



LT Environmental, Inc.

3300 North A Street, Building 1, #103
Midland, Texas 79705
T 432.704.5178 / F 432.704.5179

April 18, 2018

Ms. Crystal Weaver
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210**RE: Closure Request
PLU Pierce Canyon 3 Fed SWD #001
Remediation Permit Number 2RP-3000
Eddy County, New Mexico**

Dear Ms. Weaver;

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO) is pleased to present the following letter report detailing the soil sampling activities at the PLU Pierce Canyon 3 Fed SWD #001 (Site) in the southwest quarter of the southwest quarter Section 3 of Township 25 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the investigation was to assess impacts to soil after an open-ended poly line attached to the skim oil tank at the saltwater disposal (SWD) facility released approximately 37 barrels (bbls) of crude oil on May 9, 2015. The release impacted approximately 2,755 square feet of pasture on a pipeline right-of-way south of the SWD facility. Free-standing liquid was removed with a vacuum truck; approximately 9 bbls of crude oil was recovered. The release was reported to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on May 13, 2015, and was assigned Remediation Permit Number (RP) 2RP-3000 (Attachment 1). Although the release occurred while the SWD facility was operated by the previous operator, XTO is the current operator and is committed to addressing any releases that remain unresolved. The sampling was conducted to assess current site conditions. Based on the results of the sampling event as described herein, XTO is requesting no further action for this release.

BACKGROUND

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data and known aquifer properties. The nearest permitted water well is C 03716, located approximately 1.36 miles northeast of the Site, with a depth to groundwater of 425 feet bgs and a total depth of 600 feet bgs. The Site is greater than 1,000 feet from a water source and greater than 200 feet from a private domestic water source. The closest surface water to the Site is a cattle stock pond located approximately 3,970 feet west of the Site. Based on these criteria, the NMOCD site ranking for remediation action levels is 0, and the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg benzene, toluene, ethylbenzene, and total xylenes (BTEX); and 5,000 mg/kg total petroleum hydrocarbons (TPH). Based on standard practice in the region, LTE proposes a site-specific chloride action level of 600 mg/kg or within 10 percent [%] of the background concentrations.





Weaver, C.
Page 2

SOIL SAMPLING

Soil sample locations were based on research of historical aerial photographs, visual inspection of the Site, and the Form C-141 information. The stained area is visible on historical aerial photographs from 2015 and LTE concluded the release occurred south of the SWD facility location where a pipeline right-of-way parallels the oilfield road. The area was mapped with geographic information system (GIS) data, then downloaded to a handheld geographic positioning system (GPS) to target the release location on site. LTE collected five soil samples on March 5, 2018, from within the former release footprint as depicted on Figure 2. No visual or olfactory evidence of the release was observed. LTE made an effort to collect representative samples of the release.

Based on the description in the C-141, no active remediation occurred and any residual impact would be present at the ground surface or just beneath it. To eliminate the effects from weathering and natural degradation of contaminants at the ground surface, subsurface samples were collected from each location at roughly 0.5 feet bgs by hand auger. The soil samples were collected directly into pre-cleaned glass jars, labeled with location, date, time, sampler, and method of analysis, and immediately placed on ice. The samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures via FedEx to Xenco Laboratories in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO) and motor oil range organics (MRO) by USEPA Method SW8015 Mod., and chloride by USEPA Method 300.

ANALYTICAL RESULTS

Laboratory analytical results for the five soil samples indicated BTEX, TPH, and chloride concentrations were below laboratory reporting limits, and therefore below the NMOCD remediation action levels for this Site. Laboratory analytical results are presented in Table 1, and the complete laboratory analytical report is included as Attachment 2.

CONCLUSIONS

Laboratory analytical results for soil samples collected within the former release footprint identified on historical aerial photographs indicate concentrations of BTEX, TPH, and chloride do not exceed NMOCD site-specific remediation action levels. Initial response efforts to remove liquids and natural degradation have remediated this Site, and XTO requests no further action for this release. The NMOCD Form C-141 is included in Attachment 1. For the non-developed area outside the pipeline right-of-way on federal land impacted by the release, XTO will re-seed the area with Bureau of Land Management seed mix #2 via drill or broadcast method.





Weaver, C.
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If you have any questions or comments, do not hesitate to contact Adrian Baker at (432) 887-1255 or abaker@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads "Adrian Baker".

Adrian Baker
Project Geologist

A handwritten signature in blue ink that reads "Ashley L. Ager".

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Mike Bratcher, NMOCD
Jim Amos, BLM
Shelly Tucker, BLM

Attachments:

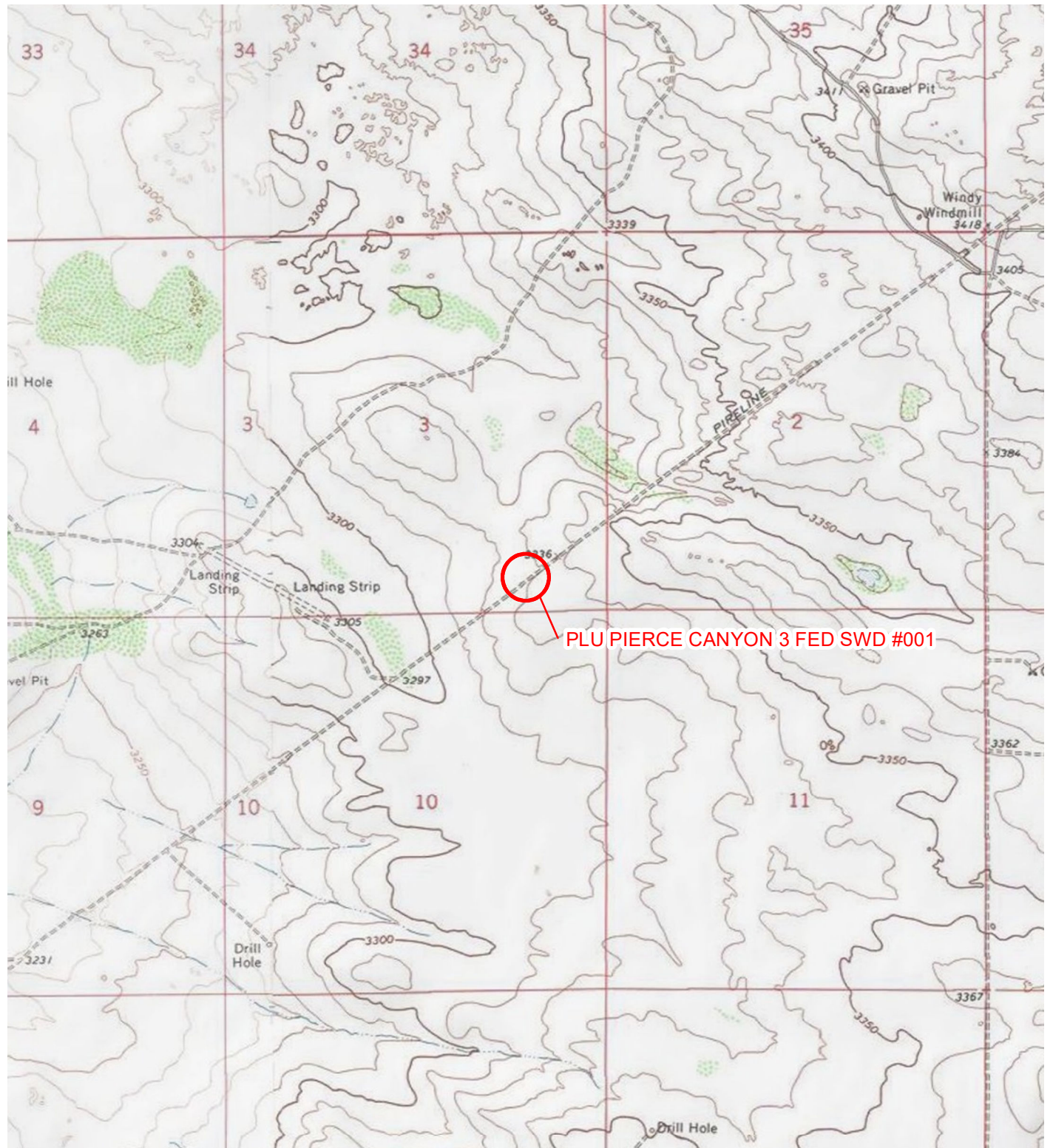
Figure 1 Site Location Map
Figure 2 Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141
Attachment 2 Laboratory Analytical Report



FIGURES

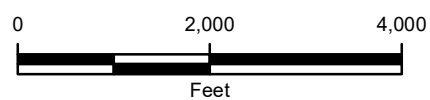


Advancing Opportunity

**LEGEND**

○ SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

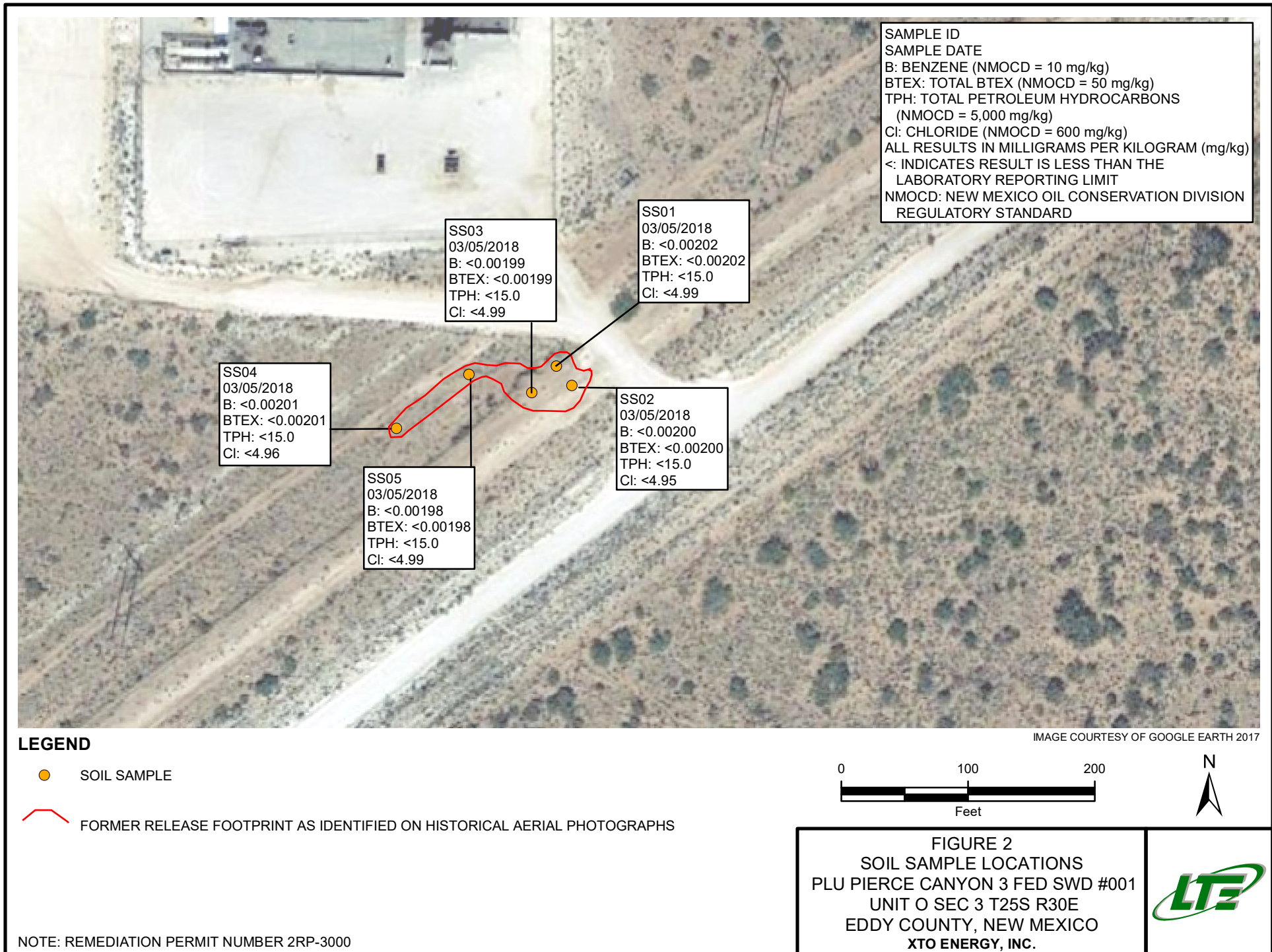


NOTE: REMEDIATION PERMIT
NUMBER 2RP-3000

FIGURE 1
SITE LOCATION MAP
PLU PIERCE CANYON 3 FED SWD #001
UNIT O SEC 3 T25S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



P:\XTO Energy\GIS\MXD\012918049_PLU PC 3 WATER LINE\012918049_FIG01_SL_2018_2RP-3000.mxd



TABLES



Advancing Opportunity

TABLE 1
SOIL ANALYTICAL RESULTS
PLU PIERCE CANYON 3 FED SWD #001
2RP-3000
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 Gasoline Range Organics (mg/kg)	C10-C28 Diesel Range Organics (mg/kg)	C28-40 Motor Oil Range Organics (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS01	0.5	03/05/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<4.99
SS02	0.5	03/05/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<4.95
SS03	0.5	03/05/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<4.99
SS04	0.5	03/05/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<4.96
SS05	0.5	03/05/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<4.99
NMOCD Remediation Action Levels			10	NE	NE	NE	50	NE	NE	NE	5,000	600

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

mg/kg - milligrams per kilogram

NE - not established

NMOCD - New Mexico Oil Conservation Division

TPH - total petroleum hydrocarbons

ATTACHMENT 1
INITIAL/FINAL NMOCD FORM C-141



Advancing Opportunity

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

NM OIL CONSERVATION

ARTESIA DISTRICT

Form C-141

Revised August 8, 2011

MAY 13 2015

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

RECEIVED

Release Notification and Corrective Action

NAB1513450970 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. 2100737	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: PLU Pierce Canyon 3 Fed. SWD #001, leak was in a poly line 300 ft. South of the Tank Battery location	Facility Type: SWD

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-40435
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	3	25S	30E					Eddy

Latitude N 32.15396° Longitude W 103.86378°

NATURE OF RELEASE

Type of Release: Crude oil	Volume of Release: 37 Bbls	Volume Recovered: 9 Bbls
Source of Release: 4" poly line	Date and Hour of Occurrence: 5/9/15, time unknown	Date and Hour of Discovery: 5/9/15 before noon.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, Jim Amos	
By Whom? Brad Blevins	Date and Hour: 5/9/15 at 6:11 p.m.	
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.*

An open ended poly line attached to the skim oil tank at the SWD was found leaking oil on the ground. The line was isolated and later removed.

Describe Area Affected and Cleanup Action Taken.*

The spill impacted approximately 2,755 sq.ft. of pasture area on a pipeline right of way south of the SWD. The free standing fluid was recovered with a vacuum truck. The stained area was left as pending the final remediation.

The spill will be cleaned up in accordance to the NMOCD and BLM remediation guidelines.

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: Tony Savoie	OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie	Approved by Environmental Specialist: [Signature]	
Title: Waste Management and Remediation Specialist	Approval Date: 5/14/15	Expiration Date:
E-mail Address: tasavoie@basspet.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 5/13/15 Phone: 432-556-8730	Remediation per O.C.D. Rules & Guidelines	

SUBMIT REMEDIATION PROPOSAL NO

LATER THAN: **6/15/15**

2 RP 3000

* Attach Additional Sheets If Necessary

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 April 3, 2017

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	Contact: Kyle Littrell
Address 3104 E Greene Street, Carlsbad, NM 88220	Telephone No: 432-221-7331
Facility Name: PLU Pierce Canyon 3 Fed. SWD #001, leak was in poly line 300 ft. South of the Tank Battery location	Facility Type: SWD

Surface Owner Federal	Mineral Owner: Federal	API No. 30-015-40435
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LOCATION OF RELEASE

Unit Letter O	Section 3	Township 25S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
------------------	--------------	-----------------	--------------	---------------	------------------	---------------	----------------	----------------

Latitude 32.15396 Longitude -103.86378 NAD83

NATURE OF RELEASE

Type of Release Crude Oil	Volume of Release 37 bbl	Volume Recovered 9 bbls
Source of Release: 4" poly line	Date and Hour of Occurrence 5/9/15, time unknown	Date and Hour of Discovery 5/19/15 before noon.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, Jim Amos	
By Whom? Brad Blevins	Date and Hour: 5/9/15 at 6:11 pm	
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.*

An open ended poly line attached to the skim oil tank at the SWD was found leaking oil on the ground. The line was isolated and later removed.

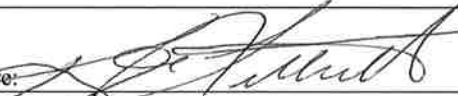

Describe Area Affected and Cleanup Action Taken.*

The spill impacted approximately 2,755 sq.ft. of pasture area on a pipeline right of way south of the SWD. The free standing fluid was recovered with a vacuum truck. The stained area was left as pending the final remediation.

The spill will be cleaned up in accordance with the NMOCD and BLM remediation guidelines.

LTE collected five soil samples from on March 5, 2018. Laboratory analytical results for the five soil samples indicated BTEX, TPH, and chloride concentrations were below laboratory reporting limits. XTO requests no further action at the Site. For the non-developed area on federal land impacted by the release, XTO will re-seed the area with Bureau of Land Management seed mix #2 via drill or broadcast method.

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: Kyle Littrell		Approved by Environmental Specialist: 	
Title: SH&E Coordinator		Approval Date: 3/17/2023	Expiration Date: N/A
E-mail Address: Kyle_Littrell@xtoenergy.com		Conditions of Approval:	
Date: 4/20/18	Phone: 432-221-7331	Attached <input type="checkbox"/>	

* Attach Additional Sheets If Necessary

ATTACHMENT 2
LABORATORY ANALYTICAL REPORT



Advancing Opportunity

Analytical Report 578593

for
LT Environmental, Inc.

Project Manager: Adrian Baker
PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

14-MAR-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)



14-MAR-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **578593**

PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Project Address: NM

Adrian Baker:

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) 578593. 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. 578593 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 578593****LT Environmental, Inc., Arvada, CO**

PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS1	S	03-05-18 15:30	6 In	578593-001
SS2	S	03-05-18 15:35	6 In	578593-002
SS3	S	03-05-18 15:40	6 In	578593-003
SS4	S	03-05-18 15:45	6 In	578593-004
SS5	S	03-05-18 15:50	6 In	578593-005



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *PLU Pierce Canyon 3 Fed SWD #001 2RP-3000*

Project ID:

Work Order Number(s): 578593

Report Date: 14-MAR-18

Date Received: 03/07/2018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3043357 BTEX by EPA 8021B

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

Batch: LBA-3043503 BTEX by EPA 8021B

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



Certificate of Analysis Summary 578593

LT Environmental, Inc., Arvada, CO

Project Name: PLU Pierce Canyon 3 Fed SWD #001 2RP-3000



Project Id:

Contact: Adrian Baker

Project Location: NM

Date Received in Lab: Wed Mar-07-18 03:08 pm

Report Date: 14-MAR-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	578593-001	578593-002	578593-003	578593-004	578593-005	
	<i>Field Id:</i>	SS1	SS2	SS3	SS4	SS5	
	<i>Depth:</i>	6- In	6- In	6- In	6- In	6- In	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	Mar-05-18 15:30	Mar-05-18 15:35	Mar-05-18 15:40	Mar-05-18 15:45	Mar-05-18 15:50	
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-12-18 08:00	Mar-10-18 12:15	Mar-12-18 08:00	Mar-10-18 12:15	Mar-10-18 12:15	
	<i>Analyzed:</i>	Mar-12-18 10:43	Mar-11-18 00:58	Mar-12-18 11:03	Mar-11-18 01:37	Mar-11-18 01:56	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
Toluene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
Ethylbenzene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
m,p-Xylenes		<0.00404 0.00404	<0.00399 0.00399	<0.00398 0.00398	<0.00402 0.00402	<0.00397 0.00397	
o-Xylene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
Total Xylenes		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
Total BTEX		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00198 0.00198	
Inorganic Anions by EPA 300	<i>Extracted:</i>	Mar-12-18 15:00	Mar-12-18 15:00	Mar-12-18 15:00	Mar-12-18 15:00	Mar-12-18 15:00	
	<i>Analyzed:</i>	Mar-13-18 18:54	Mar-13-18 19:10	Mar-13-18 19:16	Mar-13-18 19:32	Mar-13-18 19:37	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		<4.99 4.99	<4.95 4.95	<4.99 4.99	<4.96 4.96	<4.99 4.99	
TPH by SW8015 Mod	<i>Extracted:</i>	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	
	<i>Analyzed:</i>	Mar-12-18 11:46	Mar-12-18 12:45	Mar-12-18 13:04	Mar-12-18 13:24	Mar-12-18 13:43	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 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.

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS1** Matrix: **Soil** Date Received: 03.07.18 15.08
 Lab Sample Id: 578593-001 Date Collected: 03.05.18 15.30 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: **OJS** % Moisture:
 Analyst: **OJS** Date Prep: 03.12.18 15.00 Basis: **Wet Weight**
 Seq Number: 3043628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.13.18 18.54	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: **ARM** % Moisture:
 Analyst: **ARM** Date Prep: 03.11.18 10.00 Basis: **Wet Weight**
 Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 11.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 11.46	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 11.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 11.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	03.12.18 11.46	
o-Terphenyl	84-15-1	96	%	70-135	03.12.18 11.46	



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS1**
Lab Sample Id: 578593-001

Matrix: Soil
Date Collected: 03.05.18 15.30

Date Received: 03.07.18 15.08
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3043503

Date Prep: 03.12.18 08.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.12.18 10.43	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.12.18 10.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	70-130	03.12.18 10.43		
1,4-Difluorobenzene	540-36-3	77	%	70-130	03.12.18 10.43		



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS2** Matrix: **Soil** Date Received: 03.07.18 15.08
 Lab Sample Id: 578593-002 Date Collected: 03.05.18 15.35 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: **OJS** % Moisture:
 Analyst: **OJS** Date Prep: 03.12.18 15.00 Basis: **Wet Weight**
 Seq Number: 3043628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	03.13.18 19.10	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: **ARM** % Moisture:
 Analyst: **ARM** Date Prep: 03.11.18 10.00 Basis: **Wet Weight**
 Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 12.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 12.45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 12.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 12.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	03.12.18 12.45	
o-Terphenyl	84-15-1	93	%	70-135	03.12.18 12.45	



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS2**
Lab Sample Id: 578593-002

Matrix: Soil
Date Collected: 03.05.18 15.35

Date Received: 03.07.18 15.08
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.10.18 12.15

Basis: Wet Weight

Seq Number: 3043357

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.11.18 00.58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.11.18 00.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	70-130	03.11.18 00.58		
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.11.18 00.58		



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS3** Matrix: **Soil** Date Received: 03.07.18 15.08
 Lab Sample Id: 578593-003 Date Collected: 03.05.18 15.40 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: **OJS** % Moisture:
 Analyst: **OJS** Date Prep: 03.12.18 15.00 Basis: **Wet Weight**
 Seq Number: 3043628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.13.18 19.16	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: **ARM** % Moisture:
 Analyst: **ARM** Date Prep: 03.11.18 10.00 Basis: **Wet Weight**
 Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 13.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 13.04	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 13.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 13.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	03.12.18 13.04	
o-Terphenyl	84-15-1	94	%	70-135	03.12.18 13.04	



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS3**
Lab Sample Id: 578593-003

Matrix: **Soil**
Date Collected: 03.05.18 15.40

Date Received: 03.07.18 15.08
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: **ALJ**

% Moisture:

Analyst: **ALJ**

Date Prep: 03.12.18 08.00

Basis: **Wet Weight**

Seq Number: 3043503

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.12.18 11.03	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.12.18 11.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.12.18 11.03		
1,4-Difluorobenzene	540-36-3	90	%	70-130	03.12.18 11.03		



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO
PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS4** Matrix: Soil Date Received: 03.07.18 15.08
 Lab Sample Id: 578593-004 Date Collected: 03.05.18 15.45 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: OJS % Moisture:
 Analyst: OJS Date Prep: 03.12.18 15.00 Basis: Wet Weight
 Seq Number: 3043628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	03.13.18 19.32	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 03.11.18 10.00 Basis: Wet Weight
 Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 13.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 13.24	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 13.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 13.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	03.12.18 13.24	
o-Terphenyl	84-15-1	85	%	70-135	03.12.18 13.24	



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS4**
Lab Sample Id: 578593-004

Matrix: Soil
Date Collected: 03.05.18 15.45

Date Received: 03.07.18 15.08
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3043357

Date Prep: 03.10.18 12.15

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.11.18 01.37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.11.18 01.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	85	%	70-130	03.11.18 01.37		
4-Bromofluorobenzene	460-00-4	101	%	70-130	03.11.18 01.37		



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS5** Matrix: **Soil** Date Received: 03.07.18 15.08
 Lab Sample Id: 578593-005 Date Collected: 03.05.18 15.50 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: **OJS** % Moisture:
 Analyst: **OJS** Date Prep: 03.12.18 15.00 Basis: **Wet Weight**
 Seq Number: 3043628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.13.18 19.37	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: **ARM** % Moisture:
 Analyst: **ARM** Date Prep: 03.11.18 10.00 Basis: **Wet Weight**
 Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 13.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 13.43	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 13.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 13.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	03.12.18 13.43	
o-Terphenyl	84-15-1	92	%	70-135	03.12.18 13.43	



Certificate of Analytical Results 578593



LT Environmental, Inc., Arvada, CO PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Sample Id: **SS5**
Lab Sample Id: 578593-005

Matrix: Soil
Date Collected: 03.05.18 15.50

Date Received: 03.07.18 15.08
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3043357

Date Prep: 03.10.18 12.15

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	03.11.18 01.56	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
Total BTEX		<0.00198	0.00198	mg/kg	03.11.18 01.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.11.18 01.56		
1,4-Difluorobenzene	540-36-3	88	%	70-130	03.11.18 01.56		



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043628

MB Sample Id: 7640640-1-BLK

Matrix: Solid

LCS Sample Id: 7640640-1-BKS

Prep Method: E300P

Date Prep: 03.12.18

LCSD Sample Id: 7640640-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	240	96	254	102	90-110	6	20	mg/kg	03.13.18 07:33	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043628

Parent Sample Id: 578591-004

Matrix: Soil

MS Sample Id: 578591-004 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578591-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	270	247	533	106	529	105	90-110	1	20	mg/kg	03.13.18 08:00	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043628

Parent Sample Id: 578593-001

Matrix: Soil

MS Sample Id: 578593-001 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578593-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	263	105	261	104	90-110	1	20	mg/kg	03.13.18 19:00	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043520

MB Sample Id: 7640556-1-BLK

Matrix: Solid

LCS Sample Id: 7640556-1-BKS

Prep Method: TX1005P

Date Prep: 03.11.18

LCSD Sample Id: 7640556-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	985	99	981	98	70-135	0	35	mg/kg	03.12.18 11:05	
Diesel Range Organics (DRO)	<15.0	1000	894	89	866	87	70-135	3	35	mg/kg	03.12.18 11:05	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		106		105		70-135	%	03.12.18 11:05
o-Terphenyl	93		97		88		70-135	%	03.12.18 11:05

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

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

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



LT Environmental, Inc.

PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043520

Parent Sample Id: 578593-001

Matrix: Soil

MS Sample Id: 578593-001 S

Prep Method: TX1005P

Date Prep: 03.11.18

MSD Sample Id: 578593-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	998	879	88	997	100	70-135	13	35	mg/kg	03.12.18 12:06	
Diesel Range Organics (DRO)	<15.0	998	788	79	965	97	70-135	20	35	mg/kg	03.12.18 12:06	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		96		70-135	%	03.12.18 12:06
o-Terphenyl	89		98		70-135	%	03.12.18 12:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043357

MB Sample Id: 7640559-1-BLK

Matrix: Solid

LCS Sample Id: 7640559-1-BKS

Prep Method: SW5030B

Date Prep: 03.10.18

LCSD Sample Id: 7640559-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0790	78	0.0735	74	70-130	7	35	mg/kg	03.10.18 22:25	
Toluene	<0.00202	0.101	0.0845	84	0.0783	78	70-130	8	35	mg/kg	03.10.18 22:25	
Ethylbenzene	<0.00202	0.101	0.0942	93	0.0897	90	70-130	5	35	mg/kg	03.10.18 22:25	
m,p-Xylenes	<0.00403	0.202	0.185	92	0.178	89	70-130	4	35	mg/kg	03.10.18 22:25	
o-Xylene	<0.00202	0.101	0.0937	93	0.0910	91	70-130	3	35	mg/kg	03.10.18 22:25	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	85		88		90		70-130	%	03.10.18 22:25
4-Bromofluorobenzene	98		114		111		70-130	%	03.10.18 22:25

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

MB Sample Id: 7640672-1-BLK

Matrix: Solid

LCS Sample Id: 7640672-1-BKS

Prep Method: SW5030B

Date Prep: 03.12.18

LCSD Sample Id: 7640672-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0909	90	0.0883	88	70-130	3	35	mg/kg	03.12.18 06:55	
Toluene	<0.00202	0.101	0.0972	96	0.0942	94	70-130	3	35	mg/kg	03.12.18 06:55	
Ethylbenzene	<0.00202	0.101	0.111	110	0.109	109	70-130	2	35	mg/kg	03.12.18 06:55	
m,p-Xylenes	<0.00403	0.202	0.219	108	0.214	107	70-130	2	35	mg/kg	03.12.18 06:55	
o-Xylene	<0.00202	0.101	0.106	105	0.105	105	70-130	1	35	mg/kg	03.12.18 06:55	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		86		84		70-130	%	03.12.18 06:55
4-Bromofluorobenzene	110		119		118		70-130	%	03.12.18 06:55

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

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



LT Environmental, Inc.

PLU Pierce Canyon 3 Fed SWD #001 2RP-3000

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043357

Parent Sample Id: 578592-004

Matrix: Soil

MS Sample Id: 578592-004 S

Prep Method: SW5030B

Date Prep: 03.10.18

MSD Sample Id: 578592-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0663	66	0.0629	63	70-130	5	35	mg/kg	03.10.18 23:03	X
Toluene	<0.00200	0.100	0.0526	53	0.0525	53	70-130	0	35	mg/kg	03.10.18 23:03	X
Ethylbenzene	<0.00200	0.100	0.0272	27	0.0384	38	70-130	34	35	mg/kg	03.10.18 23:03	X
m,p-Xylenes	<0.00401	0.200	0.0530	27	0.0707	35	70-130	29	35	mg/kg	03.10.18 23:03	X
o-Xylene	<0.00200	0.100	0.0283	28	0.0372	37	70-130	27	35	mg/kg	03.10.18 23:03	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		92		70-130	%	03.10.18 23:03
4-Bromofluorobenzene	103		106		70-130	%	03.10.18 23:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

Parent Sample Id: 578649-001

Matrix: Soil

MS Sample Id: 578649-001 S

Prep Method: SW5030B

Date Prep: 03.12.18

MSD Sample Id: 578649-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0584	59	0.0656	66	70-130	12	35	mg/kg	03.12.18 07:34	X
Toluene	<0.00199	0.0996	0.0607	61	0.0664	66	70-130	9	35	mg/kg	03.12.18 07:34	X
Ethylbenzene	<0.00199	0.0996	0.0666	67	0.0704	70	70-130	6	35	mg/kg	03.12.18 07:34	X
m,p-Xylenes	<0.00398	0.199	0.131	66	0.138	69	70-130	5	35	mg/kg	03.12.18 07:34	X
o-Xylene	<0.00199	0.0996	0.0651	65	0.0709	71	70-130	9	35	mg/kg	03.12.18 07:34	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		87		70-130	%	03.12.18 07:34
4-Bromofluorobenzene	120		129		70-130	%	03.12.18 07:34

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$

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

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



Setting the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

www.xenoco.com

Xenoco Quote #

Xenoco Job #

578593

CHAIN OF CUSTODY

Page 1 of 1

→ PU Pierce Canyon 3 Fed SWD #001
2RF-3000

Client / Reporting Information

Company Name / Branch:

LTE / Permian

Company Address:

3300 N. A Street Bldg 1 Suite 103 Midland TX 79705

Email:

Abaker@ltenv.com

Phone No:
432-704-5178

Project Contact:

Adrian Baker

Sampler's Name: Aaron Williamson

Project Information

Project Name/Number:

Project Location:

Invoice To:

NM

PO Number:

XTO Energy - Kyle Little

2RF-3000 30-015-4045

Analytical Information

Matrix Codes

Btex EPA Method 8021
TPH EPA Method 8015
Chloride EPA Method 300.1

W = Water
S = Soil/Sediment
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

No. Field ID / Point of Collection

Sample Depth

Date

Time

Matrix

of bottles

IC

NaOH/Zn Acetate

HNO3

H2SO4

NaOH

NaHSO4

MEOH

NONE

Field Comments

No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	IC	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Btex EPA Method 8021	TPH EPA Method 8015	Chloride EPA Method 300.1	Field Comments
1	SS1	6"	3/15	1530	S	1									X	X	X	
2	SS2														X	X	X	
3	SS3														X	X	X	
4	SS4														X	X	X	
5	SS5														X	X	X	
6																		
7																		
8																		
9																		
10																		

Turnaround Time (Business days)

Data Deliverable Information

Notes:

☐ Same Day TAT

☐ 5 Day TAT

☐ Next Day EMERGENCY

☐ 7 Day TAT

☐ 2 Day EMERGENCY

☐ Contract TAT

☐ 3 Day EMERGENCY

☐ STANDARD TAT

TAT Starts Day received by Lab, if received by 5:00 pm

Temp: 2.6 IR ID: R-8

CF: (0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 2.4

Relinquished by Sampler:

Date Time:

3/15 1530

Received By:

1

Relinquished By:

Date Time:

3/17 14:55

Received By:

3

Relinquished by:

Date Time:

3/17 14:55

Received By:

4

Relinquished by:

Date Time:

3/17 14:55

Received By:

4

Relinquished by:

Date Time:

3/17 14:55

Received By:

4

Relinquished by:

Date Time:

3/17 14:55

Received By:

4

Relinquished by:

Date Time:

3/17 14:55

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Date Time:

3/17 14:55



Client: LT Environmental, Inc.

Date/ Time Received: 03/07/2018 03:08:00 PM

Work Order #: 578593

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.4	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 Custody Seals intact on sample bottles?	N/A	
#6 *Custody Seals Signed and dated?	N/A	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	No	TPH received in bulk jars
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace?	N/A	

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Date: 03/08/2018

Checklist reviewed by:

Jessica Kramer

Date: 03/08/2018

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

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

CONDITIONS

Action 198255

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 198255
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	3/17/2023