protection:</b>		
	<b>Ranking Score</b>	<b>Site Data</b>
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
<b>Surface Body of Water:</b>		
	<b>Ranking Score</b>	<b>Site Data</b>
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
<b>Total Ranking Score:</b>		<b>0</b>

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



November 27, 2017

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

**Re: Closure Report for the Saber Oil & Gas Ventures, LLC., Cochise 2 State 4, Unit G, Section 02, Township 19 South, Range 32 East, Lea County, New Mexico. 1RP-4845**

Mr. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by Saber Oil & Gas Ventures, LLC. (Saber) to evaluate and assess a spill at the Cochise 2 State 4, Unit G, Section 02, Township 19 South, Range 32 East, Lea County, New Mexico (site). The spill site coordinates are N 32.692152 °, W 103.7347785 °. The site location is shown on Figures 1 and 2.

## **Background**

According to the State of New Mexico C-141 Initial Report, the leak was discovered on October 12, 2017, and released an unknown amount of oil and produced water due to a ruptured flowline. The release occurred in the pasture adjacent to the pad and measured approximately 25' x 50'. As part of an emergency response, the release area was excavated to a depth of 1.0' below surface on October 18, 2017. The excavation was performed to remove the saturated soils and prevent vertical migration of the fluids. Approximately 40 cubic yards of excavated material was hauled for proper disposal. The initial C-141 form is included in Appendix A.

## **Groundwater**

No water wells were listed within Section 02 on the New Mexico Office of the State Engineer's website. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is between 250' and 275' below surface. The groundwater data is shown in Appendix B.



## **Regulatory**

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

## **Soil Assessment and Analytical Results**

On October 18, 2017, Tetra Tech personnel were onsite to supervise the excavation and to sample the release area. Once the area was excavated to a depth of 1.0' below surface, one backhoe trench (T-1) was installed in the release area to a total depth of 6.0' below excavation bottom (BEB). All of the samples collected 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 sampling results are summarized in Table 1. The trench location is shown on Figure 3.

Referring to Table 1, none of the samples showed TPH, benzene, or total BTEX concentrations above the RRALs. A TPH high of 4,157 mg/kg was detected at 2.0' BEB, which declined with depth to 106 mg/kg at 6.0' BEB. The sample collected at 1.0' BEB showed a benzene concentration of 0.0145 mg/kg and a total BTEX concentration of 1.83 mg/kg. The benzene and total BTEX concentrations declined with depth and showed bottom trench concentrations below the laboratory reporting limits.

Additionally, no significant chloride concentrations were detected in the subsurface soils, with a chloride high of 456 mg/kg at 2.0' BEB.

## **Revegetation Plan**

The backfilled areas will be seeded in June 2018 in order to coincide with the rainy season in Southeastern New Mexico to aid in revegetation. Based on the soil type at the site, the BLM seed mixture 2 (Sandy Sites) will be used for seeding and planted in the amount specified in the pounds of pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.



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

### **Conclusions and Recommendations**

None of the samples exceeded the RRALs for TPH, benzene or Total BTEX. Based on the laboratory results, Saber requests closure of this spill issue. The excavated area will be backfilled with clean material to surface grade. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment and remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,  
TETRA TECH

A handwritten signature in blue ink that reads 'Clair Gonzales'.

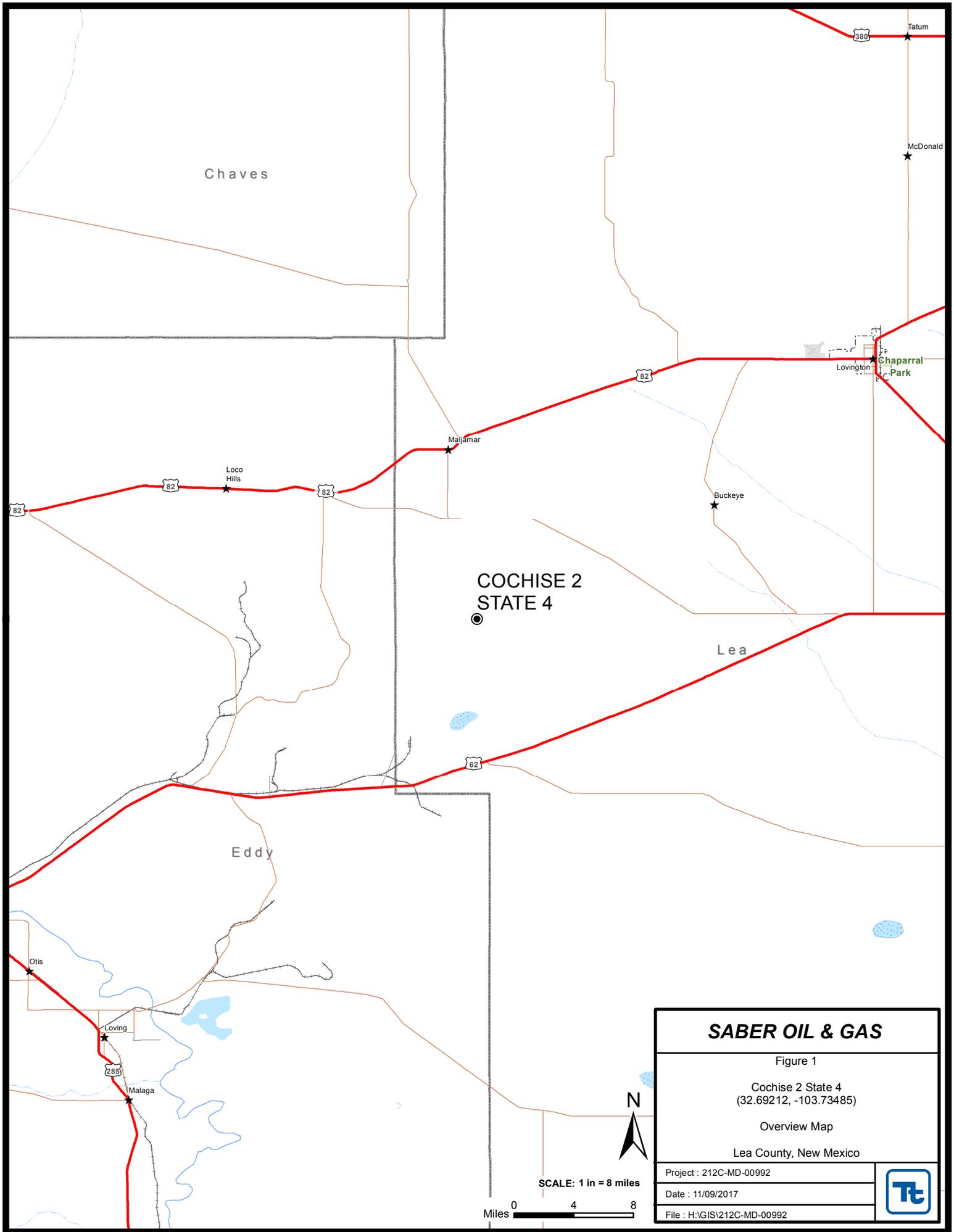
Clair Gonzales,  
Geologist

A handwritten signature in blue ink that reads 'Ike Tavarez'.

Ike Tavarez,  
Senior Project Manager

cc: Nelson Patton – Saber  
Doug Keathley - Saber  
Amber Groves - SLO

## Figures



COCHISE 2  
STATE 4

**SABER OIL & GAS**

Figure 1

Cochise 2 State 4  
(32.69212, -103.73485)

Overview Map

Lea County, New Mexico

Project : 212C-MD-00992

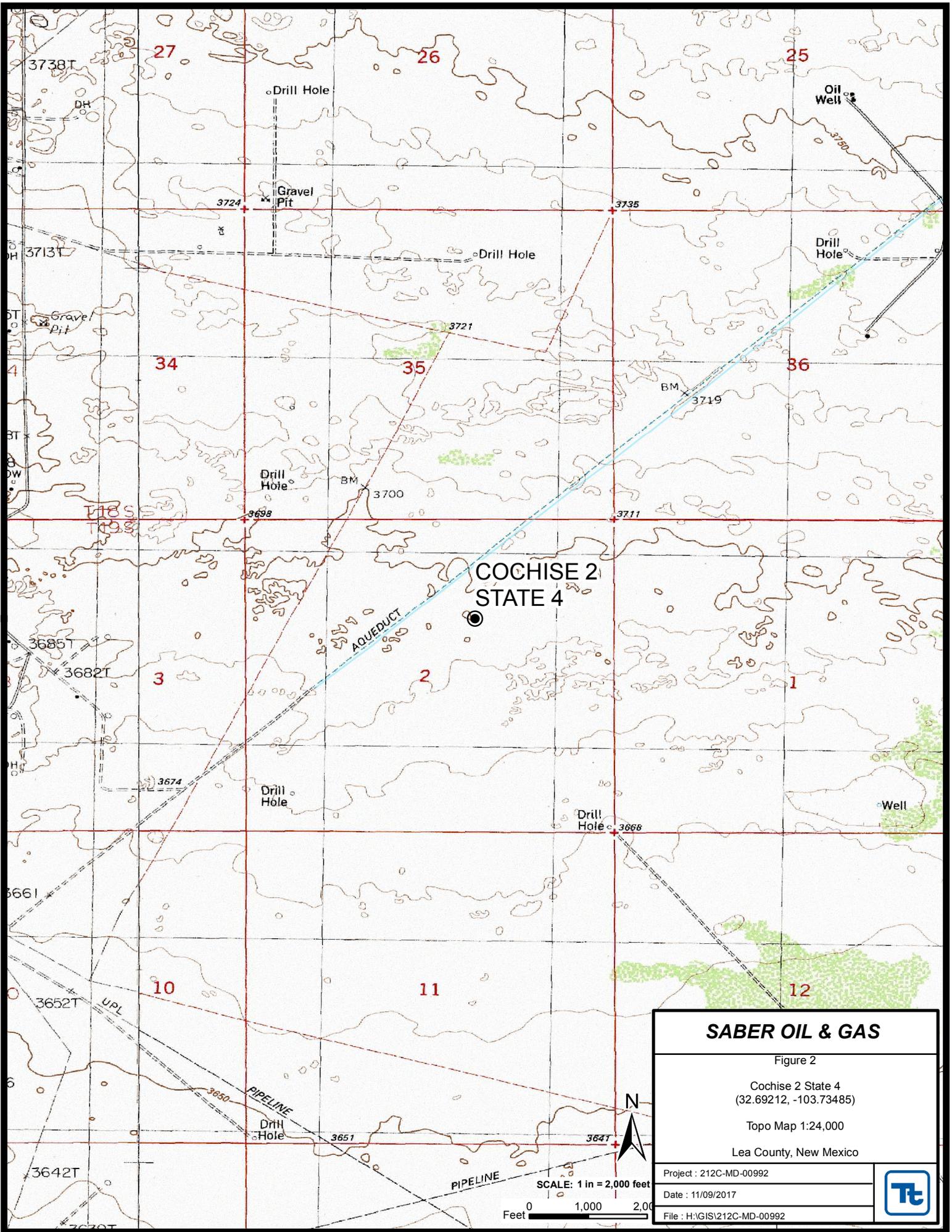
Date : 11/09/2017

File : H:\GIS\212C-MD-00992



SCALE: 1 in = 8 miles





**SABER OIL & GAS**

Figure 2

Cochise 2 State 4  
(32.69212, -103.73485)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00992

Date : 11/09/2017

File : H:\GIS\212C-MD-00992





# Tables

**Table 1**  
**Saber Oil & Gas**  
**Cochise 2 State 4**  
**Lea County, New Mexico**

Sample ID	Sample Date	Sample Depth (ft)	BEB (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	C6-C10	C10-C28	C28-C35	Total						
T-1	10/18/2017	1	1	X		271	3,490	347	4,108	0.0145	0.3720	0.376	1.07	1.83	253
	"	2	1	X		41.2	3,970	146	4,157	<0.00200	0.0613	0.118	0.256	0.435	456
	"	3	1	X		-	-	-	-	-	-	-	-	-	513
	"	4	1	X		-	-	-	-	-	-	-	-	-	319
	"	5	1	X		-	-	-	-	-	-	-	-	-	51.9
	"	6	1	X		<15.0	106	<15.0	106	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	58.4

BEB Below Excavation Bottom  
 (-) Not Analyzed

Photos

Saber Oil & Gas Ventures, LLC.  
Cochise 2 State 4  
Lea County, New Mexico



TETRA TECH



View Northwest – Release Area



View Northeast – Excavated Release Area

Saber Oil & Gas Ventures, LLC.  
Cochise 2 State 4  
Lea County, New Mexico



TETRA TECH



View West – Area of T-1

# Appendix A

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised October 10, 2003

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

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

**Release Notification and Corrective Action**

**OPERATOR**  Initial Report  Final Report

Name of Company <b>Saber Oil and Gas Ventures, LLC</b>	Contact <b>Doug Keathley</b>
Address <b>400 West Illinois, Midland, TX 79701</b>	Telephone No. <b>(432) 685-0169</b>
Facility Name <b>Cochise 2 State 4</b>	Facility Type <b>Well</b>

Surface Owner: <b>State</b>	Mineral Owner	API No. <b>30-025-31670</b>
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
<b>G</b>	2	19S	32E					Lea

Latitude N 32.692152° Longitude W 103.7347785 °

**NATURE OF RELEASE**

Type of Release: Oil & Produced Water	Volume of Release Unknown	Volume Recovered None
Source of Release: Flowline	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 10/12/17 Discovered by State Land
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*

N/A

**RECEIVED**  
**By Olivia Yu at 2:25 pm, Oct 16, 2017**

Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by failed or rupture flowline west of the well. The flowline was repaired and back in service.

Describe Area Affected and Cleanup Action Taken.\*

An unknown volume of oil and water was release impacting an area of approximately 25' x 50' in the pasture. The area will be scraped to remove the saturated soil from the area. Once removed, the area will be assessed to define extents. Tetra Tech Environmental has been retained to aid in the remediation.

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:	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Doug Keathley	Approved by District Supervisor: 	
Title: VP of Engineering	Approval Date: <b>10/16/2017</b>	Expiration Date:
E-mail Address: doug@saberogy.com	Conditions of Approval: <b>see attached directive</b>	Attached <input checked="" type="checkbox"/>
Date: 10/13/2017 Phone: 432-685-0169		

\* Attach Additional Sheets If Necessary

**1RP-4845**

**nOY1728952379**

**pOY1728952628**

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
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State of New Mexico  
Energy Minerals and Natural Resources

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1220 South St. Francis Dr.  
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Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
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side of form

**Release Notification and Corrective Action**

**OPERATOR**

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Address <b>400 West Illinois, Midland, TX 79701</b>	Telephone No. <b>(432) 685-0169</b>
Facility Name <b>Cochise 2 State 4</b>	Facility Type <b>Well</b>

Surface Owner: <b>State</b>	Mineral Owner	API No. <b>30-025-31670</b>
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**NATURE OF RELEASE**

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Source of Release: Flowline	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 10/12/17 Discovered by State Land
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*

N/A

Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by failed or rupture flowline west of the well. The flowline was repaired and back in service. An unknown volume of oil and water was release impacting an area of approximately 25' x 50' in the pasture.

Describe Area Affected and Cleanup Action Taken.\*

As a part of an emergency response, the area was excavated to 1.0' below surface to remove the saturated soils and prevent vertical migration. Soil samples were collected to define the spills extents. No soil exceeded the RRAL's. Tetra Tech prepared a closure report and submitted to NMOCD for review.

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

Signature: 	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Ike Tavarez, P.G.	Approved by District Supervisor:		
Title: Project Manager	Approval Date:	Expiration Date:	
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 11/9/17	Phone: 432-687-8123		

\* Attach Additional Sheets If Necessary

# Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**Saber Oil & Gas - Cochise 2 State 4**  
**Lea County, New Mexico**

18 South			31 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

18 South			32 East			
6	5	4	65	3	2	1
7	460	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	

18 South			33 East				
6	5	4	3	2	1		
7	8	100	9	10	11	12	143
18	17	16	15	14	13		
19	20	21	22	23	24		
30	29	28	27	26	25		
31	32	33	34	35	36		

19 South			31 East			
6	5	4	3	2	1	
7	SITE	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	

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

19 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	130	27	26	92	25
31	32	33	dry	34	35	85	36

20 South			31 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	80

20 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

20 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

- 88** New Mexico State Engineers Well Reports
- 105** USGS Well Reports
- 90** Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)  
 Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34** NMOCD - Groundwater Data
- 123** Tetra Tech installed temporary wells and field water level
- 143** NMOCD Groundwater map well location



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

(R=POD has been replaced, O=orphaned, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<a href="#">CP 00075</a>	O	CP	LE	2	4	34	19S	32E	617502	3609301		575		
<a href="#">CP 00563 POD1</a>		CP	LE	1	1	2	19	19S	32E	612118	3613376*		300	
<a href="#">CP 00639 POD1</a>		CP	LE	3	1	20	19S	32E	613029	3612880*		350	345	5
<a href="#">CP 00640 POD1</a>		CP	LE	2	2	19	19S	32E	612621	3613280*		260	102	158
<a href="#">CP 00812 POD1</a>		CP	LE	4	4	01	19S	32E	620623	3616973*		200		
<a href="#">CP 01656 POD1</a>		CP	LE	3	4	3	17	19S	32E	613368	3613646		70	

Average Depth to Water: **223 feet**

Minimum Depth: **102 feet**

Maximum Depth: **345 feet**

**Record Count:** 6

**PLSS Search:**

**Township:** 19S

**Range:** 32E

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

# Appendix C

BLM SERIAL #:

COMPANY REFERENCE:

### 3.3 Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

# Appendix D

# Analytical Report 566095

for  
**Tetra Tech- Midland**

**Project Manager: Ike Tavarez**

**Saber- Cochis 2 State 4**

**212C MD 00992**

**30-OCT-17**

Collected By: Client



**1211 W. Florida Ave, Midland TX 79701**

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

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

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



30-OCT-17

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

Reference: XENCO Report No(s): **566095**  
**Saber- Cochis 2 State 4**  
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) 566095. 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. 566095 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

***Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.***

*Certified and approved by numerous States and Agencies.*

*A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

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



# Sample Cross Reference 566095



## Tetra Tech- Midland, Midland, TX

Saber- Cochis 2 State 4

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
Trench #1 (1') (BEB 1')	S	10-18-17 00:00		566095-001
Trench #1 (2') (BEB 1')	S	10-18-17 00:00		566095-002
Trench #1 (3') (BEB 1')	S	10-18-17 00:00		566095-003
Trench #1 (4') (BEB 1')	S	10-18-17 00:00		566095-004
Trench #1 (5') (BEB 1')	S	10-18-17 00:00		566095-005
Trench #1 (6') (BEB 1')	S	10-18-17 00:00		566095-006



## CASE NARRATIVE

*Client Name: Tetra Tech- Midland*

*Project Name: Saber- Cochis 2 State 4*

Project ID: 212C MD 00992  
Work Order Number(s): 566095

Report Date: 30-OCT-17  
Date Received: 10/20/2017

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**Sample receipt non conformances and comments:**

566095-006- TPH and BTEX added per Clair Gonzalez e-mail 10/25/17--KB

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3031655 BTEX by EPA 8021B

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

Batch: LBA-3031732 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 566095



Tetra Tech- Midland, Midland, TX

Project Name: Saber- Cochis 2 State 4

Project Id: 212C MD 00992  
 Contact: Ike Tavarez  
 Project Location: Lea Co, NM

Date Received in Lab: Fri Oct-20-17 11:50 am  
 Report Date: 30-OCT-17  
 Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	566095-001	566095-002	566095-003	566095-004	566095-005	566095-006
	<i>Field Id:</i>	Trench #1 (1') (BEB 1')	Trench #1 (2') (BEB 1')	Trench #1 (3') (BEB 1')	Trench #1 (4') (BEB 1')	Trench #1 (5') (BEB 1')	Trench #1 (6') (BEB 1')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-18-17 00:00					
<b>BTEX by EPA 8021B SUB: TX104704215-17-23</b>	<i>Extracted:</i>	Oct-25-17 10:30	Oct-25-17 10:30				Oct-26-17 11:00
	<i>Analyzed:</i>	Oct-26-17 03:43	Oct-26-17 03:24				Oct-26-17 22:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Benzene		0.0145 0.00199	ND 0.00200				ND 0.00200
Toluene		0.372 0.00199	0.0613 0.00200				ND 0.00200
Ethylbenzene		0.376 0.00199	0.118 0.00200				ND 0.00200
m,p-Xylenes		0.692 0.00398	0.151 0.00399				ND 0.00399
o-Xylene		0.377 0.00199	0.105 0.00200				ND 0.00200
Total Xylenes		1.07 0.00199	0.256 0.00200				ND 0.00200
Total BTEX		1.83 0.00199	0.435 0.00200				ND 0.00200
<b>Inorganic Anions by EPA 300/300.1</b>	<i>Extracted:</i>	Oct-24-17 10:00	Oct-24-17 12:00				
	<i>Analyzed:</i>	Oct-24-17 18:57	Oct-24-17 21:40	Oct-24-17 21:47	Oct-24-17 21:54	Oct-24-17 22:00	Oct-24-17 22:41
	<i>Units/RL:</i>	mg/kg RL					
Chloride		253 4.98	456 4.99	513 4.95	319 4.92	51.9 4.97	58.4 4.94
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Oct-20-17 17:00	Oct-20-17 17:00				Oct-25-17 16:00
	<i>Analyzed:</i>	Oct-21-17 06:51	Oct-21-17 07:10				Oct-26-17 02:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Gasoline Range Hydrocarbons		271 74.9	41.2 15.0				ND 15.0
Diesel Range Organics		3490 74.9	3970 15.0				106 15.0
Oil Range Hydrocarbons		347 74.9	146 15.0				ND 15.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Version: 1.9%

Kelsey Brooks  
Project Manager

- 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

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2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(432) 563-1800	(432) 563-1713
	(602) 437-0330	



# Form 2 - Surrogate Recoveries

Project Name: Saber- Cochis 2 State 4

Work Orders : 566095,

Project ID: 212C MD 00992

Lab Batch #: 3031144

Sample: 566095-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/17 06:51

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.8	117	70-135	
o-Terphenyl	51.4	49.9	103	70-135	

Lab Batch #: 3031144

Sample: 566095-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/17 07:10

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	48.5	50.0	97	70-135	

Lab Batch #: 3031681

Sample: 566095-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 02:52

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.8	111	70-135	
o-Terphenyl	53.2	49.9	107	70-135	

Lab Batch #: 3031732

Sample: 566095-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 03:24

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 3031732

Sample: 566095-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 03:43

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0243	0.0300	81	80-120	
4-Bromofluorobenzene	0.0248	0.0300	83	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B

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



# Form 2 - Surrogate Recoveries

Project Name: Saber- Cochis 2 State 4

Work Orders : 566095,

Project ID: 212C MD 00992

Lab Batch #: 3031655

Sample: 566095-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 22:34

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 3031144

Sample: 7633054-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/17 04:08

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	54.3	50.0	109	70-135	

Lab Batch #: 3031681

Sample: 7633364-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 18:49

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	52.5	50.0	105	70-135	

Lab Batch #: 3031732

Sample: 7633241-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 22:59

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 3031655

Sample: 7633345-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 15:27

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0264	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: Saber- Cochis 2 State 4

Work Orders : 566095,

Project ID: 212C MD 00992

Lab Batch #: 3031144

Sample: 7633054-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/17 04:28

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	100	122	70-135	
o-Terphenyl	59.8	50.0	120	70-135	

Lab Batch #: 3031681

Sample: 7633364-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 19:09

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.2	100	98	70-135	
o-Terphenyl	48.0	50.0	96	70-135	

Lab Batch #: 3031732

Sample: 7633241-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 21:07

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

Lab Batch #: 3031655

Sample: 7633345-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 13:17

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 3031144

Sample: 7633054-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/17 04:49

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	51.8	50.0	104	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: Saber- Cochis 2 State 4

Work Orders : 566095,

Project ID: 212C MD 00992

Lab Batch #: 3031732

Sample: 7633241-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 21:25

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Lab Batch #: 3031681

Sample: 7633364-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:19

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	52.3	50.0	105	70-135	

Lab Batch #: 3031655

Sample: 7633345-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 13:36

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3031144

Sample: 565936-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/17 05:29

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.7	110	70-135	
o-Terphenyl	53.4	49.9	107	70-135	

Lab Batch #: 3031681

Sample: 565000-004 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 20:08

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	99.9	100	70-135	
o-Terphenyl	49.2	50.0	98	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B

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



# Form 2 - Surrogate Recoveries

Project Name: Saber- Cochis 2 State 4

Work Orders : 566095,

Project ID: 212C MD 00992

Lab Batch #: 3031732

Sample: 566212-007 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 21:43

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0327	0.0300	109	80-120	

Lab Batch #: 3031655

Sample: 566321-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:55

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 3031144

Sample: 565936-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/17 05:50

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	99.9	108	70-135	
o-Terphenyl	49.9	50.0	100	70-135	

Lab Batch #: 3031681

Sample: 565000-004 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 20:30

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.1	99.9	95	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

Lab Batch #: 3031732

Sample: 566212-007 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 22:02

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	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: Saber- Cochis 2 State 4

Work Orders : 566095,

Lab Batch #: 3031655

Sample: 566321-002 SD / MSD

Project ID: 212C MD 00992

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 14:13

## SURROGATE RECOVERY STUDY

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

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



# BS / BSD Recoveries



**Project Name: Saber- Cochis 2 State 4**

**Work Order #:** 566095

**Project ID:** 212C MD 00992

**Analyst:** ALJ

**Date Prepared:** 10/25/2017

**Date Analyzed:** 10/25/2017

**Lab Batch ID:** 3031732

**Sample:** 7633241-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00202	0.101	0.126	125	0.101	0.125	124	1	70-130	35	
Toluene	<0.00202	0.101	0.124	123	0.101	0.124	123	0	70-130	35	
Ethylbenzene	<0.00202	0.101	0.119	118	0.101	0.121	120	2	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.239	118	0.201	0.242	120	1	70-135	35	
o-Xylene	<0.00202	0.101	0.116	115	0.101	0.118	117	2	71-133	35	

**Analyst:** ALJ

**Date Prepared:** 10/26/2017

**Date Analyzed:** 10/26/2017

**Lab Batch ID:** 3031655

**Sample:** 7633345-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00200	0.100	0.0958	96	0.0998	0.0867	87	10	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.0998	0.0908	91	11	70-130	35	
Ethylbenzene	<0.00200	0.100	0.110	110	0.0998	0.0997	100	10	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.216	108	0.200	0.196	98	10	70-135	35	
o-Xylene	<0.00200	0.100	0.108	108	0.0998	0.0977	98	10	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: Saber- Cochis 2 State 4**

**Work Order #: 566095**

**Project ID: 212C MD 00992**

**Analyst: MNV**

**Date Prepared: 10/24/2017**

**Date Analyzed: 10/24/2017**

**Lab Batch ID: 3031338**

**Sample: 7633142-1-BKS**

**Batch #: 1**

**Matrix: Solid**

**Units: mg/kg**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>Inorganic Anions by EPA 300/300.1</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Chloride	<5.00	250	250	100	250	249	100	0	90-110	20	

**Analyst: MNV**

**Date Prepared: 10/24/2017**

**Date Analyzed: 10/24/2017**

**Lab Batch ID: 3031342**

**Sample: 7633143-1-BKS**

**Batch #: 1**

**Matrix: Solid**

**Units: mg/kg**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>Inorganic Anions by EPA 300/300.1</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Chloride	<5.00	250	250	100	250	249	100	0	90-110	20	

**Analyst: ARM**

**Date Prepared: 10/20/2017**

**Date Analyzed: 10/21/2017**

**Lab Batch ID: 3031144**

**Sample: 7633054-1-BKS**

**Batch #: 1**

**Matrix: Solid**

**Units: mg/kg**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>TPH By SW8015 Mod</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Gasoline Range Hydrocarbons	<15.0	1000	1120	112	1000	1050	105	6	70-135	35	
Diesel Range Organics	<15.0	1000	1120	112	1000	1110	111	1	70-135	35	

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

Blank Spike Recovery [D] = 100\*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100\*(F)/[E]

All results are based on MDL and Validated for QC Purposes



# BS / BSD Recoveries



Project Name: Saber- Cochis 2 State 4

Work Order #: 566095

Project ID: 212C MD 00992

Analyst: ARM

Date Prepared: 10/25/2017

Date Analyzed: 10/25/2017

Lab Batch ID: 3031681

Sample: 7633364-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	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
<b>Analytes</b>											
Gasoline Range Hydrocarbons	<15.0	1000	905	91	1000	936	94	3	70-135	35	
Diesel Range Organics	<15.0	1000	1050	105	1000	1100	110	5	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: Saber- Cochis 2 State 4**

**Work Order # :** 566095

**Project ID:** 212C MD 00992

**Lab Batch ID:** 3031655

**QC- Sample ID:** 566321-002 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/26/2017

**Date Prepared:** 10/26/2017

**Analyst:** ALJ

**Reporting Units:** mg/kg

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b> <b>Analytes</b>	<b>Parent Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Spiked Sample Result [C]</b>	<b>Spiked Sample %R [D]</b>	<b>Spike Added [E]</b>	<b>Duplicate Spiked Sample Result [F]</b>	<b>Spiked Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
Benzene	0.00211	0.100	0.111	109	0.101	0.113	110	2	70-130	35	
Toluene	0.00542	0.100	0.0991	94	0.101	0.0928	87	7	70-130	35	
Ethylbenzene	<0.00201	0.100	0.0881	88	0.101	0.0768	76	14	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.176	88	0.202	0.152	75	15	70-135	35	
o-Xylene	<0.00201	0.100	0.0847	85	0.101	0.0753	75	12	71-133	35	

**Lab Batch ID:** 3031732

**QC- Sample ID:** 566212-007 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/25/2017

**Date Prepared:** 10/25/2017

**Analyst:** ALJ

**Reporting Units:** mg/kg

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b> <b>Analytes</b>	<b>Parent Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Spiked Sample Result [C]</b>	<b>Spiked Sample %R [D]</b>	<b>Spike Added [E]</b>	<b>Duplicate Spiked Sample Result [F]</b>	<b>Spiked Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
Benzene	<0.00199	0.0996	0.123	123	0.100	0.112	112	9	70-130	35	
Toluene	<0.00199	0.0996	0.110	110	0.100	0.0992	99	10	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.104	104	0.100	0.0924	92	12	71-129	35	
m,p-Xylenes	<0.00398	0.199	0.213	107	0.200	0.189	95	12	70-135	35	
o-Xylene	<0.00199	0.0996	0.106	106	0.100	0.0953	95	11	71-133	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.



# Form 3 - MS / MSD Recoveries



**Project Name: Saber- Cochis 2 State 4**

**Work Order # :** 566095

**Project ID:** 212C MD 00992

**Lab Batch ID:** 3031338

**QC- Sample ID:** 566079-001 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/24/2017

**Date Prepared:** 10/24/2017

**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	143	250	390	99	250	393	100	1	90-110	20	

**Lab Batch ID:** 3031338

**QC- Sample ID:** 566095-001 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/24/2017

**Date Prepared:** 10/24/2017

**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	253	249	493	96	249	495	97	0	90-110	20	

**Lab Batch ID:** 3031342

**QC- Sample ID:** 566095-006 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/24/2017

**Date Prepared:** 10/24/2017

**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	58.4	247	308	101	247	310	102	1	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: Saber- Cochis 2 State 4**

**Work Order # :** 566095

**Project ID:** 212C MD 00992

**Lab Batch ID:** 3031342

**QC- Sample ID:** 566207-007 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/25/2017

**Date Prepared:** 10/24/2017

**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	93.5	247	345	102	247	344	101	0	90-110	20	

**Lab Batch ID:** 3031144

**QC- Sample ID:** 565936-001 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/21/2017

**Date Prepared:** 10/20/2017

**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	1040	104	999	1050	105	1	70-135	35	
Diesel Range Organics	<15.0	997	1120	112	999	1110	111	1	70-135	35	

**Lab Batch ID:** 3031681

**QC- Sample ID:** 565000-004 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 10/25/2017

**Date Prepared:** 10/25/2017

**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	999	973	97	999	971	97	0	70-135	35	
Diesel Range Organics	69.1	999	1050	98	999	1040	97	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.



# Tetra Tech, Inc.

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

560095

Client Name: <b>Saber</b>		Site Manager: <b>Ike Tavares</b>	
Project Name: <b>Cochis 2 State 4</b>			
Project Location: (county, state) <b>Lea County, New Mexico</b>		Project #: <b>212C-MD-00992</b>	
Invoice to: <b>Tetra Tech, Inc.</b>		Sampler Signature: <b>Mike Carmona</b>	
Receiving Laboratory: <b>Xenco Midland Tx</b>			
Comments: <b>If TPH exceeds 5,000 mg/kg run deeper samples. If Benzene exceeds 10,000 mg/kg or Total BTEX exceeds 50 mg/kg run deeper samples</b>			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)	
		YEAR: 2017	DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>			ICE
	Trench #1 (1) (BEB 1')		10/18/2017		X			X		1	N
	Trench #1 (2) (BEB 1')		10/18/2017		X			X		1	N
	Trench #1 (3) (BEB 1')		10/18/2017		X			X		1	N
	Trench #1 (4) (BEB 1')		10/18/2017		X			X		1	N
	Trench #1 (5) (BEB 1')		10/18/2017		X			X		1	N
	Trench #1 (6) (BEB 1')		10/18/2017		X			X		1	N

<b>LAB USE ONLY</b>	<b>REMARKS:</b>	<input checked="" type="checkbox"/> STANDARD	<input type="checkbox"/> RUSH: Same Day 24 hr 48 hr 72 hr	<input type="checkbox"/> Rush Charges Authorized	<input type="checkbox"/> Special Report Limits or TRRP Report
	Sample Temperature				
	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					

Felinquished by: *[Signature]* Date: **10/20/17** Time: **11:50**  
 Received by: *[Signature]* Date: **10/20** Time: **11:50**  
 Temp: **1.3** IR ID: R-8  
 CF: (0-6: -0.2°C) (6-23: +0.2°C)  
 Corrected Temp: **1.1**



# Inter-Office Shipment

**IOS Number 1050631**

Date/Time: 10/20/17 12:28

Created by: Connie Hernandez

Please send report to: Kelsey Brooks

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave, Midland TX 79701

Lab# To: **Houston**

Air Bill No.:

Phone:

E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
566095-001	S	Trench #1 (1') (BEB 1')	10/18/17 00:00	SW8260B	VOCs by SW864 8260B	10/26/17	11/01/17	KEB	BDCME BRBZ BRCLME 1	
566095-001	S	Trench #1 (1') (BEB 1')	10/18/17 00:00	SW8021B	BTEX by EPA 8021B	10/26/17	11/01/17	KEB	BR4FBZ BZ BZME EBZ X	
566095-002	S	Trench #1 (2') (BEB 1')	10/18/17 00:00	SW8260B	VOCs by SW864 8260B	10/26/17	11/01/17	KEB	BDCME BRBZ BRCLME 1	
566095-002	S	Trench #1 (2') (BEB 1')	10/18/17 00:00	SW8021B	BTEX by EPA 8021B	10/26/17	11/01/17	KEB	BR4FBZ BZ BZME EBZ X	

### Inter Office Shipment or Sample Comments:

Relinquished By

Connie Hernandez

Received By: \_\_\_\_\_

Date Relinquished: 10/20/2017

Date Received: \_\_\_\_\_

Cooler Temperature: \_\_\_\_\_

