APPROVED

1RP-4049
FINAL REMEDIATION REPORT
Perla Negra Fed Com #4H Well Release
Lea County, New Mexico

LAI Project No. 15-0167-01

September 1, 2016

Prepared for:

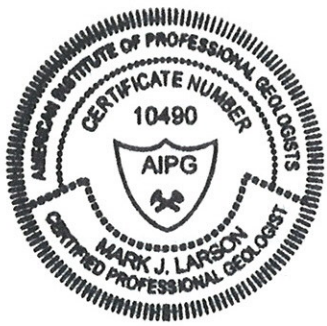
XTO Energy, Inc.
500 West Illinois Street, Suite 100
Midland, Texas 79707

Prepared by:

Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.

Certified Professional Geologist #10490



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Introduction

This report is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy, Inc. (XTO) to present the remediation of residual hydrocarbons in the right-of-way (ROW) for three (3) fiber optic cables owned by AT&T. The hydrocarbons are the result of a release from the Perla Negra Fed Com Well #4H (Site) located north on the ROW. The Site is located in Unit A (NE/4, NE/4), Section 25, Township 19 South, Range 34 East, in Lea County, New Mexico. The approximate geodetic position is north 32° 38' 16.3055" and west 103° 30' 24.8432". Figure 1 presents a topographic map. Figure 2 presents an aerial map. Figure 2a presents a focused aerial map.

Background

The release occurred on December 1, 2015 during well swabbing operations that caused crude oil and water to escape from the wellhead. The estimated volume of the release was approximately 301.3 barrels (bbl) oil and 192.8 mcf gas. Approximately 158.63 bbl of fluid was recovered. XTO verbally notified the U.S. Bureau of Land Management (BLM) in Carlsbad, New Mexico. On December 21, 2015, the initial C-141 was submitted to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs, New Mexico. The OCD assigned the release remediation permit number 1RP-4049.

During December 2015 and January 2016, LAI personnel applied Micro-Blaze® microbial amendment (6%) to the affected area (red zone). On January 28, 2016, LAI personnel collected discrete samples at twenty-two (22) locations (S-1 through S-22) including three samples (S-5, S-6 and S-7) from the ROW and eleven (11) composite samples. The samples were collected with a stainless steel hand auger from 0 to 1 and 1 to 2 feet below ground surface (bgs). The samples were analyzed by Trace Analysis, Inc. (Trace), in Midland, Texas, for total petroleum hydrocarbons (TPH) by EPA SW-846 method 8015 including gasoline (GRO) and diesel (DRO) range organics and chloride by method 300. The laboratory reported TPH above the OCD recommended remediation action level (RRAL) of 1,000 milligrams per kilogram (mg/Kg) in discrete samples S-7, 0 to 1 foot (9,180 mg/kg) and S-7, 1 to 2 feet (7,030 mg/Kg). Chloride was below 250 mg/Kg. Figure 3 presents a sample location map.

On April 26, 2016, following another application of Micro-Blaze to the area around S-7, LAI personnel collected samples to about eight (8) feet below ground surface (bgs) using direct push sampling methods. Trace analyzed the samples for TPH by EPA SW-846-Method 8015 and reported 9,018 mg/Kg, 5,120 mg/Kg and 316 mg/Kg, in samples from 0 to 1, 1 to 2 and 2 to 3 feet bgs, respectively. TPH in the remaining samples was below the method reporting limit (RL). The initial remediation was presented to the OCD and BLM on June 16, 2016, in a report titled, "Remediation Report Perla Negra Fed Com Well #4H, Lea County, New Mexico, 1RP-4049". The report recommended natural attenuation for the residual hydrocarbons in the vicinity of sample S-7. OCD denied the request for natural attenuation on June 16, 2016.

On June 24, 2016, XTO and LAI personnel met with AT&T representatives to determine what remediation, if any, that AT&T would allow in the ROW. Due to the shallowest fiber optic cable buried

at approximately 25 inches bgs AT&T personnel agreed that bioremediation and tilling was an acceptable remediation approach. On July 13, 2016, LAI on behalf of XTO submitted a remediation plan to OCD and BLM that proposed treating the soil with a microbial amendment (M-1000H) and nutrient (OSNF #1) manufactured by Micro-Bac International, Inc., in Round Rock, Texas, followed by tilling and periodic wetting with potable water. The remediation plan was approved on July 18, 2016 (OCD) and 19, 2016 (BLM). Figure 4 presents the remediation area. Appendix A presents the remediation plan approval.

Setting

The setting is as follows:

- The surface elevation is about 3,780 feet above mean sea level (MSL);
- The topography is undulating with the regional topographic slope to the southeast;
- The nearest surface water feature is a small playa located about 2 miles northeast of the Site with no surface connection to the Site;
- The dominant soil types are "Pyote soils and dune land" (29.2%), "Kermit-Palomas fine sands, 0 to 12 percent slopes" (20%) and "Simona fine sandy loam, 0 to 3 percent slopes" (18.3%). The soils are fine sandy and calcareous eolian deposits derived from sedimentary rock;
- The upper geologic unit is the Tertiary-age Ogallala formation consisting of unconsolidated to semi-consolidated fine to coarse grained quartz sand, silt, gravel and clay and underlain by the Triassic-age Chinle formation of the Dockum group;
- The nearest fresh water well (CP 8941) is located about 2,000 feet northeast in Unit M (SW/4, SW/4), Section 19, Township 19 South and Range 35 East. Depth to groundwater is reported at 285 feet below ground surface (bgs);
- Groundwater was encountered at 55 feet below ground surface (bgs) in a boring drilled near the northwest corner of the Site.

Remediation Action Levels

Remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD (*Guidelines for Remediation of Leaks, Spills and Releases, August 13,* 1993):

Criteria	***Result***	***Score***
Depth-to-Groundwater	50 - 100 feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 10

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 1,000 mg/Kg

Additional Remediation

On August 8, 2016, LAI personnel applied the liquid M-1000H microbial amendment and granular OSNF nutrient to the soil followed by tilling and watering. The M-1000H and OSNF was applied to an area measuring approximately 7,986 square feet to treat approximately 15,972 cubic feet of soil. The treated area was tilled for aeration and watered to maintain moisture.

On August 19 and 26, 2016, LAI personnel used a stainless steel hand auger to collect soil samples near S-7 from 0 to 1 and 1 to 2 feet bgs, respectively. Trace analyzed the samples for TPH by EPA SW-846 method 8015 including GRO and DRO. Table 1 presents the analytical data summary. Appendix B presents the laboratory reports.

Referring to Table 1, the laboratory reported 3,776 mg/Kg TPH in the sample from 0 to 1 foot and 4,090 mg/Kg TPH in the sample from 1 to 2 feet. The TPH concentration in the sample from 0 to 1 foot shows an approximate 60 percent decrease from the initial concentration (9,180 mg/Kg). The TPH concentration in the sample from 1 to 2 feet shows an approximate 42 percent decrease from the initial concentration (7,030 mg/Kg).

Conclusion

The bioremediation has significantly reduced the TPH concentration and will continue to decrease over time. XTO proposes a final application of M-1000H and OSNF #1 followed by one round of tilling and watering to remediate the remaining hydrocarbons. The surface will be restored to BLM and AT&T requirements. Your approval of this final remediation report is requested. Appendix C presents photographs. Appendix D presents the initial and final C-141.

Tables

Table 1
Soil Sample Analytical Data Summary
XTO Energy, Inc., Perla Negra #4 Well Release
Unit A (NE/4, NE/4), Section 25, Township 19 South, Range 34 East
Lea County, New Mexico
1RP-4049

Sample	Depth (Feet)	Collection Date	Status	PID (mg/Kg)	Benzene (mg/Kg)	BTEX (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
OCD RRAL:					**10**	**50**			**1,000**	****250**
Area: Well Pad										
S-1	0 - 1	1/28/2016	In-Situ	**3.8**	--	--	<50.0	<4.00	<54.0	**39.6**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-2	0 - 1	1/28/2016	In-Situ	**6.6**	--	--	<50.0	<4.00	<54.0	**31.5**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-3	0 - 1	1/28/2016	In-Situ	**589**	<0.0200	**3.022**	478	132	**610**	**1,800**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-4	0 - 1	1/28/2016	In-Situ	**414**	<0.0200	**0.4204**	<50.0	92.1	**92.1**	**92.9**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	**30.5**
Area: Right of Way (AT&T)										
S-5	0 - 1	1/28/2016	In-Situ	**66**	--	--	530	<4.00	**530**	**37.2**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-6	0 - 1	1/28/2016	In-Situ	**272**	<0.0200	**0.2609**	344	11.3	**355.3**	**148**
	1 - 2	1/28/2016	In-Situ	--	--	--	51.6	<4.00	**51.6**	**125**
S-7	0 - 1	1/28/2016	In-Situ	**1,078**	**0.568**	**87.468**	6,390	2,790	**9,180**	**73.2**
		4/26/2016	In-Situ	--	--	--	8,140	878	**9,018**	--
		8/19/2016	In-Situ	--	--	--	3630	146	**3,776**	--
	1 - 2	1/28/2016	In-Situ	--	--	--	4,230	2,800	**7,030**	**50.9**
		4/26/2016	In-Situ	--	--	--	4,090	1,030	**5,120**	--
		8/26/2016	In-Situ	--	--	--	2920	1170	**4,090**	--
	2 - 3	2/18/2016	In-Situ	29	<0.0200	<0.0200	316	<50	**316**	**55.4**
	3 - 4	2/18/2016	In-Situ	20	<0.0200	<0.0200	<50.0	<4.00	<54.0	**27.7**
	4 - 5	2/18/2016	In-Situ	80	<0.0200	**0.1852**	<50.0	<4.00	<54.0	<25.0
	5 - 6	2/18/2016	In-Situ	9	--	--	<50.0	<4.00	<54.0	**36.6**
	6 - 7	2/18/2016	In-Situ	4	--	--	<50.0	<4.00	<54.0	**29.3**
	7 - 8	2/18/2016		2.6	--	--	--	--	--	
Area: Red Zone										

Table 1
Soil Sample Analytical Data Summary
XTO Energy, Inc., Perla Negra #4 Well Release
Unit A (NE/4, NE/4), Section 25, Township 19 South, Range 34 East
Lea County, New Mexico
1RP-4049

S-8	0 - 1	1/28/2016	In-Situ	**0.8**	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-9	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-10	0 - 1	1/28/2016	In-Situ	**0.8**	--	--	182	<4.00	**182**	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-11	0 - 1	1/28/2016	In-Situ	0.0	--	--	252	<4.00	**252**	**28.7**
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-12	0 - 1	1/28/2016	In-Situ	**0.8**	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-13	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-14	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-15	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-16	0 - 1	1/28/2016	In-Situ	**0.8**	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-17	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-18	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
Area: Transition Zone										
S-19	0 - 1	1/28/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/28/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-20	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0

Table 1
Soil Sample Analytical Data Summary
XTO Energy, Inc., Perla Negra #4 Well Release
Unit A (NE/4, NE/4), Section 25, Township 19 South, Range 34 East
Lea County, New Mexico
1RP-4049

	1 - 2	1/29/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-21	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/29/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
S-22	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
	1 - 2	1/29/2016	In-Situ	--	--	--	<50.0	<4.00	<54.0	<25.0
Area: Green Zone										
Comp-1	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -2	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -3	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -4	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -5	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -6	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -7	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -8	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -9	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -10	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0
Comp -11	0 - 1	1/29/2016	In-Situ	0.0	--	--	<50.0	<4.00	<54.0	<25.0

Notes: Analysis performed by Trace Analysis, Inc., Midland and Lubbock by EPA SW-846 Method 8021B (BTEX), Method 8015M (TPH) and 300.0 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
--: Sample not analyzed
RRAL: Recommended Remediation Action Level (RRAL) calculated from OCD guidance document (August 13, 1993)
*: Will be determined following boring for depth to groundwater
**: OCD delineation level

Figures

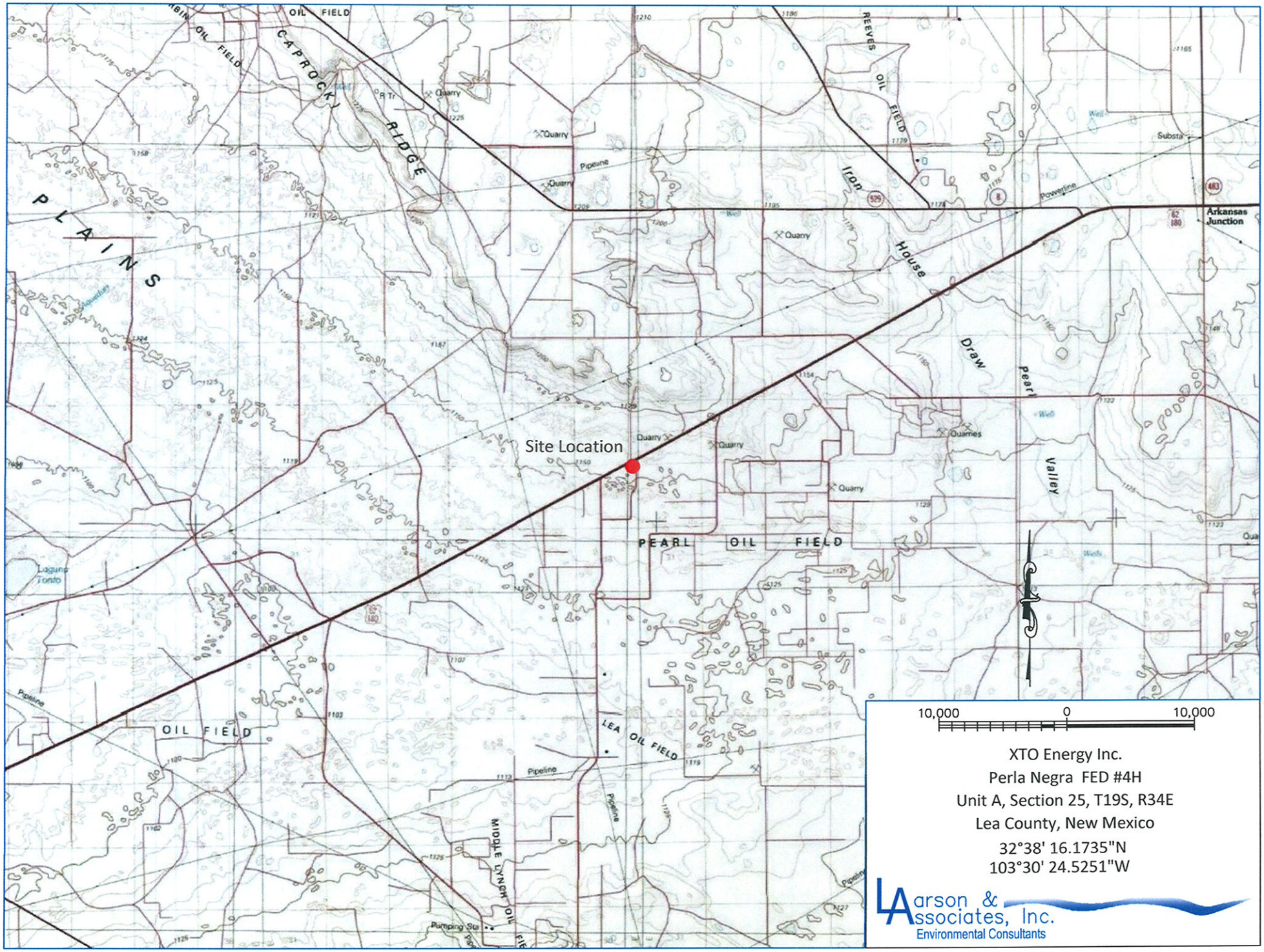

Figure 1 - Topographic Map

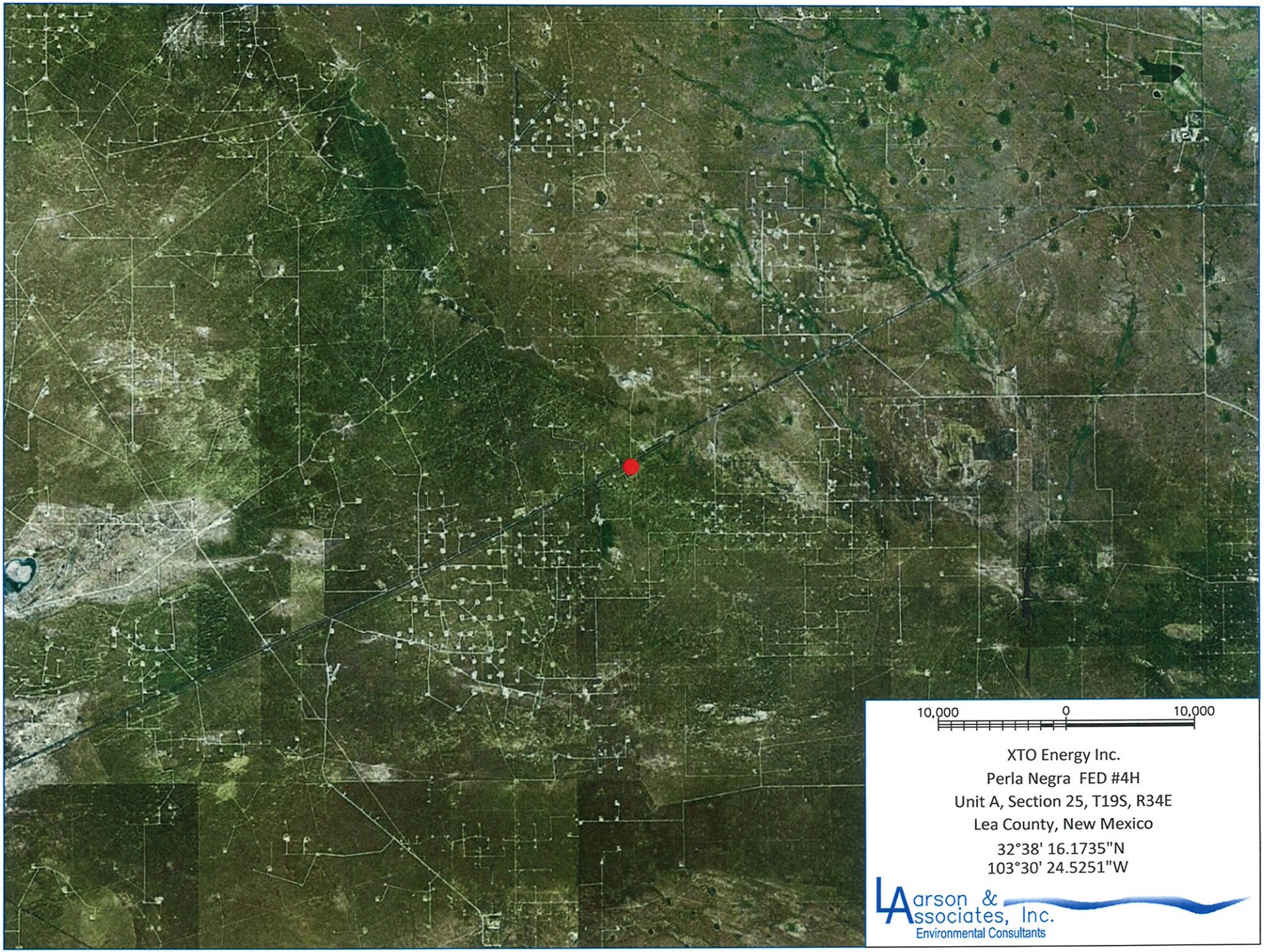

Figure 2 - Aerial Map

Figure 2a - Focused Aerial Map Showing Remediation Area

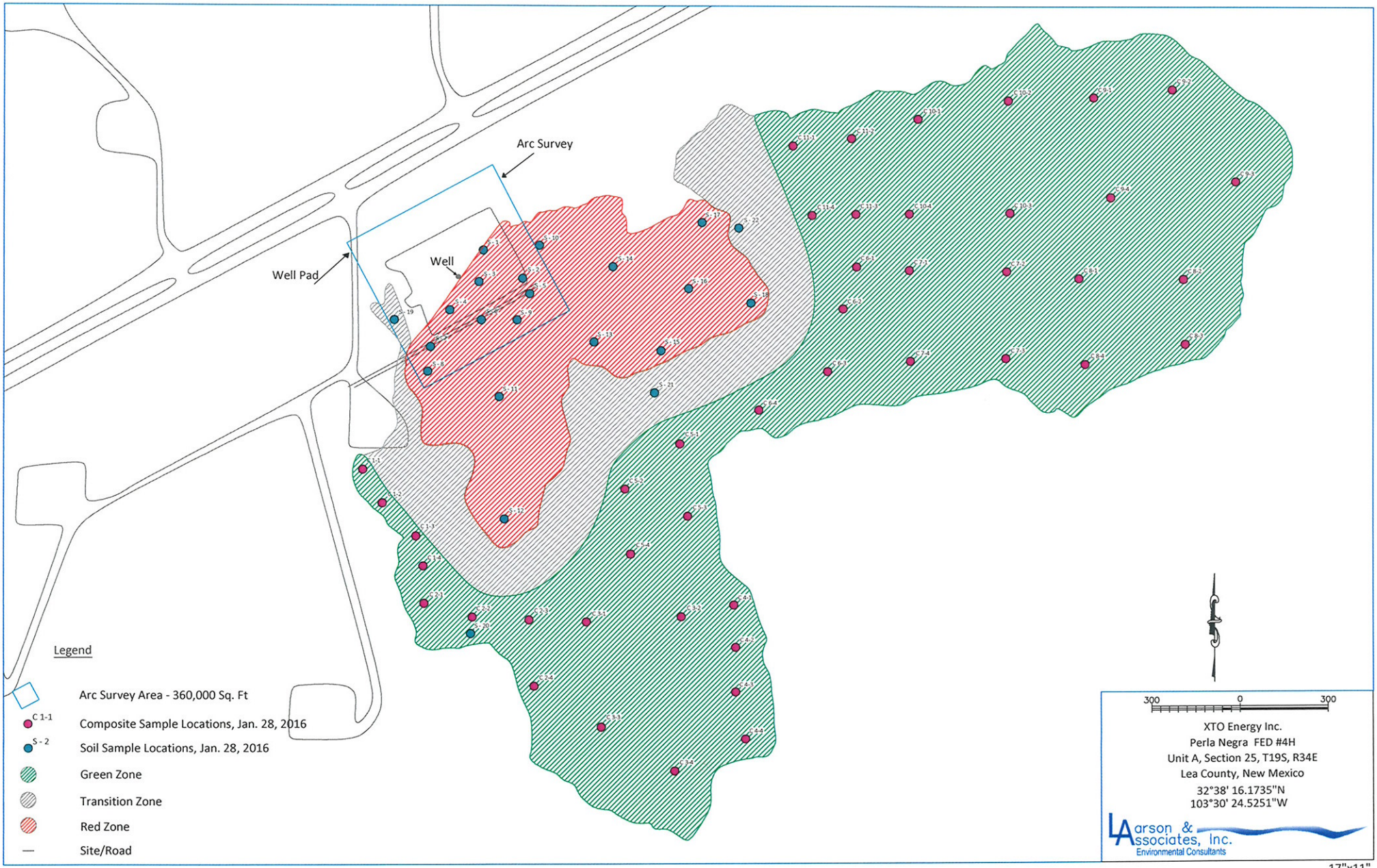

Figure 3 - Site Map Showing Soil Sample Locations

17"x11"

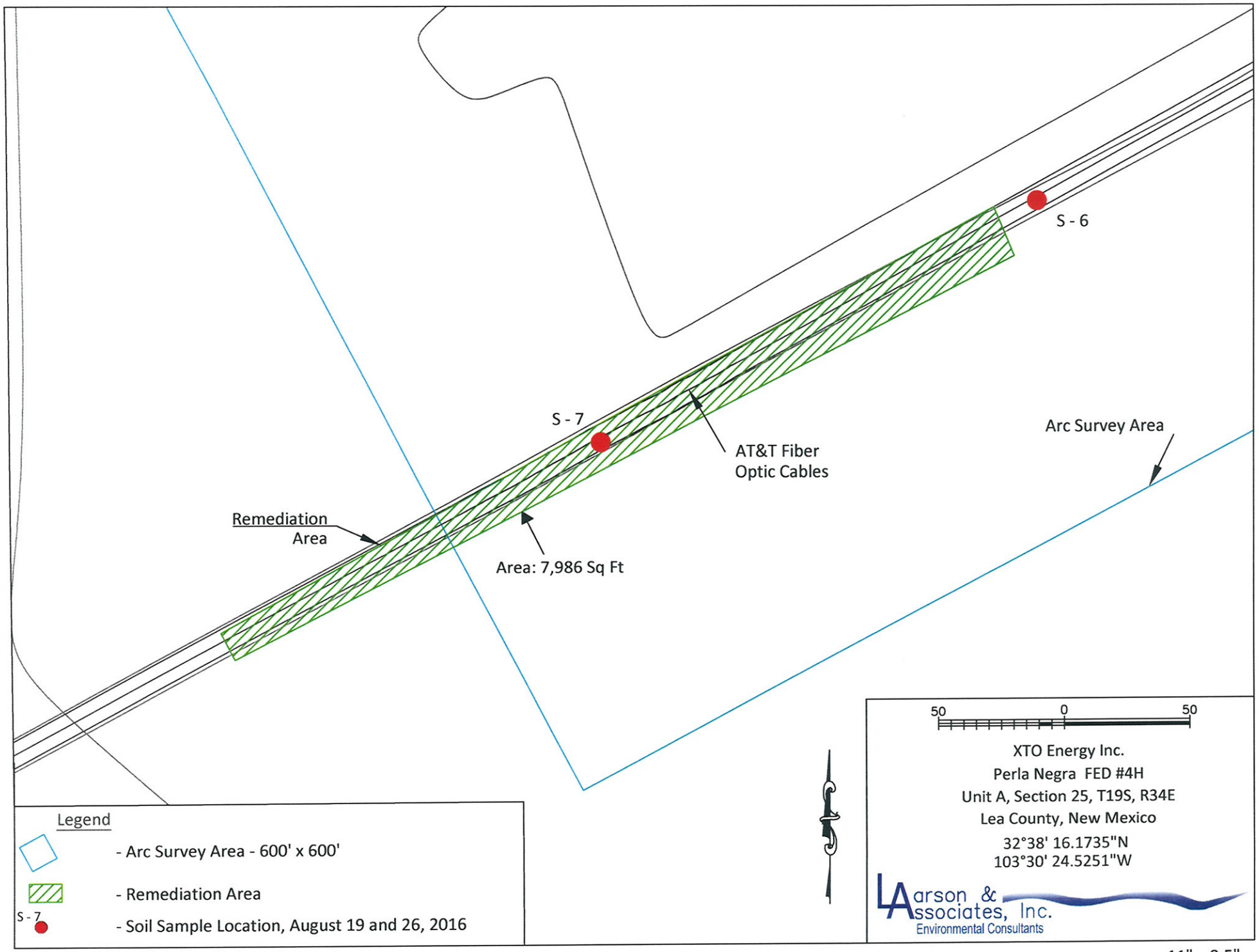

Figure 4 - Site Map Showing Remediation Area

11" x 8.5"

Appendix A

Remediation Plan Approval

Mark Larson

From: Tucker, Shelly [stucker@blm.gov]
Sent: Tuesday, July 19, 2016 3:03 PM
To: Keyes, Jamie, EMNRD
Cc: Mark Larson; McMinn, Dudley; Williams, Luke
Subject: Re: 1RP-4049, Perla Negra Fed Com #4H Remediation Plan for Right-of-Way, July 13, 2016

BLM accepts/approves your remediation proposal.

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

On Mon, Jul 18, 2016 at 9:05 AM, Keyes, Jamie, EMNRD <Jamie.Keyes@state.nm.us> wrote:

Good morning,

The remediation proposal is approved.

Thank you,

Jamie

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Friday, July 15, 2016 3:43 PM
To: Keyes, Jamie, EMNRD; Tucker, Shelly
Cc: McMinn, Dudley; Williams, Luke
Subject: Re: 1RP-4049, Perla Negra Fed Com #4H Remediation Plan for Right-of-Way, July 13, 2016

Jamie,

On behalf of XTO Energy, Inc. and per our meeting on July 8, 2016, please accept the attached remediation plan to address residual hydrocarbons in the right-of-way (ROW) located south of the Perla Negra Fed Com Well #4H in Lea County, New Mexico. Your approval of the remediation plan is requested. Please contact Dudley McMinn with XTO at (432) 682-8873 or me if you have questions.

Respectfully,

Mark J. Larson, P.G.

President/Sr. Project Manager

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

(432) 687-0901 (O)

(432) 556-8656 (C)

Celebrating 15 Years in Business!

Appendix B

Laboratory Reports

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Travis Williams
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: August 24, 2016

Work Order: 16082203

Project Name: XTO Perla Negra
Project Number: 15-0167-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
426912	S-7	soil	2016-08-19	11:45	2016-08-22

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

Report Contents

Case Narrative

Samples for project XTO Perla Negra were received by TraceAnalysis, Inc. on 2016-08-22 and assigned to work order 16082203. Samples for work order 16082203 were received intact at a temperature of 15.2 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
TPH DRO	S 8015 D	112115	2016-08-23 at 13:00	132286	2016-08-24 at 08:16
TPH GRO	S 8015 D	112128	2016-08-23 at 14:00	132296	2016-08-23 at 14:00
TPH ORO	S 8015 D	112115	2016-08-23 at 13:00	132287	2016-08-24 at 08:17

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16082203 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 426912 - S-7

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132286	Date Analyzed:	2016-08-24	Analyzed By:	HJ
Prep Batch:	112115	Sample Preparation:	2016-08-23	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2,3	**3630**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr Qsr		260	mg/Kg	1	25.0	1040	58.2 - 150

Sample: 426912 - S-7

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132296	Date Analyzed:	2016-08-23	Analyzed By:	MT
Prep Batch:	112128	Sample Preparation:	2016-08-23	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1,2,3	**146**	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	5	2.00	94	76.4 - 123
4-Bromofluorobenzene (4-BFB)	Qsr Qsr		5.83	mg/Kg	5	2.00	292	69.4 - 120

Sample: 426912 - S-7

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132287	Date Analyzed:	2016-08-24	Analyzed By:	HJ
Prep Batch:	112115	Sample Preparation:	2016-08-23	Prepared By:	HJ

continued ...

sample 426912 continued . . .

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO			**597**	**597**	**597**	**597**	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		261	mg/Kg	1	25.0	1044	70 - 130
n-Triacontane	Qsr	Qsr		191	mg/Kg	1	25.0	764	70 - 130

Method Blanks

Method Blank (1) QC Batch: 132286

QC Batch: 132286 Date Analyzed: 2016-08-24 Analyzed By: HJ
Prep Batch: 112115 QC Preparation: 2016-08-23 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			21.9	mg/Kg	1	25.0	88	58.2 - 150

Method Blank (1) QC Batch: 132287

QC Batch: 132287 Date Analyzed: 2016-08-24 Analyzed By: HJ
Prep Batch: 112115 QC Preparation: 2016-08-23 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
ORO			<7.48	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			21.9	mg/Kg	1	25.0	88	70 - 130
n-Triacontane			18.5	mg/Kg	1	25.0	74	70 - 130

Method Blank (1) QC Batch: 132296

QC Batch: 132296 Date Analyzed: 2016-08-23 Analyzed By: MT
Prep Batch: 112128 QC Preparation: 2016-08-23 Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1,2,3	<0.271	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.21	mg/Kg	1	2.00	110	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	69.4 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132286 | Date Analyzed: 2016-08-24 | Analyzed By: HJ
Prep Batch: 112115 | QC Preparation: 2016-08-23 | Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	516	mg/Kg	1	500	<8.47	103	68.5 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	503	mg/Kg	1	500	<8.47	101	68.5 - 136	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	25.0	24.2	mg/Kg	1	25.0	100	97	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 132287 | Date Analyzed: 2016-08-24 | Analyzed By: HJ
Prep Batch: 112115 | QC Preparation: 2016-08-23 | Prepared By: HJ

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	29.4	32.5	mg/Kg	1	25.0	118	130	70 - 130
n-Triacontane	17.6	18.6	mg/Kg	1	25.0	70	74	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 132296 | Date Analyzed: 2016-08-23 | Analyzed By: MT
Prep Batch: 112128 | QC Preparation: 2016-08-23 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	15.2	mg/Kg	1	20.0	<0.271	76	64.2 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	15.0	mg/Kg	1	20.0	<0.271	75	64.2 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.15	2.00	mg/Kg	1	2.00	108	100	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.22	2.22	mg/Kg	1	2.00	111	111	69.4 - 120

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 132286 | Date Analyzed: 2016-08-24 | Analyzed By: HJ
Prep Batch: 112115 | QC Preparation: 2016-08-23 | Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	502	mg/Kg	1	500	28.7	95	49.3 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	484	mg/Kg	1	500	28.7	91	49.3 - 138	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	59.0	56.9	mg/Kg	1	50	118	114	58.2 - 150

Matrix Spike (xMS-1) Spiked Sample: 426940

QC Batch: 132287 | Date Analyzed: 2016-08-24 | Analyzed By: HJ
Prep Batch: 112115 | QC Preparation: 2016-08-23 | Prepared By: HJ

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	55.4	53.2	mg/Kg	1	50	111	106	70 - 130
n-Triacontane	44.2	43.7	mg/Kg	1	50	88	87	70 - 130

Matrix Spike (MS-1) Spiked Sample: 426912

QC Batch: 132296 | Date Analyzed: 2016-08-23 | Analyzed By: MT
Prep Batch: 112128 | QC Preparation: 2016-08-23 | Prepared By: MT

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q_M	Q_M	1,2,3	136	mg/Kg	5	20.0	146	-50	35.3 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	158	mg/Kg	5	20.0	146	60	35.3 - 129	15	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			1.98	1.89	mg/Kg	5	2	99	94	76.4 - 123
4-Bromofluorobenzene (4-BFB)	Q_{SU}	Q_{SU}	4.94	5.72	mg/Kg	5	2	247	286	69.4 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 132286 Date Analyzed: 2016-08-24 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	528	106	80 - 120	2016-08-24

Standard (CCV-2)

QC Batch: 132286 Date Analyzed: 2016-08-24 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	561	112	80 - 120	2016-08-24

Standard (CCV-1)

QC Batch: 132296 Date Analyzed: 2016-08-23 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	0.956	96	80 - 120	2016-08-23

Standard (CCV-2)

QC Batch: 132296 Date Analyzed: 2016-08-23 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	0.799	80	80 - 120	2016-08-23

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

WO#: 160822203

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: ~~8-22-2016~~ 8-22-2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: XTO Perla Negra

LAI PROJECT #: 15-0167-01 COLLECTOR: Travis Williams

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

(S=SOIL) W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒ ORO ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
S-7		8-19-16	11:45	S	1				X				X	X														426912
TOTAL																												

RELINQUISHED BY:(Signature) DATE/TIME 10:30 8/22/16 RECEIVED BY: (Signature) 8/22/16 10:30

RELINQUISHED BY:(Signature) DATE/TIME 8/22/16 11:14 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 8/23/16 RECEIVED BY: (Signature) Brandy Ward

ZU 102896 4.1 | 4.5

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.2 THERM #: IR-1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

AJ

TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mark Larson
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: August 31, 2016

Work Order: 16082904

Project Name: XTO Perla Negra
Project Number: 15-0167-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
427260	S-7	soil	2016-08-26	13:10	2016-08-29

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

Report Contents

Case Narrative

Samples for project XTO Perla Negra were received by TraceAnalysis, Inc. on 2016-08-29 and assigned to work order 16082904. Samples for work order 16082904 were received intact at a temperature of 3.4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
TPH DRO	S 8015 D	112268	2016-08-30 at 13:00	132460	2016-08-30 at 15:11
TPH GRO	S 8015 D	112278	2016-08-30 at 14:39	132471	2016-08-30 at 14:39

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16082904 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 427260 - S-7

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132460	Date Analyzed:	2016-08-30	Analyzed By:	HJ
Prep Batch:	112268	Sample Preparation:	2016-08-30	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1,2,3	**2920**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr Qsr		179	mg/Kg	1	25.0	716	58.2 - 150

Sample: 427260 - S-7

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132471	Date Analyzed:	2016-08-30	Analyzed By:	MT
Prep Batch:	112278	Sample Preparation:	2016-08-30	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Jc,Qc	1,2,3	**1170**	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.23	mg/Kg	5	2.00	62	76.4 - 123
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	40.1	mg/Kg	5	2.00	2005	69.4 - 120

Method Blanks

Method Blank (1) QC Batch: 132460

QC Batch: 132460 | Date Analyzed: 2016-08-30 | Analyzed By: HJ
Prep Batch: 112268 | QC Preparation: 2016-08-30 | Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			22.1	mg/Kg	1	25.0	88	58.2 - 150

Method Blank (1) QC Batch: 132471

QC Batch: 132471 | Date Analyzed: 2016-08-30 | Analyzed By: MT
Prep Batch: 112278 | QC Preparation: 2016-08-30 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1,2,3	<0.271	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	76.4 - 123
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	69.4 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132460 | Date Analyzed: 2016-08-30 | Analyzed By: HJ
Prep Batch: 112268 | QC Preparation: 2016-08-30 | Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	401	mg/Kg	1	500	<8.47	80	68.5 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	399	mg/Kg	1	500	<8.47	80	68.5 - 136	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	27.6	27.6	mg/Kg	1	25.0	110	110	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 132471 | Date Analyzed: 2016-08-30 | Analyzed By: MT
Prep Batch: 112278 | QC Preparation: 2016-08-30 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	21.2	mg/Kg	1	20.0	<0.271	106	64.2 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	20.7	mg/Kg	1	20.0	<0.271	104	64.2 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.96	1.83	mg/Kg	1	2.00	98	92	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.06	2.09	mg/Kg	1	2.00	103	104	69.4 - 120

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample: 427390

QC Batch: 132460 | Date Analyzed: 2016-08-30 | Analyzed By: HJ
Prep Batch: 112268 | QC Preparation: 2016-08-30 | Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	369	mg/Kg	1	500	<8.47	74	49.3 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	378	mg/Kg	1	500	<8.47	76	49.3 - 138	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	30.9	30.3	mg/Kg	1	25	124	121	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 427260

QC Batch: 132471 | Date Analyzed: 2016-08-30 | Analyzed By: MT
Prep Batch: 112278 | QC Preparation: 2016-08-30 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs 1,2,3	1280	mg/Kg	5	20.0	1170	550	35.3 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	Qs 1,2,3	1380	mg/Kg	5	20.0	1170	1050	35.3 - 129	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.70	1.44	mg/Kg	5	2	85	72	76.4 - 123
4-Bromofluorobenzene (4-BFB) Qsr Qsr	43.7	44.9	mg/Kg	5	2	2185	2245	69.4 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 132460 | Date Analyzed: 2016-08-30 | Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	406	81	80 - 120	2016-08-30

Standard (CCV-2)

QC Batch: 132460 | Date Analyzed: 2016-08-30 | Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	407	81	80 - 120	2016-08-30

Standard (CCV-1)

QC Batch: 132471 | Date Analyzed: 2016-08-30 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	0.890	89	80 - 120	2016-08-30

Standard (CCV-2)

QC Batch: 132471 | Date Analyzed: 2016-08-30 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO [1] Qc	Qc	1,2,3	mg/Kg	1.00	1.33	133	80 - 120	2016-08-30

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4	NELAP	T104704392-14-8	Midland
5		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Result Comments

1 CCV high, outside control limits due to carryover from sample.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

160829O4

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8-26-16 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: XTO Perla Negra

LAI PROJECT #: 15-0167 COLLECTOR: Jared Moring

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: NM

(S=SOIL) P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☑	DIESEL - MOD 8015 ☑	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
S-7 (1-2)	427260	8-26-16	1:10	S	1				✓				✓	✓																
TOTAL																														

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

8/29/16 10:00

RELINQUISHED BY:(Signature) DATE/TIME 8/29/16 15:30 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 8/30/16 RECEIVED BY: (Signature) Brenda Ward

Trace Analysis

25 24126776 AM

3.0/3.4

TURN AROUND TIME

NORMAL ☐
1 DAY ☑
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 3.4 THERM #: IR-1

CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED

☐ CARRIER BILL # _____

☑ HAND DELIVERED

Appendix C

Photographs

Well Sign

Viewing East on ROW from Southwest Corner of Location December 5, 2015

Viewing Southwest on ROW December 5, 2015

Viewing East on ROW near Sample Location S-7, December 15, 2015

Viewing East on ROW near Sample Location S-7, March 9, 2016

Viewing West on ROW near Sample Location S-7, June 2, 2016

Viewing West on ROW, August 18, 2016

Viewing West on ROW, August 26, 2016

Viewing West on ROW, August 29, 2016

Viewing West on ROW, August 29, 2016

Viewing Southeast on ROW, August 31, 2016

Viewing West on ROW, August 31, 2016

Viewing West on ROW, August 31, 2016

Appendix D

Initial and Final C-141

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: XTO Energy, Inc	Contact: Stephanie Rabadue
Address: 500 W. Illinois St Ste 100 Midland, Texas 79701	Telephone No.: 432-620-6714
Facility Name: Perla Negra Federal Com #4H	Facility Type: Well Site

Surface Owner: Bureau of Land Management	Mineral Owner: Bureau of Land Management	API No.: 30-025-42577

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	25	19S	34E	298	North	485	East	Lea

Latitude: 32.637653 N Longitude: 103.506267 W

NATURE OF RELEASE

Type of Release: Blow Out	Volume of Release: 301.3bbls oil 192.8mcf gas	Volume Recovered: 158.63bbls (to date) Clean-Up in Progress
Source of Release: Well	Date and Hour of Occurrence 12/1/2015, 11AM CST	Date and Hour of Discovery 12/1/2015, 11AM CST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos, Bureau of Land Management	
By Whom? Bo Jackson, XTO Energy	Date and Hour: 12/1/2015 2:30pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. Not Applicable	

If a Watercourse was Impacted, Describe Fully.*
Not Applicable. No watercourse in vicinity.

Describe Cause of Problem and Remedial Action Taken.*
Pulling unit was fishing parted swab line and cups, they pulled out tubing until got to the tail of the swab line. Installed a TIW valve and latched on with rod elevator and pulled out hole. Tied onto the tubing to pump down and it was plugged. Took off the TIW and started out of the hole when well kicked. Wild well control came to location and well was secured by placing TIW valve on the well head.

Describe Area Affected and Cleanup Action Taken.*
Estimated area affected to be 500'x500'.
XTO Energy, Inc has hired a third-party environmental company to evaluate and perform clean-up. Clean-up is in progress. .

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: Stephanie Rabadue	OIL CONSERVATION DIVISION	
Printed Name: Stephanie Rabadue	Approved by Environmental Specialist:	
Title: Regulatory Analyst	Approval Date:	Expiration Date:
E-mail Address: stephanie_rabadue@xtoenergy.com	Conditions of Approval:	Attached ☐
Date: 12/21/2015 Phone: 432-620-6714		

* Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: XTO Energy, Inc.	Contact: Dudley McMinn
Address: 500 W. Illinois St Ste 100, Midland, Texas 79701	Telephone No.: (432) 682-8873
Facility Name: Perla Negra Federal Com #4H	Facility Type: Well Site

Surface Owner: Bureau of Land Management	Mineral Owner Bureau of Land Management	Lease No.30-025-42577

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	25	19S	34E	298	North	485	East	Lea

Latitude: 32.637653N Longitude: -103.506267W

NATURE OF RELEASE

Type of Release: Blow Out	Volume of Release: 301.3 bbl oil 192.8 mcf gas	Volume Recovered: 158.63 bbl oil
Source of Release: Well	Date and Hour of Occurrence: 12/01/2015, 11AM CST	Date and Hour of Discovery: 12/01/2015, 11 AM CST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos, Bureau of Land Management	
By Whom? Bo Jackson, XTO Energy, Inc.	Date and Hour 12/01/2015, 2:30 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. Not applicable	

If a Watercourse was Impacted, Describe Fully.*
Not applicable – no watercourse in vicinity

Describe Cause of Problem and Remedial Action Taken.*
Pulling unit was fishing parted swab line and cups. They pulled out tubing until got to tail of the swab line. Installed a TIW valve and latched on with rod elevator and pulled out of hole. Tied onto the tubing to pump down and it was plugged. Took off the TIW and started out of the hole when the well kicked. Wild Well Control came to location and well was secured by placing TIW valve on well head.

Describe Area Affected and Cleanup Action Taken.* Liquid picked up with vacuum truck. Soil to about 8 inch depth scraped from affected area on location. Affected area off location treated with 6% solution of microbial product and tested for BTEX, TPH and chloride. All samples below RRAL for benzene, BTEX and TPH except sample S-7 located in AT&T fiber optic ROW with initial 9,180 mg/Kg (0 to 1') and 7,030 mg/Kg (1 to 2'). Area treated with Micro-Bac M-100H (microbe), OSNF (nutrient), tilled and watered. TPH reduced to 3,776 mg/Kg (0 to 1') and 4,090 mg/Kg (1 to 2') after 3 weeks. Will make 2nd application of M-100H, OSNF, till, water and restore surface to BLM/AT&T requirements.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Luke Williams	Approved by District Supervisor:	
Title: EHS Coordinator	Approval Date: 09/07/2016	Expiration Date: ///
E-mail Address: Luke_Williams@xtoenergy.com	Conditions of Approval:	Attached ☐
Date: 09/01/2016 Phone: (432) 682-8873	///	1RP 4049

* Attach Additional Sheets If Necessary