

Bratcher, Mike, EMNRD

From: Tavarez, Ike <Ike.Tavarez@tetrattech.com>
Sent: Monday, February 08, 2016 8:07 AM
To: Tucker, Shelly; Bratcher, Mike, EMNRD
Cc: JD M.; Garcia, Adrian; Patterson, Heather, EMNRD
Subject: RE: Saber - Yates Federal Tank Battery - Work Plan Approval Request

All,

Thanks for your response. We will notify you prior to implementing the work plan.

Ike Tavarez, PG | Senior Project Manager

Main: 432.682.4559 | Fax: 432.682.3946 | Cell: 432.425.3878

Ike.Tavarez@tetrattech.com

Tetra Tech | Complex World, Clear Solutions™

4000 North Big Spring, Suite 401 | Midland, TX 79705 | www.tetrattech.com

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From: Tucker, Shelly [mailto:stucker@blm.gov]
Sent: Friday, February 05, 2016 3:55 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Cc: JD M. <jd@saberogv.com>; Tavarez, Ike <Ike.Tavarez@tetrattech.com>; Garcia, Adrian <Adrian.Garcia@tetrattech.com>; Patterson, Heather, EMNRD <Heather.Patterson@state.nm.us>
Subject: Re: Saber - Yates Federal Tank Battery - Work Plan Approval Request

BLM concurs with NMOCD COA's. Please notify BLM once remediation begins.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Shelly J Tucker

Environmental Protection Specialist
Bureau of Land Management

620 E. Greene St
Carlsbad, NM 88220

575.234.5905 - Direct
575.361.0084 - Cellular

stucker@blm.gov



The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not revegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

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On Fri, Feb 5, 2016 at 10:34 AM, Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us> wrote:

RE: Saber O&G Ventures * Yates Fed Tank Battery (Yates Fed 9) * 30-015-01027 * O-6-20s-27e

2RP-3533 * Date of release: Historical/repetitive

Mr. Machacek,

The proposal for remediation of the above referenced release, submitted by Tetra Tech, is approved with following conditions/notations:

- In the event it is discovered that proposed excavation depths will not be achieved, notify OCD prior to continuation of project.
- For onsite bioremediation, the impacted material is to laid out in a maximum 1' lift. Sampling of the bio soils is to be performed at a maximum of 90 day intervals, with an overall evaluation of progress at 180 days.
- For backfill and liner placement in the battery area, OCD would prefer to see the area backfilled to surface (or near surface) grade with adequate berms installed. The liner may then be installed, with gravel as a filler medium above the liner. In the event of future releases, the gravel can be cleaned or replaced and, it will allow for inspection of liner integrity.

- Federal sites require like approval by BLM.
- Please notify the OCD District 2 office once remedial activities have been scheduled.

Please note that for data entry, this incident is entered under the Yates Fed 9 well, which is adjacent to the Yates Federal Battery. It has been assigned tracking number 2RP-3533. Please reference this number for future submittals.

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If you have any questions or concerns, and for notification, please contact me.

Mike Bratcher

NMOCD District 2

811 S. First Street

Artesia, NM 88210

O: 575-748-1283 X108

C: 575-626-0857

F: 575-748-9720

From: Tavarez, Ike [mailto:Ike.Tavarez@tetrattech.com]

Sent: Friday, January 29, 2016 12:09 PM

To: Tucker, Shelly; Bratcher, Mike, EMNRD

Cc: JD M.; Garcia, Adrian

Subject: Saber - Yates Federal Tank Battery - Work Plan Approval Request

Mike and Shelly,

Please find the enclosed Work Plan for the above referenced site located in Eddy County, New Mexico. The work plan includes the soil assessment and recommendations for remediation of the site. Once approved, Tetra Tech will schedule the soil remediation and notify you prior to implementing the work plan. Please let me know if you need additional information or call me if you have any questions, thanks

Ike Tavarez, PG | Senior Project Manager

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From: [Tucker, Shelly](#)
To: [Tavarez, Ike](#)
Cc: [Bratcher, Mike, EMNRD](#); [JD M.](#); [Garcia, Adrian](#); [Patterson, Heather, EMNRD](#)
Subject: Re: Saber - Yates Federal Tank Battery - Work Plan Approval Request
Date: Monday, April 25, 2016 2:45:29 PM

What is the status of this project?

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Shelly J Tucker

Environmental Protection Specialist
Bureau of Land Management

620 E. Greene St
Carlsbad, NM 88220

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Mike Bratcher

NMOCD District 2

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Sent: Friday, January 29, 2016 12:09 PM

To: Tucker, Shelly; Bratcher, Mike, EMNRD

Cc: JD M.; Garcia, Adrian

Subject: Saber - Yates Federal Tank Battery - Work Plan Approval Request

Mike and Shelly,

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Ike Tavaréz, PG | Senior Project Manager

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Bratcher, Mike, EMNRD

From: Tavaréz, Ike <Ike.Tavaréz@tetrattech.com>
Sent: Tuesday, February 27, 2018 3:33 PM
To: aaarias@blm.gov; Bratcher, Mike, EMNRD
Cc: Weaver, Crystal, EMNRD; nelson (nelson@saberogv.com); Gonzales, Clair
Subject: Saber - Yates Federal Tank Battery - 2RP 3533
Attachments: Saber - Yates Federal Tank Battery - Workplan.pdf; Yates Fed TB_Analysis Table 1 01.18.18.pdf

Mike and Art,

The approved work plan for the Saber Oil & Gas Yates Federal Tank Battery is attached for your reference. As proposed in the work plan, the impacted area was excavated and the material was placed onsite on plastic for remediation. The soil remediation area was segregated into 6 quadrants for sampling. Saber treated the material a multiple times with a micro-blaze product to aid the remediation. Tetra Tech would periodically collect samples from the remediation area. I have included the updated analysis table detailing the stockpile sampling that has been performed to date.

Referring to the analysis table, the latest sampling event in January 2018 showed TPH concentrations at Area 2, Area 4, Area 5, and Area 6 below the 1,000 mg/kg threshold. However, Area 1 and Area 3 showed TPH concentrations slightly above the RRAL, with concentrations of 1,040 mg/kg and 1,130 mg/kg, respectively. Saber is currently in the process of dismantling the facility and plugging the wells. With the areas of Area 1 and Area 3 only slightly exceeding the RRAL, Saber would like to move forward and use all the material to backfill the excavations, with your approval. If approved, Saber will proceed with the backfilling activities and a closure report for your review.

Ike Tavaréz, PG | Senior Project Manager

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SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Yates Federal Tank Battery					
Company:	Saber Oil and Gas					
Section, Township and Range	Unit O	Sec 6	T20S	R27E		
Lease Number:						
County:	Eddy County					
GPS:	32.59642° N			104.31746° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Carlsbad, NM head north west on US-285 N for 11.1 miles. Turn right onto Capitan Reef Rd and travel 6.2 miles. Turn left onto N Lake Rd and travel 0.3 miles. Turn right onto Netherlin Rd and travel 1.3 miles and destination will be on the right.					

Release Data:

Date Released:	Unknown
Type Release:	Oil
Source of Contamination:	Tank overflows
Fluid Released:	Unknown
Fluids Recovered:	None

Official Communication:

Name:	JD Machacek	Ike Tavaréz
Company:	Saber Oil and Gas Ventures LLC	Tetra Tech
Address:	400 West Illinois Ave. #950	4000 N. Big Spring St Suite #401
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432)685-0169	(432) 682-4559
Fax:		(432) 682-3946
Email:	jd@saberoqv.com	ike.tavarez@tetratech.com

Ranking Criteria

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

WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0

Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0

Total Ranking Score:

10

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	1,000

**TETRA TECH**

January 29, 2016

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

**Re: Work Plan for the Saber Energy, Yates Federal Tank Battery, Section 6,
Township 20 South, Range 27 East, Eddy County, New Mexico.**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Saber Energy, (Saber) to assess a spill at the Yates Federal Tank Battery located in Section 6, Township 20 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.59642°, W -104.31746°. The site location is shown on Figures 1 and 2.

Background

According to Saber, the production tank had been neglected and had several overfills by the lease operator. It was unknown of how much fluid was released or recovered. The spill area occurred around the storage tank and separator and stayed within the firewall measuring approximately 35' x 30'. The BLM requested a C-141 be completed and submitted to the NMOCD. The initial C-141 is included in Appendix A.

Groundwater

The New Mexico Office of State Engineer groundwater data did not show any water wells in Section 6. According to the NMOCD groundwater data, the average depth to groundwater in this area is approximately 60' to 75' below surface. The average depth to groundwater data is shown in Appendix A.

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

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**TETRA TECH**

BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Remedial Activities and Analytical Results

On September 24, 2015, Tetra Tech personnel installed a total of three (3) auger holes (AH-1, AH-2 and AH-3) in the impacted area utilizing a stainless steel hand auger. Soil samples were collected to a depth of approximately 1.5' to 3.5' below surface. However, deeper samples could not be collected due to the dense formation. All of the samples were submitted for analysis of TPH by EPA method 8015 modified, BTEX by EPA Method 8021B and chlorides by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The auger hole locations are shown on Figure 3. The sampling results are summarized in Table 1.

Referring to Table 1, all of the samples showed TPH concentrations exceeding the RRAL of 1,000 mg/kg. The areas of auger holes (AH-1, AH-2 and AH-3) were not vertically defined with TPH concentrations of 11,900 mg/kg at 3-3.5', 14,000 mg/kg at 1-1.5' and 1,480 mg/kg at 1-1.5', respectively. In addition, the BTEX concentrations detected were all below the RRAL for benzene of 10 mg/kg and Total BTEX of 50 mg/kg. The chloride analysis showed concentrations ranging from <2.0 (AH-2, 1-1.5') to 58.7 mg/kg (AH-1, 3-3.5') and chlorides detected do not appear to be an environmental concern.

On November 11, 2015, Tetra Tech supervised the installation of three (3) trenches to vertically define the extents using a backhoe. Trenches (T-1, T-2 and T-3) were installed in the areas of AH-1, AH-2 and AH-3, respectively. Soil samples were collected at depths ranging from 3.5'-4.0' to 6-7' and deeper samples could not be collected due to the dense formation rock. As shown in Table 1, the area of T-1 was vertically defined showing a TPH concentration significantly declining to 44.1 mg/kg at 3-3.5' below surface. The areas of T-2 and T-3 did show a deeper impact to the soils but were vertically defined at 5-6' (574 mg/kg) and 6-7' (101 mg/kg), respectively.

Work Plan

Saber proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. Based on the data, Saber propose to excavate an area of approximately 30 x 35' at depths ranging from 4.0' to 6.0' below surface. To properly excavate the soils, Saber will be temporarily moving the oil tanks to access the soils.



Based on the data, the chloride concentrations detected do not appear to be an environmental concern. If feasible, Saber will attempt to remediate the excavated soils below the RRAL (TPH 1,000 mg/kg) on pad. Once the material is excavated and stockpiled, Tetra Tech will collect composite samples to evaluate the soils for remediation. The remediation will consist of working the soils on the pad and possibly treated with a micro-blaze product to aid the remediate of the soils.

Periodically, composite samples will be collected to evaluate the effectiveness of the remediation of the soils. Once remediated, Saber proposed to place the material back into the excavated area. If the remediation is not responding in timely manner, the excavation may be backfilled with clean soil to grade. The stockpile material will either be hauled to proper disposal or Saber will continue to work and remediate the soils below RRAL.

Prior to backfilling to grade, Saber proposed to install a 40 mil liner in the excavation bottom at approximately 2.0' to protect the area from future release at the site.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. Any remaining impact not accessible to be removed will be deferred until abandonment.

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

Respectfully submitted,

TETRA TECH

A handwritten signature in blue ink, appearing to read 'Ike Tavarez'.

Ike Tavarez, PG
Senior Project Manager

Respectfully submitted,

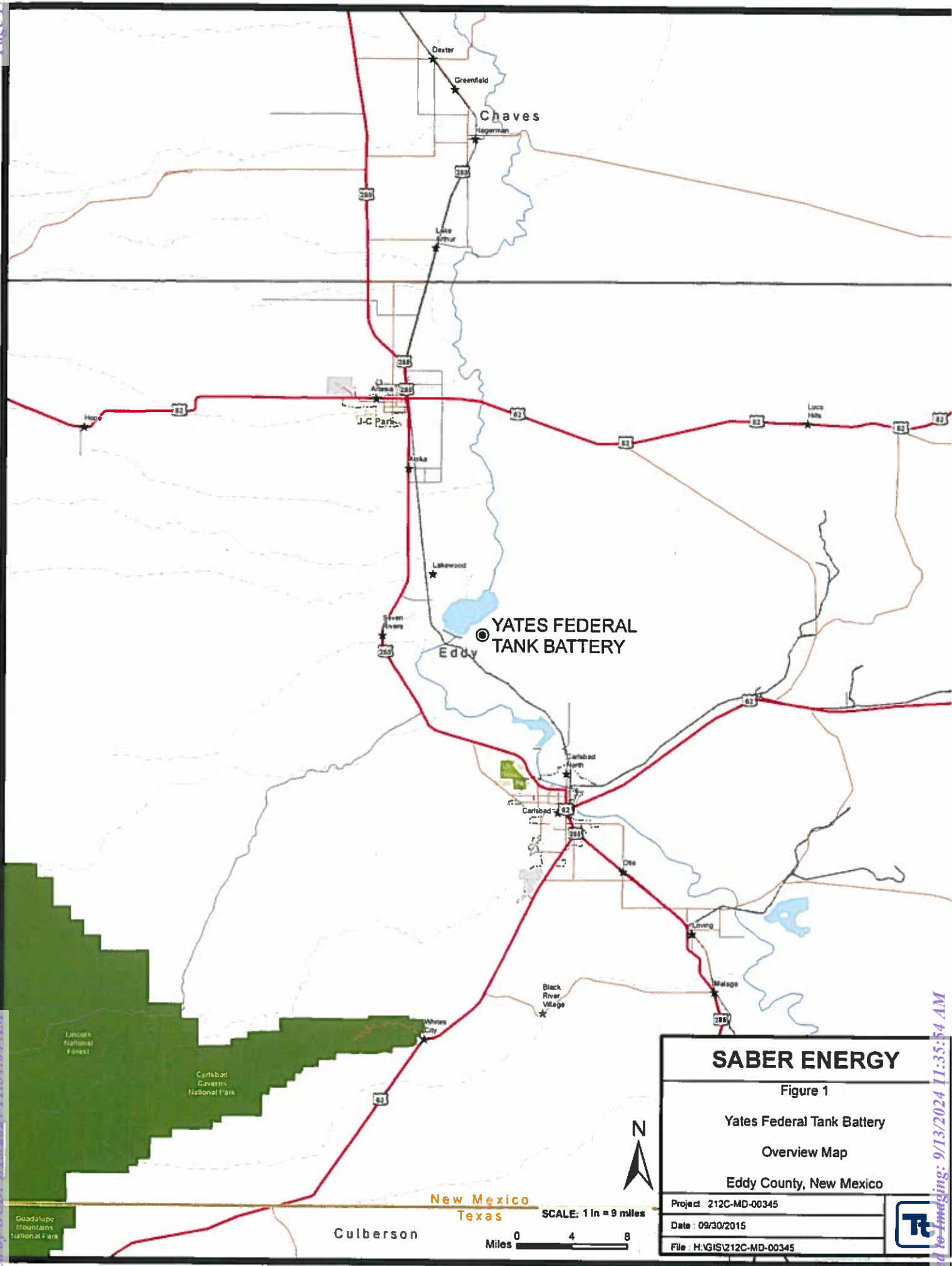
TETRA TECH

A handwritten signature in blue ink, appearing to read 'Adrian Garcia'.

Adrian Garcia
Senior Tech

CC: Shelly Tucker - BLM
J.D. Machacek - Saber

Figures



SABER ENERGY

Figure 1

Yates Federal Tank Battery
Overview Map
Eddy County, New Mexico

Project	212C-MD-00345
Date	09/30/2015
File	H:\GIS\212C-MD-00345

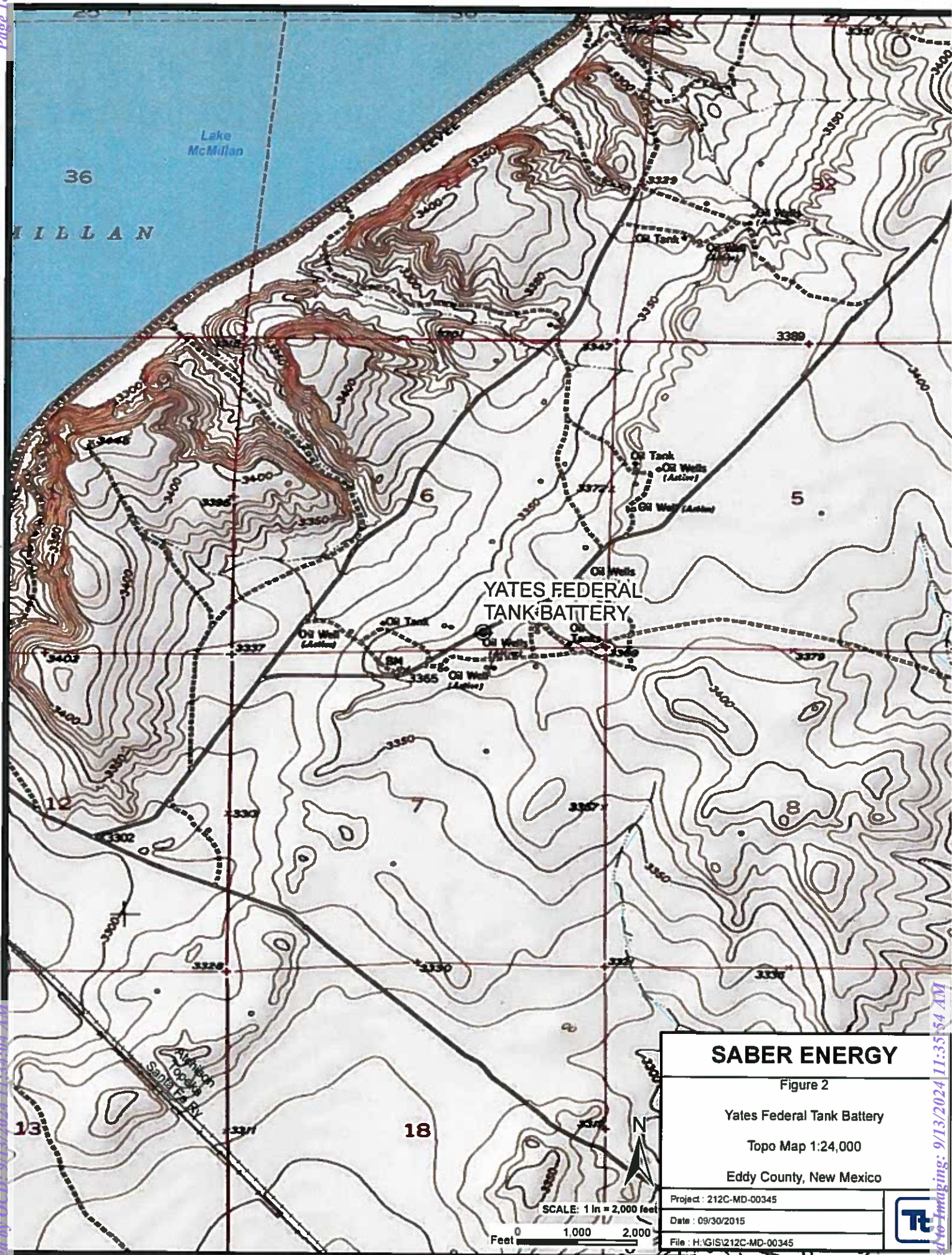


SCALE: 1 in = 9 miles

Miles 0 4 8

Culberson

New Mexico
Texas



SABER ENERGY

Figure 2

Yates Federal Tank Battery

Topo Map 1:24,000

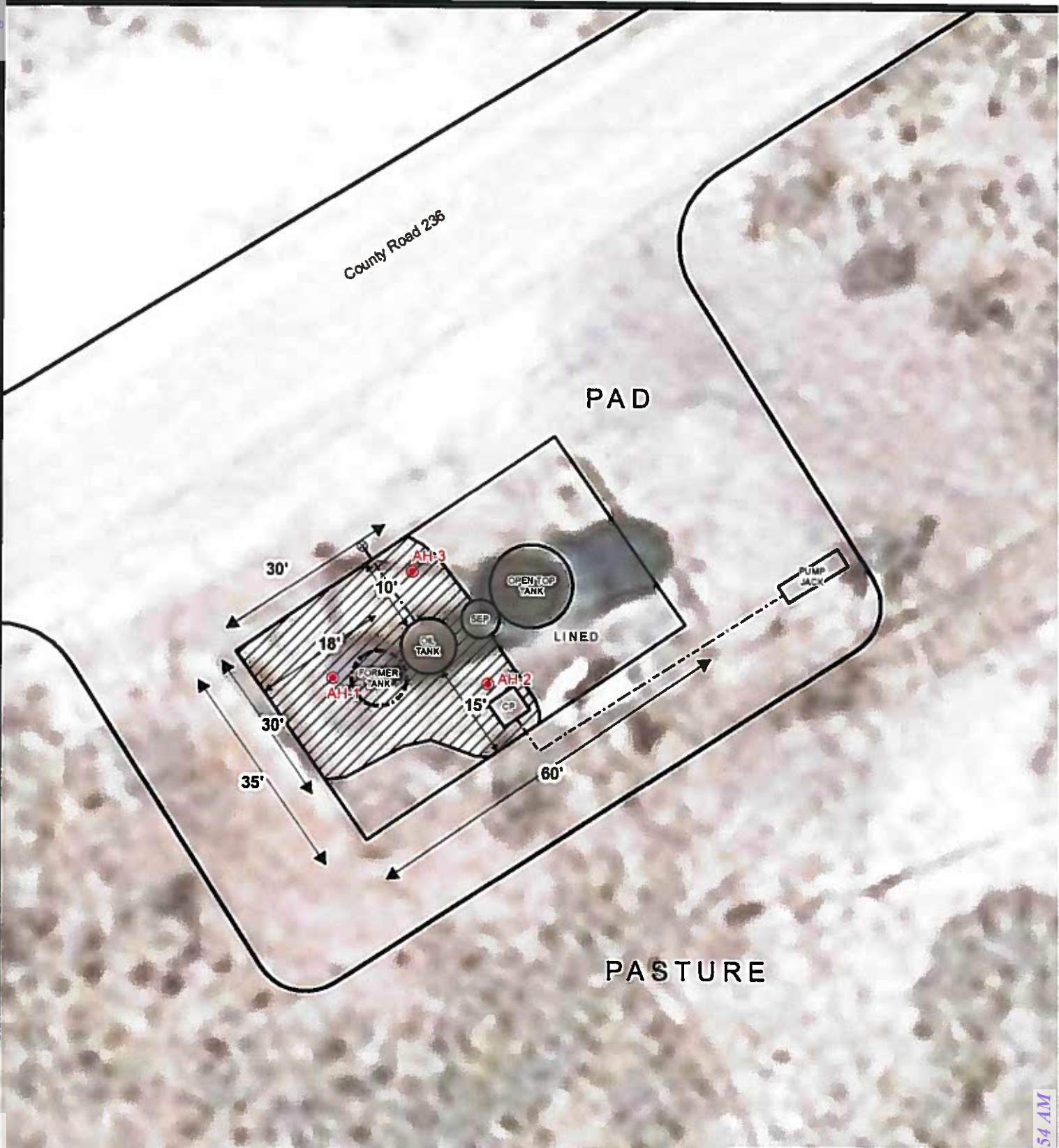
Eddy County, New Mexico

Project : 212C-MD-00345

Date : 09/30/2015

File : H:\GIS\212C-MD-00345





EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA

SCALE: 1 IN = 25 FEET

Feet 0 12.5 25



SABER ENERGY

Figure 3a

Yates Federal Tank Battery

Spill Assessment Map w/ Aerial

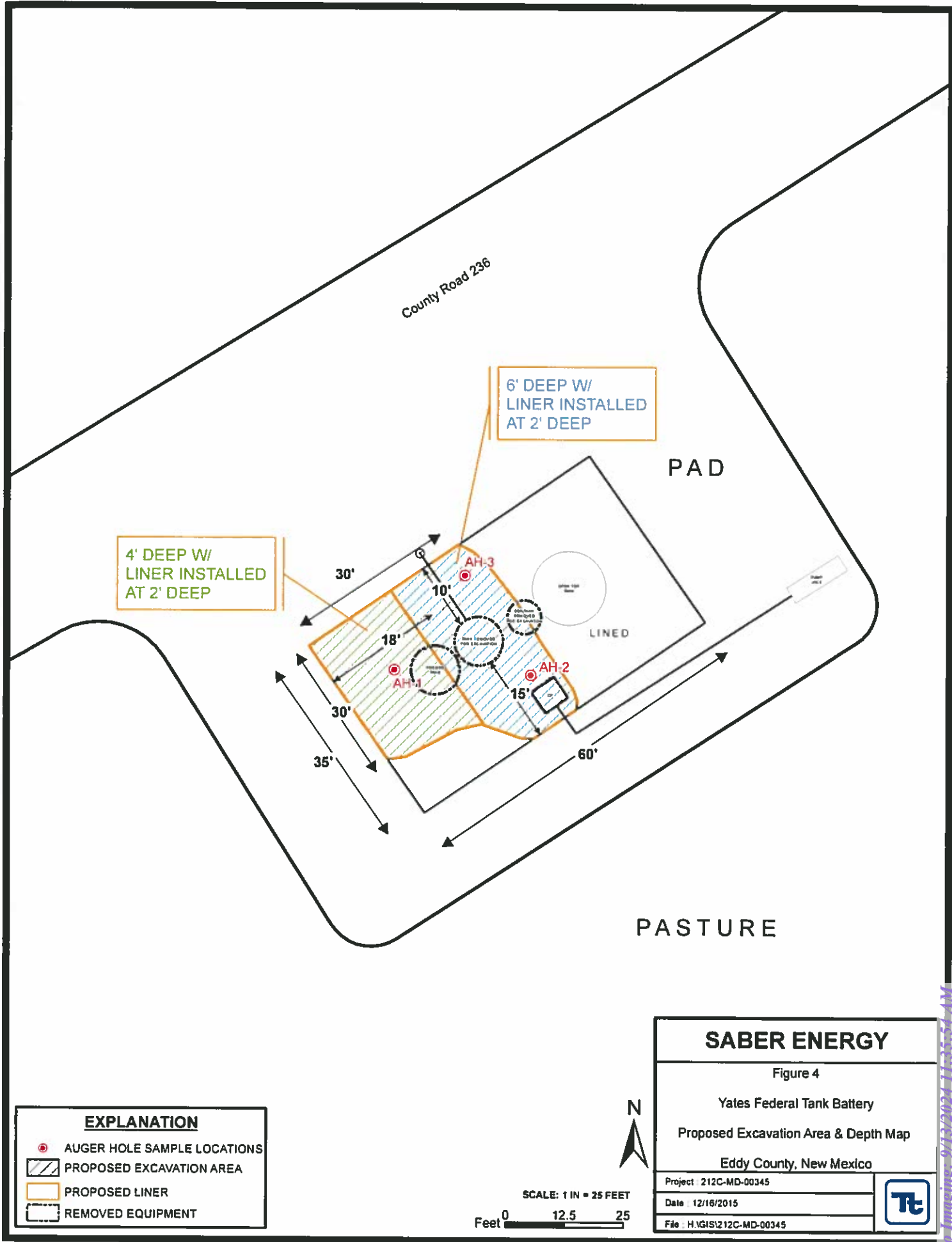
Eddy County, New Mexico

Project: 212C-MD-00345

Date: 09/30/2015

File: H:\GIS\212C-MD-00345





Map prepared by: Isabel Marmolejo

Tables

Table 1
Saber Oil & Gas
Yates Federal Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	9/24/2015	0-1	X		874	6,320	2,980	10,200	0.0664	0.432	<0.00501	2.54	3.04	10.9
	"	1-1.5	X		2,090	7,910	2,440	12,400	-	-	-	-	-	15.0
	"	2-2.5	X		2,940	10,500	2,910	16,400	-	-	-	-	-	44.6
	"	3-3.5	X		1,340	8,320	2,230	11,900	-	-	-	-	-	58.7
Trench 1	11/11/2015	3.5-4	X		<15.0	24.3	19.8	44.1	-	-	-	-	-	-
AH-2	9/24/2015	0-1	X		937	8,180	3,920	13,000	<0.00504	0.164	0.249	1.32	1.73	14.5
	"	1-1.5	X		1,150	9,730	3,100	14,000	-	-	-	-	-	<2.00
Trench 2	11/11/2015	1.5-2	X		1,520	14,300	1,680	17,500	-	-	-	-	-	-
	"	2-3	X		719	5,100	685	6,500	-	-	-	-	-	-
	"	5-6	X		33.6	540	<15.0	574	-	-	-	-	-	-
AH-3	9/24/2015	0-1	X		492	6,910	3,750	11,200	<0.000990	0.00799	0.0289	0.163	0.200	25.3
	"	1-1.5	X		31.7	797	656	1,480	-	-	-	-	-	19.7
Trench 3	11/11/2015	1.5-2	X		508	7,310	993	8,810	-	-	-	-	-	-
	"	2-3	X		132	2,950	895	3,980	-	-	-	-	-	-
	"	3-4	X		98.8	1,440	355	1,890	-	-	-	-	-	-
	"	4-5	X		1,880	16,000	3,920	21,800	-	-	-	-	-	-
	"	5-6	X		660	5,600	697	6,960	-	-	-	-	-	-
	"	6-7	X		<15.0	84.0	16.8	101	-	-	-	-	-	-

(-)

Not Analyzed

Proposed Liner Installation

Proposed Excavation and Depth

Photos

Saber Oil and Gas Ventures LLC
Yates Federal Tank Battery
Eddy County, New Mexico



TETRA TECH



View South – Area of AH-1



View Northwest – Area of AH-1 and AH-2

Saber Oil and Gas Ventures LLC
Yates Federal Tank Battery
Eddy County, New Mexico



TETRA TECH



View Northeast – Area of AH-3



View North – Area of AH 2 and AH 3

Saber Oil and Gas Ventures LLC
Yates Federal Tank Battery
Eddy County, New Mexico



TETRA TECH



View West – Area of Trench-1



View West – Area of Trench-2

Saber Oil and Gas Ventures LLC
Yates Federal Tank Battery
Eddy County, New Mexico



TETRA TECH



View South – Area of Trench-2



View Southeast – Area north of tanks to be removed

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Saber oil & Gas Ventures, LLC	Contact	JD Machonek
Address	400 W. Illinois STE 950 Midland, TX	Telephone No.	432 885 7128
Facility Name	Yates Federal Battery	Facility Type	Tank Battery
Surface Owner	Mineral Owner	API No.	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	7	T-20-S	R-37-E					EDDY

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release	Spill	Volume of Release	N/A	Volume Recovered	N/A
Source of Release	Tank Battery	Date and Hour of Occurrence	N/A	Date and Hour of Discovery	N/A
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required				
By Whom?	Shelly Fowler (EAM Representative)	Date and Hour			
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If YES, Volume Impacting the Watercourse.					

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Production tank was neglected and run over by lease operator. All spilled fluid was contained inside Firewall. Tetra Tech Environmental was consulted and they obtained soil samples.

Describe Area Affected and Cleanup Action Taken.*

Affected Area is inside Firewall Around Tank Batteries. Tetra Tech will advise which cleanup action is necessary once lab work is completed.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCID 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 NMOCID 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, NMOCID 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: JD Machonek		OIL CONSERVATION DIVISION	
Printed Name: JD Machonek		Approved by Environmental Specialist:	
Title: Engineer	Approval Date:	Expiration Date:	
E-mail Address: JD@Saberogv.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 10/27/15	Phone: 432 685 0169		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data Average Depth to Groundwater (ft) Saber - Yates Tank Battery Eddy County, New Mexico

19 South			26 East		
6	5	4	70	3	2
7	8	9	10	50	11
18	69	17	16	15	14
19	20	52	21	22	23
30	29	28	27	49	26
105	31	95	32	95	33

19 South			27 East		
6	5	20	4	3	2
7	8	50	9	10	11
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			28 East		
6	5	4	3	2	1
7	8	9	246	10	11
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			26 East		
6	65	5	20	4	3
7	5	8	9	10	11
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			27 East		
6	5	4	3	2	1
7	8	9	96	10	11
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			28 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

21 South			26 East		
6	5	65	4	3	140
7	8	170	9	150	11
18	17	174	16	139	15
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South			27 East		
6	34	5	4	3	2
7	8	9	81	10	11
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
C 00419	C	C	ED	3	3	4	19	20S	27E	563904	3601904*	1813		
C 01923		C	ED	2	4	36	20S	27E	572469	3599224*		400		
RA 03979			ED	1	1	3	21	20S	27E	566306	3602539*	190		
RA 04764			ED	3	1	21	20S	27E	566407	3602845*		171	150	21
RA 05410			ED	2	4	14	20S	27E	570842	3604049*		81	66	15
RA 05552			ED	2	4	02	20S	27E	570844	3607265*		145		
RA 05857			ED	2	2	2	20	20S	27E	566104	3603346*			
RA 07841			ED	1	1	21	20S	27E	566408	3603251*		200	140	60
RA 08073			ED	1	1	4	07	20S	27E	563883	3605760*	200	198	2
RA 10049			ED	4	3	1	21	20S	27E	566506	3602744*	200		
RA 10343			ED	2	2	4	14	20S	27E	570941	3604148*	128	74	54
RA 10441			ED	2	3	4	07	20S	27E	564085	3605372*	130	13	117
RA 10603			ED	1	1	1	18	20S	27E	563076	3604910*	135		

Average Depth to Water: 106 feet

Minimum Depth: 13 feet

Maximum Depth: 198 feet

Record Count: 13

PLSS Search:

Township: 20S

Range: 27E

*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.

12/29/15 3:00 PM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

Appendix C

Analytical Report 516331

for
Tetra Tech- Midland

Project Manager: Ike Tavaréz

Saber-Yates Fed Tank Battery

2121C-MD-00345

07-OCT-15

Collected By: Client



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



07-OCT-15

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

Reference: XENCO Report No(s): **516331**
Saber-Yates Fed Tank Battery
Project Address: Eddy County, NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 516331. 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. 516331 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,

Julian Martinez
Project Manager

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Certified and approved by numerous States and Agencies.
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Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 516331



Tetra Tech- Midland, Midland, TX

Saber-Yates Fed Tank Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH1(0-1)	S	09-24-15 00:00		516331-001
AH1(1-1.5)	S	09-24-15 00:00		516331-002
AH1(2-2.5)	S	09-24-15 00:00		516331-003
AH1(3-3.5)	S	09-24-15 00:00		516331-004
AH2(0-1)	S	09-24-15 00:00		516331-005
AH2(1-1.5)	S	09-24-15 00:00		516331-006
AH3(0-1)	S	09-24-15 00:00		516331-007
AH3(1-1.5)	S	09-24-15 00:00		516331-008

**CASE NARRATIVE****Client Name: Tetra Tech- Midland****Project Name: Saber-Yates Fed Tank Battery****Project ID: 2121C-MD-00345****Work Order Number(s): 516331****Report Date: 07-OCT-15****Date Received: 09/25/2015****Sample receipt non conformances and comments:**

Run deeper TPH if exceeds 100 mg/kg. Run deeper BTEX is benzene exceeds 10mg/kg or Total BTEX exceeds 50 mg/kg

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 516331

Tetra Tech- Midland, Midland, TX

Project Id: 2121C-MD-00345

Contact: Ike Tavarez

Project Location: Eddy County, NM

Project Name: Saber-Yates Fed Tank Battery

Date Received in Lab: Fri Sep-25-15 04:05 pm

Report Date: 07-OCT-15

Project Manager: Kelsey Brooks

Analysis Requested

Lab Id:	516331-001	516331-002	516331-003	516331-004	516331-005	516331-006
Field Id:	AH1(0-1)	AH1(1-1.5)	AH1(2-2.5)	AH1(3-3.5)	AH2(0-1)	AH2(1-1.5)
Depth:						
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled:	Sep-24-15 00:00	Sep-24-15 00:00	Sep-24-15 00:00	Sep-24-15 00:00	Sep-24-15 00:00	Sep-24-15 00:00
Extracted:	Sep-28-15 15:00				Sep-28-15 15:00	
Analyzed:	Sep-29-15 13:26				Sep-29-15 13:10	
Units/RL:	mg/kg RL				mg/kg RL	
Benzene	0.0664 0.00501				ND 0.00504	
Toluene	0.432 0.0100				0.164 0.0101	
Ethylbenzene	ND 0.00501				0.249 0.00504	
m,p-Xylenes	2.54 0.0100				1.32 0.0101	
o-Xylene	ND 0.00501				ND 0.00504	
Total Xylenes	2.54 0.00501				1.32 0.00504	
Total BTEX	3.04 0.00501				1.73 0.00504	
Inorganic Anions by EPA 300/300.1						
SUB: TX104704215						
Extracted:	Oct-02-15 17:00	Oct-02-15 17:00	Oct-02-15 17:00	Oct-02-15 17:00	Oct-02-15 17:00	Oct-02-15 17:00
Analyzed:	Oct-06-15 01:56	Oct-06-15 02:19	Oct-06-15 02:42	Oct-06-15 03:04	Oct-06-15 03:27	Oct-06-15 04:35
Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride	10.9 2.00	15.0 2.00	44.6 2.00	58.7 2.00	14.5 2.00	ND 2.00
TPH By SW8015 Mod						
Extracted:	Sep-30-15 17:30	Oct-01-15 09:00	Oct-01-15 09:00	Oct-01-15 09:00	Sep-30-15 17:30	Oct-01-15 09:00
Analyzed:	Oct-01-15 06:13	Oct-05-15 18:15	Oct-07-15 00:12	Oct-07-15 00:36	Oct-01-15 06:39	Oct-05-15 17:51
Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C10 Gasoline Range Hydrocarbons	874 149	2090 74.9	2940 149	1340 150	937 150	1150 149
C10-C28 Diesel Range Hydrocarbons	6320 149	7910 74.9	10500 149	8320 150	8180 150	9730 149
C28-C35 Oil Range Hydrocarbons	2980 149	2440 74.9	2910 149	2230 150	3920 150	3100 149
Total TPH	10200 149	12400 74.9	16400 149	11900 150	13000 150	14000 149

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.

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

Julian Martinez
Project Manager



Certificate of Analysis Summary 516331

Tetra Tech- Midland, Midland, TX

Project Id: 2121C-MD-00345
Contact: Ike Tavaraz
Project Location: Eddy County, NM

Project Name: Saber-Yates Fed Tank Battery

Date Received in Lab: Fri Sep-25-15 04:05 pm
Report Date: 07-OCT-15
Project Manager: Kelsey Brooks

Analysis Requested		Lab Id:	516331-007	516331-008	
		Field Id:	AH3(0-1)	AH3(1-15)	
		Depth:			
		Matrix:	SOIL	SOIL	
		Sampled:	Sep-24-15 00:00	Sep-24-15 00:00	
BTEX by EPA 8021B		Extracted:	Sep-28-15 15:00		
		Analyzed:	Sep-29-15 12:54		
		Units/RL:	mg/kg RL		
Benzene			NID 0.000990		
Toluene			0.00799 0.00198		
Ethylbenzene			0.0289 0.000990		
m_p-Xylenes			0.133 0.00198		
o-Xylene			0.0302 0.000990		
Total Xylenes			0.163 0.000990		
Total BTEX			0.200 0.000990		
Inorganic Anions by EPA 300/300.1		Extracted:	Oct-02-15 17:00	Oct-02-15 17:00	
SUB: TX104704215		Analyzed:	Oct-06-15 04:58	Oct-06-15 05:20	
		Units/RL:	mg/kg RL	mg/kg RL	
Chloride			25.3 2.00	19.7 2.00	
TPH By SW8015 Mod		Extracted:	Sep-30-15 17:30	Oct-01-15 09:00	
		Analyzed:	Oct-01-15 07:03	Oct-05-15 19:35	
		Units/RL:	mg/kg RL	mg/kg RL	
C6-C10 Gasoline Range Hydrocarbons			492 150	31.7 15.0	
C10-C28 Diesel Range Hydrocarbons			6910 150	797 15.0	
C28-C35 Oil Range Hydrocarbons			3750 150	656 15.0	
Total TPHI			11200 150	1480 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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Julian Martinez
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

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 5332 Blackberry Drive, San Antonio TX 78238
 2505 North Falkenburg Rd, Tampa, FL 33619
 12600 West I-20 East, Odessa, TX 79765
 6017 Financial Drive, Norcross, GA 30071
 3725 E. Atlanta Ave, Phoenix, AZ 85040

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(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 516331, 516331

Project ID: 2121C-MD-00345

Lab Batch #: 977889

Sample: 516331-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/29/15 12:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0324	0.0300	108	80-120	

Lab Batch #: 977889

Sample: 516331-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/29/15 13:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0303	0.0300	101	80-120	

Lab Batch #: 977889

Sample: 516331-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/29/15 13:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0360	0.0300	120	80-120	
4-Bromofluorobenzene	0.0245	0.0300	82	80-120	

Lab Batch #: 978146

Sample: 516331-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/01/15 06:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	91.6	99.6	92	70-135	
o-Terphenyl	48.8	49.8	98	70-135	

Lab Batch #: 978146

Sample: 516331-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/01/15 06:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	105	99.7	105	70-135	
o-Terphenyl	55.8	49.9	112	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 516331, 516331

Project ID: 2121C-MD-00345

Lab Batch #: 978146

Sample: 516331-007 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/01/15 07:03

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	54.5	50.0	109	70-135	

Lab Batch #: 978146

Sample: 516331-006 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/05/15 17:51

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.6	101	70-135	
o-Terphenyl	56.0	49.8	112	70-135	

Lab Batch #: 978146

Sample: 516331-002 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/05/15 18:15

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.7	99.9	81	70-135	
o-Terphenyl	40.0	50.0	80	70-135	

Lab Batch #: 978146

Sample: 516331-008 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/05/15 19:35

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.7	117	70-135	
o-Terphenyl	60.7	49.9	122	70-135	

Lab Batch #: 978146

Sample: 516331-003 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/07/15 00:12

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.0	99.5	91	70-135	
o-Terphenyl	47.2	49.8	95	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] = $100 \times A / B$

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



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 516331, 516331

Project ID: 2121C-MD-00345

Lab Batch #: 978146

Sample: 516331-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/07/15 00:36

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.9	99.7	94	70-135	
o-Terphenyl	46.4	49.9	93	70-135	

Lab Batch #: 977889

Sample: 698746-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/15 18:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 978146

Sample: 698899-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/29/15 20:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	55.4	50.0	111	70-135	

Lab Batch #: 977889

Sample: 698746-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/15 18:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	

Lab Batch #: 978146

Sample: 698899-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/30/15 11:29

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	43.4	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.



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 516331, 516331

Project ID: 2121C-MD-00345

Lab Batch #: 977889

Sample: 698746-I-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/15 18:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0317	0.0300	106	80-120	
4-Bromofluorobenzene		0.0336	0.0300	112	80-120	

Lab Batch #: 978146

Sample: 698899-I-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/30/15 11:52

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1-Chlorooctane		104	100	104	70-135	
o-Terphenyl		44.8	50.0	90	70-135	

Lab Batch #: 977889

Sample: 516320-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/28/15 21:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0326	0.0300	109	80-120	
4-Bromofluorobenzene		0.0332	0.0300	111	80-120	

Lab Batch #: 978146

Sample: 516547-006 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/01/15 16:12

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1-Chlorooctane		114	99.9	114	70-135	
o-Terphenyl		51.7	50.0	103	70-135	

Lab Batch #: 977889

Sample: 516320-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/28/15 22:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0337	0.0300	112	80-120	
4-Bromofluorobenzene		0.0357	0.0300	119	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-Yates Fed Tank Battery

Work Orders : 516331, 516331

Project ID: 2121C-MD-00345

Lab Batch #: 978146

Sample: 516547-006 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 10/01/15 16:37

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	44.9	49.9	90	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: Saber-Yates Fed Tank Battery



Work Order #: 516331, 516331

Project ID: 2121C-MD-00345

Analyst: SYG

Date Prepared: 09/28/2015

Date Analyzed: 09/28/2015

Lab Batch ID: 977889

Sample: 698746-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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
BTEX by EPA 8021B											
Benzene	<0.000996	0.0996	0.0833	84	0.0998	0.0864	87	4	70-130	35	
Toluene	<0.00199	0.0996	0.0861	86	0.0998	0.0888	89	3	70-130	35	
Ethylbenzene	<0.000996	0.0996	0.0923	93	0.0998	0.0944	95	2	71-129	35	
m,p-Xylenes	<0.00199	0.199	0.186	93	0.200	0.191	96	3	70-135	35	
o-Xylene	<0.000996	0.0996	0.0906	91	0.0998	0.0927	93	2	71-133	35	

Analyst: JUM

Date Prepared: 10/02/2015

Date Analyzed: 10/02/2015

Lab Batch ID: 978361

Sample: 698969-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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
Inorganic Anions by EPA 300/300.1											
Chloride	<2.00	50.0	49.9	100	50.0	49.1	98	2	90-110	20	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries

Project Name: Saber-Yates Fed Tank Battery



Work Order #: 516331, 516331

Analyst: PJB

Lab Batch ID: 978146

Units: mg/kg

Sample: 698899-1-BKS

Batch #: 1

Date Prepared: 09/30/2015

Project ID: 2121C-MD-00345

Date Analyzed: 09/30/2015

Matrix: Solid

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
Analytes										Control Limits %RPD
C6-C10 Gasoline Range Hydrocarbons		<150	1000	849	85	1000	836	84	2	70-135
C10-C28 Diesel Range Hydrocarbons		<150	1000	774	77	1000	781	78	1	70-135
										35
										35

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



Form 3 - MS Recoveries
Project Name: Saber-Yates Fed Tank Battery



Work Order #: 516331

Lab Batch #: 978361

Date Analyzed: 10/03/2015

QC- Sample ID: 516327-003 S

Reporting Units: mg/kg

Date Prepared: 10/02/2015

Batch #: 1

Project ID: 2121C-MD-00345

Analyst: JUM

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300						
Analytes		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R
Chloride		2200	2500	4760	102	80-120

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

BRL - Below Reporting Limit



Form 3 - MS / MSD Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Order #: 516331
Lab Batch ID: 977889
Date Analyzed: 09/28/2015
Reporting Units: mg/kg

QC- Sample ID: 516320-001 S
Date Prepared: 09/28/2015
Batch #: 1
Matrix: Soil
Analyst: SYG

Project ID: 2121C-MD-00345

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	<0.00101	0.101	80	0.101	0.0811	80	0	70-130	35	
Toluene	<0.00201	0.101	80	0.101	0.0811	80	0	70-130	35	
Ethylbenzene	<0.00101	0.101	80	0.101	0.0812	80	0	71-129	35	
m_p-Xylenes	<0.00201	0.201	81	0.201	0.163	81	1	70-135	35	
o-Xylene	<0.00101	0.101	81	0.101	0.0808	80	1	71-133	35	

Lab Batch ID: 978146
Date Analyzed: 10/01/2015
Reporting Units: mg/kg

QC- Sample ID: 516547-006 S
Date Prepared: 09/30/2015
Batch #: 1
Matrix: Soil
Analyst: PJB

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
<15.0	999	955	96	998	845	85	12	70-135	35	
<15.0	999	845	85	998	763	76	10	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQ1 = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked

Analysis Request of Chain of Custody Record



TETRA TECH

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

CLIENT NAME:

Saber Oil & Gas

SITE MANAGER:

MANAGER: Ike Tavaraz

PROJECT NO.:	PROJECT NAME:
--------------	---------------

PROJECT NAME: Saber - Yates Fed Tank Battery

SAMPLE IDENTIFICATION

LAB I.D. NUMBER	DATE 2015	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF FILTERED (V)	HCL	HNO3	PCE	NONE	BTEX _{2021B}	(PH) 9015	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volatiles	TCLP Semi V	RCI	GC/MS Vol. 82	GC/MS Semi.	PCBs 8080/6	Post. BQF/508	Gamm Spec	Alpha Beta (A)	PLM (Asbestos)	Major Airborne
	9/24		S	X	X	AH 1 (0-1)	1	2		X		X	X											X			
						(1-1.5)	1	2		X														X			
						(2-2.5)	1	2		X														X			
						(3-3.5)	1	2		X														X			
						AH 2 (0-1)	1	2		X		X	X											X			
						(1-1.5)	1	2		X														X			
						AH 3 (0-1)	1	2		X		X	X											X			
						(1-1.5)	1	2		X														X			

РЕЛИГИОЗНОСТЬ И ДИСКРИМИНАЦИЯ

Colleen Acker

RELINQUISHED BY: (Signature)

ED BY: (Signature)

RELINQUISHED BY: (Signature)

(continued)

RECEIVING LABORATORY:

LABORATORY: GENCO STATE: TX

CITY: Madison STATE: TX PHONE: _____
CONTACT: _____

CONTACT: _____ PHONE: _____

REMARKS:	
SAMPLE CONDITION WHEN RECEIVED:	

SAMPLE CONDITION WHEN RECEIVED:

100

FIELD IN OUT

1

Imaging: 0/13/2024 11:3

ICIT 4707/ICT16 : Signmult



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 09/25/2015 04:05:00 PM

Work Order #: 516331

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	
#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 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Kelsey Brooks
Kelsey Brooks

Date: 09/28/2015

Checklist reviewed by:

Kelsey Brooks
Kelsey Brooks

Date: 09/28/2015

Analytical Report 519397

for
Tetra Tech- Midland

Project Manager: Ike Tavaréz

Saber-Yates Fed Tank Battery

212C-MD-00345

25-NOV-15

Collected By: Client



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



25-NOV-15

Project Manager: **Ike Tavarez**

Tetra Tech- Midland

4000 N. Big Spring Suite 401

Midland, TX 79705

Reference: XENCO Report No(s): **519397**

Saber-Yates Fed Tank Battery

Project Address: Eddy County, NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 519397. 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. 519397 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,

Julian Martinez

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 - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America

**Sample Cross Reference 519397****Tetra Tech- Midland, Midland, TX****Saber-Yates Fed Tank Battery**

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Trench 1 (AH-1) (3.5'-3')	S	11-11-15 00:00	3.5 - 4 ft	519397-001
Trench 2 (AH-2) (1.5'-2')	S	11-11-15 00:00	1.5 - 2 ft	519397-002
Trench 2 (AH-2) (2'-3')	S	11-11-15 00:00	2 - 3 ft	519397-003
Trench 3 (AH-3) (1.5'-2')	S	11-11-15 00:00	1.5 - 2 ft	519397-004
Trench 3 (AH-3) (2'-3')	S	11-11-15 00:00	2 - 3 ft	519397-005
Trench 3 (AH-3) (3'-4')	S	11-11-15 00:00	3 - 4 ft	519397-006
Trench 3 (AH-3) (4'-5')	S	11-11-15 00:00	4 - 5 ft	519397-007
Trench 3 (AH-3) (5'-6')	S	11-11-15 00:00	5 - 6 ft	519397-008
Trench 3 (AH-3) (6'-7')	S	11-11-15 00:00	6 - 7 ft	519397-009
Trench 2 (AH-2) (5'-6')	S	11-11-15 00:00	5 - 6 ft	519397-010



CASE NARRATIVE



Client Name: Tetra Tech- Midland
Project Name: Saber-Yates Fed Tank Battery

Project ID: 212C-MD-00345
Work Order Number(s): 519397

Report Date: 25-NOV-15
Date Received: 11/13/2015

Sample receipt non conformances and comments:

Run deeper TPH if exceeds 1000 mg/kg.

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 519397

Tetra Tech- Midland, Midland, TX
Project Name: Saber-Yates Fed Tank Battery



Project Id: 212C-MD-00345

Contact: Ike Tavares

Project Location: Eddy County, NM

Date Received in Lab: Fri Nov-13-15 11:10 am

Report Date: 25-NOV-15

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	519397-001	519397-002	519397-003	519397-004	519397-005	519397-006
	Field Id:	Trench 1 (AH-1) (3.5'-3')	Trench 2 (AH-2) (1.5'-2')	Trench 2 (AH-2) (2'-3')	Trench 3 (AH-3) (1.5'-2')	Trench 3 (AH-3) (2'-3')	Trench 3 (AH-3) (3'-4')
	Depth:	3.5-4 ft	1.5-2 ft	2-3 ft	1.5-2 ft	2-3 ft	3-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00
TPH By SW8015 Mod	Extracted:	Nov-20-15 10:30	Nov-20-15 10:30	Nov-23-15 19:00	Nov-20-15 10:30	Nov-23-15 19:00	Nov-23-15 19:00
	Analyzed:	Nov-20-15 13:55	Nov-20-15 14:31	Nov-25-15 12:30	Nov-20-15 15:02	Nov-25-15 13:02	Nov-25-15 13:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		ND 15.0 24.3 15.0 19.8 15.0 44.1 15.0	1520 150 14300 150 1680 150 17500 150	719 74.8 5100 74.8 685 74.8 6500 74.8	508 150 7310 150 993 150 8810 150	132 74.9 2950 74.9 895 74.9 3980 74.9	98.8 74.8 1440 74.8 355 74.8 1890 74.8
C6-C10 Gasoline Range Hydrocarbons							
C10-C28 Diesel Range Organics							
C28-C35 Oil Range Hydrocarbons							
Total TPH							

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.

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

Julian Martinez
Project Manager



Project Id: 212C-MD-00345

Contact: Ike Tavaraz

Project Location: Eddy County, NM

Certificate of Analysis Summary 519397

Tetra Tech- Midland, Midland, TX

Project Name: Saber-Yates Fed Tank Battery

Date Received in Lab: Fri Nov-13-15 11:10 am

Report Date: 25-NOV-15

Project Manager: Kelsey Brooks



Analysis Requested	Lab Id:	519397-007	519397-008	519397-009	519397-010
	Field Id:	Trench 3 (A11-3) (4'-5')	Trench 3 (A11-3) (5'-6')	Trench 3 (A11-3) (6'-7')	Trench 2 (A11-2) (5'-6')
	Depth:	4-5 ft	5-6 ft	6-7 ft	5-6 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL
	Sampled:	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00	Nov-11-15 00:00
TPH By SW8015 Mod	Extracted:	Nov-23-15 19:00	Nov-23-15 19:00	Nov-23-15 19:00	Nov-23-15 19:00
	Analyzed:	Nov-25-15 14:34	Nov-25-15 15:05	Nov-25-15 15:37	Nov-25-15 12:57
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	C6-C10 Gasoline Range Hydrocarbons	1880 299	660 74.8	ND 15.0	33.6 15.0
	C10-C28 Diesel Range Organics	16000 299	5600 74.8	84.0 15.0	540 15.0
C28-C35 Oil Range Hydrocarbons		3920 299	697 74.8	16.8 15.0	ND 15.0
	Total TPH	21800 299	6960 74.8	101 15.0	574 15.0

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Julian Martinez
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

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(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 519397,

Project ID: 212C-MD-00345

Lab Batch #: 981750

Sample: 519397-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/20/15 13:55

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.7	99.7	91	70-135	
o-Terphenyl	43.5	49.9	87	70-135	

Lab Batch #: 981750

Sample: 519397-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/20/15 14:31

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.7	104	70-135	
o-Terphenyl	48.7	49.9	98	70-135	

Lab Batch #: 981750

Sample: 519397-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/20/15 15:02

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.8	99.9	94	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 982123

Sample: 519397-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 12:30

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.4	99.7	96	70-135	
o-Terphenyl	44.6	49.9	89	70-135	

Lab Batch #: 982123

Sample: 519397-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 12:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	99.9	92	70-135	
o-Terphenyl	38.4	50.0	77	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] = $100 \times A / B$

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



Form 2 - Surrogate Recoveries

Project Name: Saber-Yates Fed Tank Battery

Work Orders : 519397,

Project ID: 212C-MD-00345

Lab Batch #: 982123

Sample: 519397-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 13:02

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.5	99.9	92	70-135	
o-Terphenyl	42.8	50.0	86	70-135	

Lab Batch #: 982123

Sample: 519397-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 13:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.9	99.7	91	70-135	
o-Terphenyl	41.6	49.9	83	70-135	

Lab Batch #: 981642

Sample: 519397-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 14:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.5	99.6	77	70-135	
o-Terphenyl	47.0	49.8	94	70-135	

Lab Batch #: 981642

Sample: 519397-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 15:05

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.3	99.7	94	70-135	
o-Terphenyl	44.6	49.9	89	70-135	

Lab Batch #: 982123

Sample: 519397-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 15:37

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.1	100	87	70-135	
o-Terphenyl	39.6	50.0	79	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-Yates Fed Tank Battery

Work Orders : 519397,

Project ID: 212C-MD-00345

Lab Batch #: 981750

Sample: 701112-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/19/15 11:50

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	46.7	50.0	93	70-135	

Lab Batch #: 982123

Sample: 701346-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/24/15 13:49

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	100	100	70-135	
o-Terphenyl	42.4	50.0	85	70-135	

Lab Batch #: 981750

Sample: 701112-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/19/15 12:15

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	54.0	50.0	108	70-135	

Lab Batch #: 982123

Sample: 701346-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/24/15 14:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	100	117	70-135	
o-Terphenyl	55.3	50.0	111	70-135	

Lab Batch #: 981750

Sample: 701112-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/19/15 12:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	52.0	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-Yates Fed Tank Battery

Work Orders : 519397,

Project ID: 212C-MD-00345

Lab Batch #: 982123

Sample: 701346-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/24/15 14:37

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	51.1	50.0	102	70-135	

Lab Batch #: 982123

Sample: 519929-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 06:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	100	98	70-135	
o-Terphenyl	45.1	50.0	90	70-135	

Lab Batch #: 982123

Sample: 519929-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/25/15 07:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.9	99.9	99	70-135	
o-Terphenyl	44.6	50.0	89	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] = $100 \cdot A / B$

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



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 11/13/2015 11:10:00 AM

Work Order #: 519397

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-5
#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 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO ₃ , HCL, H ₂ SO ₄ ? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#22 >10 for all samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Carley Owens

Carley Owens

Date: 11/13/2015

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 11/13/2015

Table 1
Saber Oil & Gas
Yates Federal Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	9/24/2015	0-1	X		874	6,320	7,190	0.0664	0.432	<0.00501	2.54	3.04	10.9
	"	1-1.5	X		2,090	7,910	10,000	-	-	-	-	-	15.0
	"	2-2.5	X		2,940	10,500	13,400	-	-	-	-	-	44.6
	"	3-3.5	X		1,340	8,320	9,660	-	-	-	-	-	58.7
Trench 1	11/11/2015	3.5-4	X		<15.0	24.3	24.3	-	-	-	-	-	-
AH-2	9/24/2015	0-1	X		937	8,180	9,120	<0.00504	0.164	0.249	1.32	1.73	14.5
	"	1-1.5	X		1,150	9,730	10,900	-	-	-	-	-	<2.00
Trench 2	11/11/2015	1.5-2	X		1,520	14,300	15,800	-	-	-	-	-	-
	"	2-3	X		719	5,100	5,820	-	-	-	-	-	-
	"	5-6	X		33.6	540	574	-	-	-	-	-	-
AH-3	9/24/2015	0-1	X		492	6,910	7,400	<0.000990	0.00799	0.0289	0.163	0.200	25.3
	"	1-1.5	X		31.7	797	829	-	-	-	-	-	19.7
Trench 3	11/11/2015	1.5-2	X		508	7,310	7,820	-	-	-	-	-	-
	"	2-3	X		132	2,950	3,090	-	-	-	-	-	-
	"	3-4	X		98.8	1,440	1,540	-	-	-	-	-	-
	"	4-5	X		1,880	16,000	17,900	-	-	-	-	-	-
	"	5-6	X		660	5,600	6,260	-	-	-	-	-	-
	"	6-7	X		<15.0	84.0	84.0	-	-	-	-	-	-
Stockpile Composite 1	7/12/2016	-	X		58.3	4,120	4,180	-	-	-	-	-	-
Stockpile Composite 2	"	-	X		79.8	4,860	4,940	-	-	-	-	-	-
Stockpile Composite 3	"	-	X		75.6	4,510	4,590	-	-	-	-	-	-

212C-MD-00345
Xenco Labs

Table 1
Saber Oil & Gas
Yates Federal Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
Area 1 Composite	10/14/2016	-	X		46.9	4,270	4,320	-	-	-	-	-	-
Area 2 Composite	"	-	X		34.1	3,660	3,690	-	-	-	-	-	-
Area 3 Composite	"	-	X		32.0	3,740	3,770	-	-	-	-	-	-
Area 4 Composite	"	-	X		24.5	3,320	3,340	-	-	-	-	-	-
Area 5 Composite	"	-	X		22.3	3,280	3,300	-	-	-	-	-	-
Area 6 Composite	"	-	X		27.2	3,460	3,490	-	-	-	-	-	-
Area 1 Composite	1/11/2017	-	X		20.9	1,280	1,300	-	-	-	-	-	-
Area 2 Composite	"	-	X		16.5	1,940	1,960	-	-	-	-	-	-
Area 3 Composite	"	-	X		<15.0	1,390	1,390	-	-	-	-	-	-
Area 4 Composite	"	-	X		<15.0	1,640	1,640	-	-	-	-	-	-
Area 5 Composite	"	-	X		15.3	1,440	1,460	-	-	-	-	-	-
Area 6 Composite	"	-	X		<15.0	1,640	1,640	-	-	-	-	-	-
Area 1 Composite	4/18/2017	-	X		39.0	1,590	1,630	-	-	-	-	-	-
Area 2 Composite	"	-	X		50.6	2,320	2,370	-	-	-	-	-	-
Area 3 Composite	"	-	X		46.2	2,030	2,080	-	-	-	-	-	-
Area 4 Composite	"	-	X		<15.0	368	368	-	-	-	-	-	-
Area 5 Composite	"	-	X		33.5	1,950	1,980	-	-	-	-	-	-
Area 6 Composite	"	-	X		48.7	2,240	2,290	-	-	-	-	-	-
Area 1 Composite	1/10/2018	-	X		<14.9	757	1,040	-	-	-	-	-	-
Area 2 Composite	"	-	X		<15.0	737	990	-	-	-	-	-	-
Area 3 Composite	"	-	X		<14.9	839	1,130	-	-	-	-	-	-
Area 4 Composite	"	-	X		<15.0	357	449	-	-	-	-	-	-
Area 5 Composite	"	-	X		<15.0	507	669	-	-	-	-	-	-
Area 6 Composite	"	-	X		<15.0	607	782	-	-	-	-	-	-

(-)

Not Analyzed

 212C-MD-00345
 Xenco Labs

Bratcher, Mike, EMNRD

From: Bratcher, Mike, EMNRD
Sent: Wednesday, April 18, 2018 3:02 PM
To: 'Tavarez, Ike'; aaarias@blm.gov
Cc: Weaver, Crystal, EMNRD; nelson (nelson@saberogv.com); Gonzales, Clair
Subject: RE: Saber - Yates Federal Tank Battery - 2RP 3533

RE: Saber * 2RP-3533

Impacted material must meet RRAL for the site before re-use is approved.

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Tavarez, Ike <Ike.Tavarez@tetrattech.com>
Sent: Tuesday, February 27, 2018 3:33 PM
To: aaarias@blm.gov; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Cc: Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; nelson (nelson@saberogv.com) <nelson@saberogv.com>; Gonzales, Clair <Clair.Gonzales@tetrattech.com>
Subject: Saber - Yates Federal Tank Battery - 2RP 3533

Mike and Art,

The approved work plan for the Saber Oil & Gas Yates Federal Tank Battery is attached for your reference. As proposed in the work plan, the impacted area was excavated and the material was placed onsite on plastic for remediation. The soil remediation area was segregated into 6 quadrants for sampling. Saber treated the material a multiple times with a micro-blaze product to aid the remediation. Tetra Tech would periodically collect samples from the remediation area. I have included the updated analysis table detailing the stockpile sampling that has been performed to date.

Referring to the analysis table, the latest sampling event in January 2018 showed TPH concentrations at Area 2, Area 4, Area 5, and Area 6 below the 1,000 mg/kg threshold. However, Area 1 and Area 3 showed TPH concentrations slightly above the RRAL, with concentrations of 1,040 mg/kg and 1,130 mg/kg, respectively. Saber is currently in the process of dismantling the facility and plugging the wells. With the areas of Area 1 and Area 3 only slightly exceeding the RRAL, Saber would like to move forward and use all the material to backfill the excavations, with your approval. If approved, Saber will proceed with the backfilling activities and a closure report for your review.

Ike Tavarez, PG | Senior Project Manager

Main: 432.682.4559 | Fax: 432.682.3946 | Cell: 432.425.3878

Ike.Tavarez@tetrattech.com

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CONDITIONS

Action 383423

CONDITIONS

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CONDITIONS

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