

May 7, 2019

Mr. Bradford Billings
New Mexico Oil Conservation Division
1220 South St. Francis Drive, #3
Santa Fe, New Mexico 87505

**RE: Closure Request
Poker Lake Unit 183Q
Remediation Permit Number 2RP-3716
Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing soil sampling activities at the Poker Lake Unit 183Q (Site) in Unit C, Section 7, Township 24 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the soil sampling activities was to assess impacts to soil after 4 barrels (bbls) of crude oil and 12 bbls of produced water were released into the pasture area along the edge of a lease road.

On June 2, 2016, a flow line along the edge of a lease road developed a hole from corrosion causing fluid to run into the pasture area south of the road. A vacuum truck was dispatched to the Site to recover free-standing fluid. Approximately 1 bbl of crude oil and 2 bbls of produced water were recovered. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on June 6, 2016, and was assigned Remediation Permit (RP) Number 2RP-3716 (Attachment 1). Based on the results of the soil sampling events, XTO is submitting this closure report and requesting no further action for this release event.

BACKGROUND

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). 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. The nearest permitted water well is C 02108, located approximately 4,863 feet southeast of the Site, with a depth to groundwater of 186 feet bgs and a total depth of 200 feet bgs. Water well C 02108 is 8 feet lower in elevation than the Site. The nearest continuously flowing water or significant watercourse to the Site is an unnamed dry wash located approximately 3,434 feet north-northwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to



a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is in a low karst area. Based on these criteria, the following NMOCD Table 1 closure criteria apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 2,500 mg/kg total petroleum hydrocarbons (TPH); 1,000 mg/kg TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO); and 20,000 mg/kg chloride. A closure criteria of 600 mg/kg chloride was applied to the undeveloped pasture area that was impacted by the release, per NMAC 19.15.29.13.D (1) for the top 4 feet of areas that will be reclaimed following remediation.

DELINEATION SOIL SAMPLING

On March 19, 2019, an LTE scientist advanced boreholes via hand auger at four delineation soil sample locations (BH01 through BH04) within the release area to assess the lateral extent of soil impacts. The soil boring locations, depicted on Figure 2, were selected based on information provided on the initial Form C-141 and documented release area. To eliminate the effects from weathering and natural degradation of contaminants at the ground surface, the soil samples were collected from each sample location at approximately 1 foot bgs. The soil samples were screened for volatile aromatic hydrocarbons and chlorides using a photo-ionization detector (PID) and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, and method of analysis, and immediately placed on ice. The soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0.

On April 1, 2019, an LTE scientist returned to the Site to assess the vertical extent of impacted soil in the release area. Boreholes were advanced via hand auger to a depth of 2.5 feet bgs at delineation soil sample location BH01, and to a depth of 4 feet bgs at delineation soil sample locations BH02 through BH04. The soil samples were collected, handled, and analyzed as described above and submitted to Xenco in Midland, Texas. All boreholes were backfilled with the soil previously removed from the boreholes. No soil was removed from the site for disposal. The soil sample locations are depicted on Figure 2, and soil sampling logs are included in Attachment 2.

ANALYTICAL RESULTS

Laboratory analytical results indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria in delineation borehole soil samples BH01 through BH04 collected at 1 foot bgs and subsequent borehole soil samples BH01A through BH04A collected at 2.5 feet to 4 feet bgs. Based on the laboratory analytical results, no soil





excavation was required. Laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 3.

CONCLUSIONS

Soil samples BH01 through BH04 and BH01A through BH04A were collected within the release area to determine if any impacted soil remained in place as a result of the release. Laboratory analytical results for all soil samples indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria, including the criteria of 600 mg/kg for chloride in the top four feet of pasture area off-pad. Initial response efforts and natural degradation have mitigated impacts at the Site; therefore XTO requests no further action for this release. An updated NMOCD Form C-141 is included as Attachment 1. The Photographic Log of the Site is included as Attachment 4.

If you have any questions or comments, please do not hesitate to contact Ashley Ager at (970) 385-1096.

Sincerely,

LT ENVIRONMENTAL, INC.

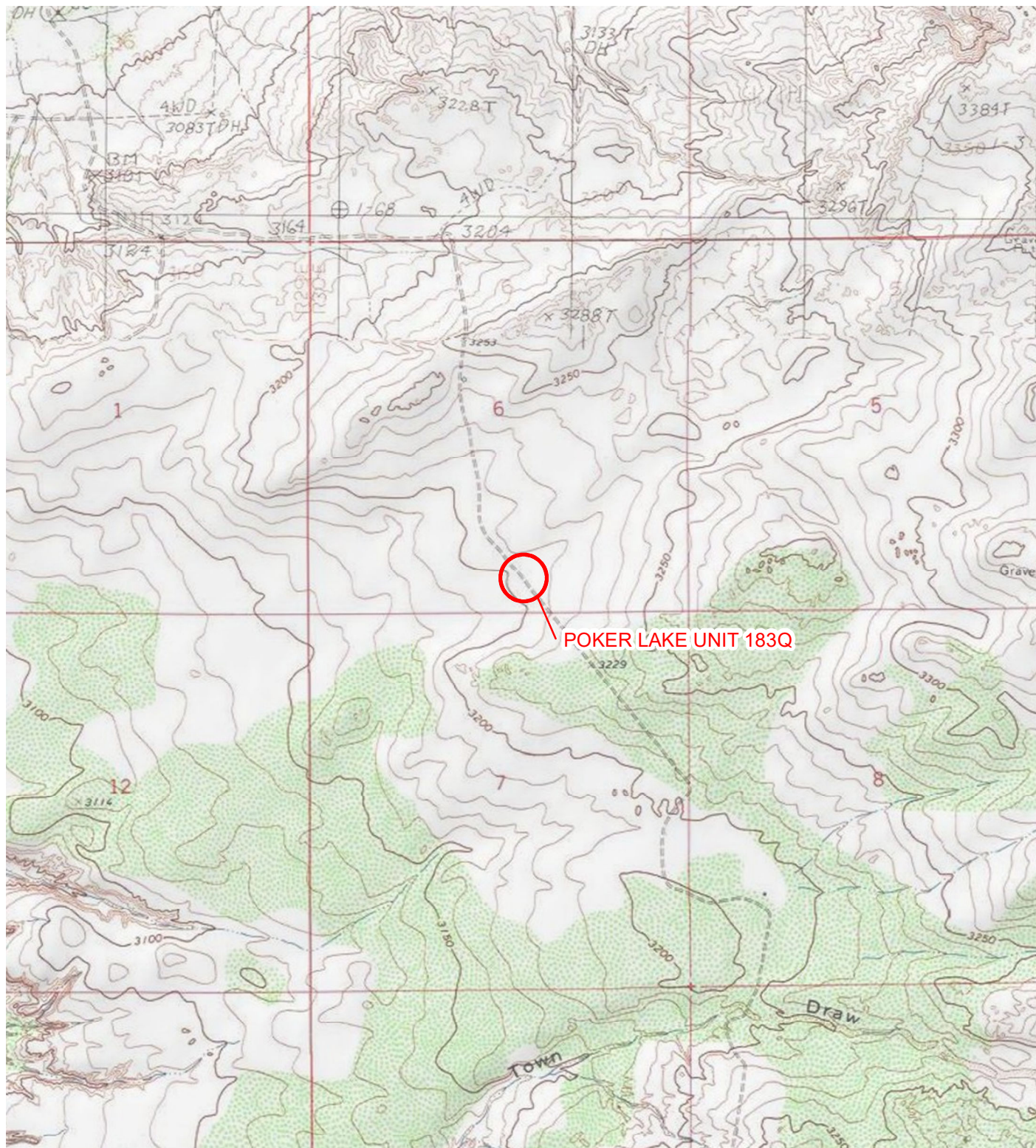
Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Jim Amos, U.S. Bureau of Land Management
Crystal Weaver, U.S. Bureau of Land Management
Mike Bratcher, NMOCD
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD

Attachments:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141 (2RP-3716)
Attachment 2 Soil Sampling Logs
Attachment 3 Laboratory Analytical Reports
Attachment 4 Photographic Log

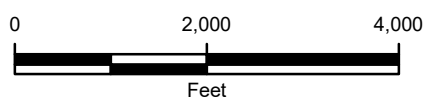




LEGEND

IMAGE COURTESY OF ESRI/USGS

○ SITE LOCATION



NOTE: REMEDIATION PERMIT
NUMBER 2RP-3716

FIGURE 1
SITE LOCATION MAP
POKER LAKE UNIT 183Q
UNIT C SEC 7 T24S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)
 SAMPLE DATE
 NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)
 B = 10 mg/kg
 BTEX = 50 mg/kg
 GRO+DRO = 1,000 mg/kg
 TPH = 2,500 mg/kg
 Cl = 20,000 mg/kg
 NMOCD RECLAMATION CLOSURE CRITERIA FOR TOP FOUR
 FEET OF AREAS TO BE RECLAIMED (NMAC 19.15.29.13.D (1))
 Cl = 600 mg/kg
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT

BH04@1'	BH04A@4'
03/19/2019	04/01/2019
B: <0.00202	B: <0.00201
BTEX: <0.00202	BTEX: <0.00201
GRO+DRO: <15.0	GRO+DRO: <15.0
TPH: <15.0	TPH: <15.0
Cl: 7.83	Cl: 7.34

BH01@1'	BH01A@2.5'
03/19/2019	04/01/2019
B: <0.00200	B: <0.00198
BTEX: <0.00200	BTEX: <0.00198
GRO+DRO: 69.2	GRO+DRO: <15.0
TPH: 102	TPH: <15.0
Cl: 34.4	Cl: 118

BH03@1'	BH03A@4'
03/19/2019	04/01/2019
B: <0.00200	B: <0.00200
BTEX: <0.00200	BTEX: <0.00200
GRO+DRO: <15.0	GRO+DRO: <14.9
TPH: <15.0	TPH: <14.9
Cl: 17.8	Cl: 5.27

BH02@1'	BH02A@4'
03/19/2019	04/01/2019
B: <0.00201	B: <0.00202
BTEX: <0.00201	BTEX: <0.00202
GRO+DRO: <15.0	GRO+DRO: <14.9
TPH: <15.0	TPH: <14.9
Cl: 9.43	Cl: <5.01

LEGEND



RELEASE LOCATION



DELINEATION SOIL SAMPLE IN COMPLIANCE
WITH APPLICABLE STANDARDS

B: BENZENE

BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE,
AND TOTAL XYLENES

GRO – GASOLINE RANGE ORGANICS

DRO – DIESEL RANGE ORGANICS

TPH – TOTAL PETROLEUM HYDROCARBONS

Cl - CHLORIDE

NMAC – NEW MEXICO ADMINISTRATIVE CODE

NMOCD – NEW MEXICO OIL CONSERVATION DIVISION

NOTE: REMEDIATION PERMIT NUMBER 2RP-3716

IMAGE COURTESY OF ESRI

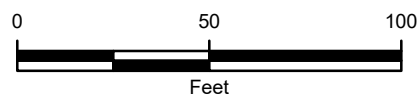


FIGURE 2
 DELINEATION SOIL SAMPLE LOCATIONS
 POKER LAKE UNIT 183Q
 UNIT C SEC 7 T24S R30E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



**TABLE 1
SOIL ANALYTICAL RESULTS**

**POKER LAKE UNIT 183Q
REMEDIATION PERMIT NUMBER 2RP-3716
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)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH01	1	03/19/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	69.2	32.7	69.2	102	34.4*
BH02	1	03/19/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	9.43*
BH03	1	03/19/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	17.8*
BH04	1	03/19/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	7.83*
BH01A	2.5	04/01/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	118*
BH02A	4	04/01/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	<5.01*
BH03A	4	04/01/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	5.27*
BH04A	4	04/01/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	7.34*
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000

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

DRO - diesel range organics

GRO - gasoline range organics

ORO - oil range organics

TPH - total petroleum hydrocarbons

< - indicates result is below laboratory reporting limits

* - indicates sample was collected in area to be reclaimed after remediation is complete; closure criteria for chloride concentration in the top 4 feet of soil is 600 mg/kg Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018 NMAC - New Mexico Administrative Code





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

NAB 1616029609

Name of Company: BOPCO, L.P. <i>220737</i>		OPERATOR	<input checked="" type="checkbox"/> Initial Report <input type="checkbox"/> Final Report
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220		Contact: Bradley Blevins	
Facility Name: PLU 183Q		Telephone No. 575-887-7329	
		Facility Type: Exploration and Production	
Surface Owner: Federal		Mineral Owner:	API No. 30-015-33224

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	7	24S	30E	330		1980		Eddy

Latitude: 32.240755 Longitude: 103.919828

NATURE OF RELEASE

Type of Release: Crude oil and Produced Water	Volume of Release: 4 barrels oil and 12 barrels PW	Volume Recovered 1 barrel oil and 2 barrels PW
Source of Release: Flowline	Date and Hour of Occurrence: 6-2-16 8:30am	Date and Hour of Discovery 6-2-16 9:06 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	NM OIL CONSERVATION
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.*		

ARTESIA DISTRICT
JUN 06 2016

RECEIVED

Describe Cause of Problem and Remedial Action Taken.

A hole developed in the flowline due to corrosion, a vacuum truck was called to the location to recover the standing fluid.

Describe Area Affected and Cleanup Action Taken.*

Flowline developed a hole along edge of lease road; the fluid ran into the pasture area. A vacuum truck was called to the location to recover the standing fluid.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 NMOC 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, NMOC 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.

OIL CONSERVATION DIVISION

Signature: <i>Bradley Blevins</i>	Approved by Environmental Specialist: <i>HCB</i>	
Printed Name: Bradley Blevins	Approval Date: <i>6/8/16</i>	Expiration Date: <i>N/A</i>
Title: Assistant Remediation Foreman	Conditions of Approval:	
E-mail Address: bblevins@basspet.com	Remediation per O.C.D. Rules & Guidelines	
Date: <i>6-6-16</i> Phone: 432-214-3704	SUBMIT REMEDIATION PROPOSAL NO	
LATER THAN: <i>7/1/16</i>		

Attached ☐

* Attach Additional Sheets If Necessary

2RD-3716

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	2RP-3716
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #:
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.240755 _____ Longitude -103.919828 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name PLU 183Q	Site Type Exploration and Production
Date Release Discovered 6/2/2016	API# (if applicable) 30-015-33224

Unit Letter	Section	Township	Range	County
C	7	24S	30E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: BLM _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 4	Volume Recovered (bbls) 1
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 12	Volume Recovered (bbls) 2
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A hole developed in the flowline along edge of lease road due to corrosion, a vacuum truck was called to the location to recover standing fluid.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3716
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? N/A
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? N/A	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ☒ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 5/08/2019

email: Kyle.Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP-3716
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3716
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 5/08/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3716
Facility ID	
Application ID	

Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 5/08/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Bradford Billings Date: 11/18/2019

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

NOTE: RP is closed, but be aware, that well inventory from new clarifications on new rule will mandate a 1/2 mile radius from release. Also, when approaching sites for natural attenuation, is is best to go a bit deeper for analysis of soils. Chloride does go down into soil column over time, and a claeen surface might be expected.





LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220

Compliance · Engineering · Remediation

Identifier: BH01

Date: 04/01/2019

Project Name: PLU 183Q

RP Number: ZRP-3716

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: 32.240758S, -103.919799

Field Screening: PID, chlorides

Logged By: L. Laumbach

Method: hand auger

Hole Diameter: 2.5"

Total Depth: 2.5'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<192	0.0	N		0		SA	top 6" dry sand, coarse brown
M	<192	1.8	N		1		SC	sand, coarse, Nephthylite
M	<192	2.6	N		2		SC	sand-coarse, sticky, soft
M	<192	0.0	N	BH01A	2.5'	2.5'	SC	sand-coarse stick, soft
					3			Auger Refusal
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220
Compliance · Engineering · Remediation

Identifier: BH02

Date: 04/01/2019

Project Name: PLU 183 Q

RP Number: 2RD-3716

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: L. Laumbach

Method: hard Auger

Lat/Long: 32.2407239 - 103.9198273

Field Screening: PID, chlorides

Hole Diameter: 2.5"

Total Depth: 4'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Dry	<192	0.0	N	/	0		SM	fine sand, No odor, dry-surface } brown non plastic hard to auger through, damp, 60% low plasticity ↓ ↓ deepest depth
M	<192	2.2	N	/	1		SM	
M	<192	0.0	N	/	2		SC	
M	<192	0.0	N	/	3		SC	
M	<192	0.0	N	BH02A	4	4'	SC	
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220

Compliance · Engineering · Remediation

Identifier:

BH03

Date:

04/01/2019

Project Name:

PLU 183A

RP Number:

2RP-3716

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

32.2407585, -103.9198608

Field Screening:

PID chlorides

Logged By:

L. Laumbach

Method:

hand Auger

Hole Diameter:

2.5"

Total Depth:

4'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Dry	<192	0.0	\	1	0	SM →		finesand, dry, Nodor, nonplastic Brown noticeably harder to Auger through damp, low plasticity, soft ↓ deepest depth
M	<192	1.4	\	1	1	SM →		
M	<192	0.8	\	\	2	SC →		
M	<192	0.0	\	\	3	SC →		
M	<192	0.0	\	BH03A	4	4' SC		
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



LT Environmental, Inc.



LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220

Compliance · Engineering · Remediation

Identifier: **BH04**

Date: **04/01/2019**

Project Name: **PLU 183Q**

RP Number: **2RP-3716**

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: **32.2407764, -103.9198306**

Field Screening: **PID, chlorides**

Logged By: **L. Laumbach**

Method: **hand auger**

Hole Diameter: **2.5"**

Total Depth: **4'**

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<192	0.0	N	/	0	/	SM	fine sand, dry, no odor, nonplastic Brown hard to auger through, damp soft, low plasticity ↓ deepest depth
M	<192	28	N	/	1	/	SM	
M	<192	0.0	N	/	2	/	SC	
M	<192	1.4	N	/	3	/	SC	
M	<192	0.0	N	BH04A	4	4'	SC	
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



Analytical Report 618406

for
LT Environmental, Inc.

Project Manager: Adrian Baker

PLU 183 Q

012918035

28-MAR-19

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



28-MAR-19

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **618406**

PLU 183 Q

Project Address: Delaware Basin

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) 618406. 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. 618406 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

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

Certified and approved by numerous States and Agencies.

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

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



Sample Cross Reference 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	03-19-19 13:45	1 ft	618406-001
BH02	S	03-19-19 14:00	1 ft	618406-002
BH03	S	03-19-19 14:15	1 ft	618406-003
BH04	S	03-19-19 14:30	1 ft	618406-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 183 Q

Project ID: 012918035
Work Order Number(s): 618406

Report Date: 28-MAR-19
Date Received: 03/21/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3083508 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.

Samples affected are: 618406-001.

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



Certificate of Analysis Summary 618406

LT Environmental, Inc., Arvada, CO

Project Name: PLU 183 Q



Project Id: 012918035
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Mar-21-19 11:30 am
Report Date: 28-MAR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	618406-001	618406-002	618406-003	618406-004		
	Field Id:	BH01	BH02	BH03	BH04		
	Depth:	1- ft	1- ft	1- ft	1- ft		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	Mar-19-19 13:45	Mar-19-19 14:00	Mar-19-19 14:15	Mar-19-19 14:30		
BTEX by EPA 8021B	Extracted:	Mar-26-19 13:00	Mar-26-19 13:00	Mar-26-19 13:00	Mar-26-19 13:00		
	Analyzed:	Mar-27-19 02:18	Mar-27-19 02:37	Mar-27-19 02:56	Mar-27-19 03:15		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402	<0.00400 0.00400	<0.00403 0.00403		
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Inorganic Anions by EPA 300	Extracted:	Mar-21-19 17:05	Mar-21-19 17:05	Mar-21-19 17:05	Mar-21-19 17:05		
	Analyzed:	Mar-22-19 00:20	Mar-22-19 00:25	Mar-22-19 00:42	Mar-22-19 00:48		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		34.4 5.01	9.43 5.01	17.8 4.98	7.83 5.01		
TPH by SW8015 Mod	Extracted:	Mar-25-19 10:00	Mar-25-19 10:00	Mar-25-19 10:00	Mar-25-19 10:00		
	Analyzed:	Mar-25-19 16:19	Mar-25-19 17:16	Mar-25-19 17:36	Mar-25-19 17:55		
	Units/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		
Diesel Range Organics (DRO)		69.2 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Motor Oil Range Hydrocarbons (MRO)		32.7 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		102 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 - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Kelsey Brooks
Project Manager



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH01**
Lab Sample Id: 618406-001

Matrix: Soil
Date Collected: 03.19.19 13.45

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: SPC
Analyst: SPC
Seq Number: 3082984

Date Prep: 03.21.19 17.05

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.4	5.01	mg/kg	03.22.19 00.20		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3083359

Date Prep: 03.25.19 10.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 16.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	69.2	15.0	mg/kg	03.25.19 16.19		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	32.7	15.0	mg/kg	03.25.19 16.19		1
Total TPH	PHC635	102	15.0	mg/kg	03.25.19 16.19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	03.25.19 16.19		
o-Terphenyl	84-15-1	91	%	70-135	03.25.19 16.19		



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH01**
Lab Sample Id: 618406-001

Matrix: Soil
Date Collected: 03.19.19 13.45

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083508

Date Prep: 03.26.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.27.19 02.18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.27.19 02.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.27.19 02.18		
4-Bromofluorobenzene	460-00-4	161	%	70-130	03.27.19 02.18	**	



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH02**
Lab Sample Id: 618406-002

Matrix: Soil
Date Collected: 03.19.19 14.00

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: SPC
Analyst: SPC
Seq Number: 3082984

Date Prep: 03.21.19 17.05

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.43	5.01	mg/kg	03.22.19 00.25		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3083359

Date Prep: 03.25.19 10.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 17.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.25.19 17.16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.25.19 17.16	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.25.19 17.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-135	03.25.19 17.16		
o-Terphenyl	84-15-1	110	%	70-135	03.25.19 17.16		



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH02**
Lab Sample Id: 618406-002

Matrix: Soil
Date Collected: 03.19.19 14.00

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.26.19 13.00

Basis: Wet Weight

Seq Number: 3083508

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.27.19 02.37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.27.19 02.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	124	%	70-130	03.27.19 02.37		
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.27.19 02.37		



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH03**
Lab Sample Id: 618406-003

Matrix: Soil
Date Collected: 03.19.19 14.15

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: SPC
Analyst: SPC
Seq Number: 3082984

Date Prep: 03.21.19 17.05

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.8	4.98	mg/kg	03.22.19 00.42		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3083359

Date Prep: 03.25.19 10.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 17.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.25.19 17.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.25.19 17.36	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.25.19 17.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	107	%	70-135	03.25.19 17.36		
o-Terphenyl	84-15-1	104	%	70-135	03.25.19 17.36		



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH03**
Lab Sample Id: 618406-003

Matrix: Soil
Date Collected: 03.19.19 14.15

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083508

Date Prep: 03.26.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.27.19 02.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.27.19 02.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	03.27.19 02.56		
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.27.19 02.56		



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH04**
Lab Sample Id: 618406-004

Matrix: Soil
Date Collected: 03.19.19 14.30

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: SPC
Analyst: SPC
Seq Number: 3082984

Date Prep: 03.21.19 17.05

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.83	5.01	mg/kg	03.22.19 00.48		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3083359

Date Prep: 03.25.19 10.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 17.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.25.19 17.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.25.19 17.55	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.25.19 17.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.25.19 17.55	
o-Terphenyl	84-15-1	89	%	70-135	03.25.19 17.55	



Certificate of Analytical Results 618406



LT Environmental, Inc., Arvada, CO

PLU 183 Q

Sample Id: **BH04**
Lab Sample Id: 618406-004

Matrix: Soil
Date Collected: 03.19.19 14.30

Date Received: 03.21.19 11.30
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.26.19 13.00

Basis: Wet Weight

Seq Number: 3083508

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.27.19 03.15	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.27.19 03.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	70-130	03.27.19 03.15		
4-Bromofluorobenzene	460-00-4	123	%	70-130	03.27.19 03.15		

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



QC Summary 618406

LT Environmental, Inc. PLU 183 Q

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082984

MB Sample Id: 7674055-1-BLK

Matrix: Solid

LCS Sample Id: 7674055-1-BKS

Prep Method: E300P

Date Prep: 03.21.19

LCSD Sample Id: 7674055-1-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	251	100	248	99	90-110	1	20	mg/kg	03.21.19 22:54	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082984

Parent Sample Id: 618406-002

Matrix: Soil

MS Sample Id: 618406-002 S

Prep Method: E300P

Date Prep: 03.21.19

MSD Sample Id: 618406-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9.43	251	255	98	255	98	90-110	0	20	mg/kg	03.22.19 00:31	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082984

Parent Sample Id: 618481-001

Matrix: Soil

MS Sample Id: 618481-001 S

Prep Method: E300P

Date Prep: 03.21.19

MSD Sample Id: 618481-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.4	248	285	104	285	104	90-110	0	20	mg/kg	03.21.19 23:11	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3083359

MB Sample Id: 7674329-1-BLK

Matrix: Solid

LCS Sample Id: 7674329-1-BKS

Prep Method: TX1005P

Date Prep: 03.25.19

LCSD Sample Id: 7674329-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1050	105	1050	105	70-135	0	20	mg/kg	03.25.19 11:38	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	1080	108	70-135	6	20	mg/kg	03.25.19 11:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		129		128		70-135	%	03.25.19 11:38
o-Terphenyl	107		113		120		70-135	%	03.25.19 11:38

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 618406

LT Environmental, Inc.

PLU 183 Q

Analytical Method: TPH by SW8015 Mod

Seq Number: 3083359

Parent Sample Id: 618604-005

Matrix: Soil

MS Sample Id: 618604-005 S

Prep Method: TX1005P

Date Prep: 03.25.19

MSD Sample Id: 618604-005 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)	<7.99	998	1040	104	1050	105	70-135	1	20	mg/kg	03.25.19 20:28	
Diesel Range Organics (DRO)	22.5	998	1030	101	1040	102	70-135	1	20	mg/kg	03.25.19 20:28	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		119		70-135	%	03.25.19 20:28
o-Terphenyl	103		101		70-135	%	03.25.19 20:28

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083508

MB Sample Id: 7674408-1-BLK

Matrix: Solid

LCS Sample Id: 7674408-1-BKS

Prep Method: SW5030B

Date Prep: 03.26.19

LCSD Sample Id: 7674408-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.129	129	0.127	128	70-130	2	35	mg/kg	03.26.19 23:48	
Toluene	<0.00200	0.100	0.129	129	0.126	127	70-130	2	35	mg/kg	03.26.19 23:48	
Ethylbenzene	<0.000565	0.100	0.110	110	0.108	109	70-130	2	35	mg/kg	03.26.19 23:48	
m,p-Xylenes	<0.00101	0.200	0.219	110	0.214	108	70-130	2	35	mg/kg	03.26.19 23:48	
o-Xylene	<0.00200	0.100	0.109	109	0.107	108	70-130	2	35	mg/kg	03.26.19 23:48	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	114		106		102		70-130	%	03.26.19 23:48
4-Bromofluorobenzene	113		101		100		70-130	%	03.26.19 23:48

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083508

Parent Sample Id: 618639-003

Matrix: Soil

MS Sample Id: 618639-003 S

Prep Method: SW5030B

Date Prep: 03.26.19

MSD Sample Id: 618639-003 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	0.0998	0.118	118	0.105	104	70-130	12	35	mg/kg	03.27.19 00:26	
Toluene	0.000488	0.0998	0.115	115	0.102	101	70-130	12	35	mg/kg	03.27.19 00:26	
Ethylbenzene	<0.000564	0.0998	0.0949	95	0.0829	82	70-130	13	35	mg/kg	03.27.19 00:26	
m,p-Xylenes	<0.00101	0.200	0.188	94	0.165	82	70-130	13	35	mg/kg	03.27.19 00:26	
o-Xylene	0.000408	0.0998	0.0936	93	0.0820	81	70-130	13	35	mg/kg	03.27.19 00:26	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		109		70-130	%	03.27.19 00:26
4-Bromofluorobenzene	109		110		70-130	%	03.27.19 00:26

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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



Chain of Custody

Work Order No:

10184104

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Little
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XFO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	432.704.5178	Email:	adrian.baker@xenco.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund	
State of Project:	
Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	Deliverables: <input type="checkbox"/> EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	PLU 183 Q	Turn Around		ANALYSIS REQUEST	Work Order Notes
Project Number:	012918035	Routine	<input checked="" type="checkbox"/>		
P.O. Number:	2RP-3716	Rush:			
Sampler's Name:	L. Lumbach	Due Date:	3/22/19		

SAMPLE RECEIPT		Temp Blank:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wet Ice:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Temperature (°C):	0.3/0.2	Thermometer ID:	VE		
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.1		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers:			
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EP	BTEX (E	Chloride																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010. 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		03/19/19 12:15			3/21/19 11:30
1					
3					
5					

ORIGIN ID:CAOA (575) 887-6245
XENCO
PAC N MAIL
910 W PIERCE ST
CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 20MAR19
ACTWGT: 14.00 LB
CAD: 101813706/NET 4100
DIMS: 14x10x11 IN
BILL RECIPIENT

TO: HOLD FOR XENCO

FEDEX EXPRESS SHIP CENTER
FEDEX SHIP CENTER
3600 COUNTY RD 1276 S

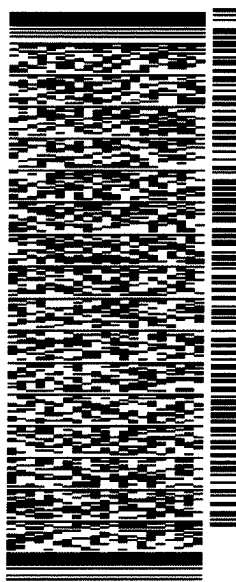
MIDLAND TX 79711

(806) 794-1296

REF:

PO:

DEPT:



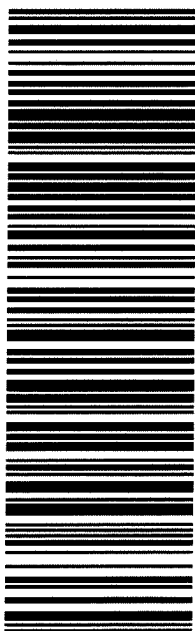
565J146D3/23AD

TRK# 7747 5685 6269
0201

THU - 21 MAR HOLD
STANDARD OVERNIGHT

41 MAFA

HLD
MAFA
TX-US LBB



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 03/21/2019 11:30:00 AM

Work Order #: 618406

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 03/21/2019

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 03/22/2019

Analytical Report 620072

for
LT Environmental, Inc.

Project Manager: Adrian Baker

PLU 183Q

012918035

10-APR-19

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



10-APR-19

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **620072**

PLU 183Q

Project Address: Delaware Basin

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) 620072. 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. 620072 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,

Kalei Stout

Midland Laboratory Director

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 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01A	S	04-01-19 09:50	2.5 ft	620072-001
BH02A	S	04-01-19 10:00	4 ft	620072-002
BH03A	S	04-01-19 10:10	4 ft	620072-003
BH04A	S	04-01-19 10:20	4 ft	620072-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 183Q

Project ID: 012918035
Work Order Number(s): 620072

Report Date: 10-APR-19
Date Received: 04/04/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3084980 BTEX by EPA 8021B

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

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.

Samples affected are: 620302-001 S.

Batch: LBA-3085025 BTEX by EPA 8021B

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

Batch: LBA-3085140 Inorganic Anions by EPA 300

Lab Sample ID 620072-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.

Samples in the analytical batch are: 620072-001, -002, -003, -004.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 620072

LT Environmental, Inc., Arvada, CO

Project Name: PLU 183Q



Project Id: 012918035
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Apr-04-19 11:35 am
Report Date: 10-APR-19
Project Manager: Kalei Stout

<i>Analysis Requested</i>	<i>Lab Id:</i>	620072-001	620072-002	620072-003	620072-004		
	<i>Field Id:</i>	BH01A	BH02A	BH03A	BH04A		
	<i>Depth:</i>	2.5- ft	4- ft	4- ft	4- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Apr-01-19 09:50	Apr-01-19 10:00	Apr-01-19 10:10	Apr-01-19 10:20		
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-08-19 12:00	Apr-08-19 12:00	Apr-08-19 12:00	Apr-08-19 13:00		
	<i>Analyzed:</i>	Apr-08-19 22:02	Apr-08-19 22:21	Apr-08-19 22:40	Apr-09-19 03:22		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
Toluene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
m,p-Xylenes		<0.00396 0.00396	<0.00403 0.00403	<0.00399 0.00399	<0.00402 0.00402		
o-Xylene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
Total BTEX		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201		
Inorganic Anions by EPA 300	<i>Extracted:</i>	Apr-09-19 15:45	Apr-09-19 15:45	Apr-09-19 15:45	Apr-09-19 15:45		
	<i>Analyzed:</i>	Apr-09-19 23:34	Apr-10-19 00:29	Apr-10-19 00:36	Apr-10-19 00:43		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		118 4.95	<5.01 5.01	5.27 4.98	7.34 4.96		
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-06-19 14:00	Apr-06-19 14:00	Apr-06-19 14:00	Apr-06-19 14:00		
	<i>Analyzed:</i>	Apr-07-19 01:27	Apr-07-19 01:25	Apr-07-19 01:45	Apr-07-19 03:04		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0		
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0		
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0		
Total TPH		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0		
Total GRO-DRO		<15.0 15.0	<14.9 14.9	<14.9 14.9	<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 - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Kalei Stout
Midland Laboratory Director



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH01A**
Lab Sample Id: 620072-001

Matrix: Soil
Date Collected: 04.01.19 09.50

Date Received: 04.04.19 11.35
Sample Depth: 2.5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3085140

Date Prep: 04.09.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	118	4.95	mg/kg	04.09.19 23.34		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084908

Date Prep: 04.06.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 01.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 01.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 01.27	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 01.27	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.07.19 01.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.07.19 01.27	
o-Terphenyl	84-15-1	90	%	70-135	04.07.19 01.27	



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH01A**
Lab Sample Id: 620072-001

Matrix: Soil
Date Collected: 04.01.19 09.50

Date Received: 04.04.19 11.35
Sample Depth: 2.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084980

Date Prep: 04.08.19 12.00

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	04.08.19 22.02	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.08.19 22.02	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.08.19 22.02	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.08.19 22.02	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.08.19 22.02	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.08.19 22.02	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.08.19 22.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	04.08.19 22.02		
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.08.19 22.02		



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH02A**
Lab Sample Id: 620072-002

Matrix: Soil
Date Collected: 04.01.19 10.00

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3085140

Date Prep: 04.09.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.01	5.01	mg/kg	04.10.19 00.29	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084908

Date Prep: 04.06.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.07.19 01.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.07.19 01.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.07.19 01.25	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.07.19 01.25	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	04.07.19 01.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.07.19 01.25	
o-Terphenyl	84-15-1	93	%	70-135	04.07.19 01.25	



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH02A**
Lab Sample Id: 620072-002

Matrix: Soil
Date Collected: 04.01.19 10.00

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084980

Date Prep: 04.08.19 12.00

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	04.08.19 22.21	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.08.19 22.21	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.08.19 22.21	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.08.19 22.21	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.08.19 22.21	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.08.19 22.21	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.08.19 22.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.08.19 22.21		
4-Bromofluorobenzene	460-00-4	126	%	70-130	04.08.19 22.21		



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH03A**
Lab Sample Id: 620072-003

Matrix: Soil
Date Collected: 04.01.19 10.10

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3085140

Date Prep: 04.09.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.27	4.98	mg/kg	04.10.19 00.36		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084908

Date Prep: 04.06.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.07.19 01.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.07.19 01.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.07.19 01.45	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.07.19 01.45	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	04.07.19 01.45	U	1

Surrogate

1-Chlorooctane

o-Terphenyl

Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
111-85-3	95	%	70-135	04.07.19 01.45	
84-15-1	96	%	70-135	04.07.19 01.45	



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH03A**
Lab Sample Id: 620072-003

Matrix: Soil
Date Collected: 04.01.19 10.10

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084980

Date Prep: 04.08.19 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.08.19 22.40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.08.19 22.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.08.19 22.40		
4-Bromofluorobenzene	460-00-4	125	%	70-130	04.08.19 22.40		



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH04A**
Lab Sample Id: 620072-004

Matrix: Soil
Date Collected: 04.01.19 10.20

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3085140

Date Prep: 04.09.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.34	4.96	mg/kg	04.10.19 00.43		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084908

Date Prep: 04.06.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 03.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 03.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 03.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 03.04	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.07.19 03.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.07.19 03.04	
o-Terphenyl	84-15-1	97	%	70-135	04.07.19 03.04	



Certificate of Analytical Results 620072



LT Environmental, Inc., Arvada, CO

PLU 183Q

Sample Id: **BH04A**
Lab Sample Id: 620072-004

Matrix: Soil
Date Collected: 04.01.19 10.20

Date Received: 04.04.19 11.35
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3085025

Date Prep: 04.08.19 13.00

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	04.09.19 03.22	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.09.19 03.22	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.09.19 03.22	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.09.19 03.22	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.09.19 03.22	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.09.19 03.22	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.09.19 03.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.09.19 03.22		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.09.19 03.22		

- 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

SQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



QC Summary 620072

LT Environmental, Inc. PLU 183Q

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3085140

MB Sample Id: 7675404-1-BLK

Matrix: Solid

LCS Sample Id: 7675404-1-BKS

Prep Method: E300P

Date Prep: 04.09.19

LCSD Sample Id: 7675404-1-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	245	98	232	93	90-110	5	20	mg/kg	04.09.19 21:46	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3085140

Parent Sample Id: 619598-009

Matrix: Soil

MS Sample Id: 619598-009 S

Prep Method: E300P

Date Prep: 04.09.19

MSD Sample Id: 619598-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	115	250	307	77	398	113	90-110	26	20	mg/kg	04.09.19 22:06	XF

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3085140

Parent Sample Id: 620072-001

Matrix: Soil

MS Sample Id: 620072-001 S

Prep Method: E300P

Date Prep: 04.09.19

MSD Sample Id: 620072-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	118	248	296	72	363	99	90-110	20	20	mg/kg	04.09.19 23:41	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3084908

MB Sample Id: 7675255-1-BLK

Matrix: Solid

LCS Sample Id: 7675255-1-BKS

Prep Method: TX1005P

Date Prep: 04.06.19

LCSD Sample Id: 7675255-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1030	103	1000	100	70-135	3	20	mg/kg	04.07.19 00:47	
Diesel Range Organics (DRO)	<8.13	1000	1120	112	1080	108	70-135	4	20	mg/kg	04.07.19 00:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		128		122		70-135	%	04.07.19 00:47
o-Terphenyl	98		109		103		70-135	%	04.07.19 00:47

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 620072

LT Environmental, Inc.

PLU 183Q

Analytical Method: TPH by SW8015 Mod

Seq Number: 3084908

Parent Sample Id: 620072-001

Matrix: Soil

MS Sample Id: 620072-001 S

Prep Method: TX1005P

Date Prep: 04.06.19

MSD Sample Id: 620072-001 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)	<8.00	1000	1060	106	959	96	70-135	10	20	mg/kg	04.07.19 01:46	
Diesel Range Organics (DRO)	<8.13	1000	1180	118	1050	105	70-135	12	20	mg/kg	04.07.19 01:46	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		116		70-135	%	04.07.19 01:46
o-Terphenyl	103		95		70-135	%	04.07.19 01:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3084980

MB Sample Id: 7675325-1-BLK

Matrix: Solid

LCS Sample Id: 7675325-1-BKS

Prep Method: SW5030B

Date Prep: 04.08.19

LCSD Sample Id: 7675325-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.0899	90	0.0923	91	70-130	3	35	mg/kg	04.08.19 15:46	
Toluene	<0.00200	0.100	0.0914	91	0.0939	93	70-130	3	35	mg/kg	04.08.19 15:46	
Ethylbenzene	<0.00200	0.100	0.0941	94	0.0972	96	70-130	3	35	mg/kg	04.08.19 15:46	
m,p-Xylenes	<0.00101	0.200	0.190	95	0.196	97	70-130	3	35	mg/kg	04.08.19 15:46	
o-Xylene	<0.00200	0.100	0.0959	96	0.0986	98	70-130	3	35	mg/kg	04.08.19 15:46	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		97		98		70-130	%	04.08.19 15:46
4-Bromofluorobenzene	105		99		100		70-130	%	04.08.19 15:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085025

MB Sample Id: 7675344-1-BLK

Matrix: Solid

LCS Sample Id: 7675344-1-BKS

Prep Method: SW5030B

Date Prep: 04.08.19

LCSD Sample Id: 7675344-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0899	90	0.0854	85	70-130	5	35	mg/kg	04.09.19 01:30	
Toluene	<0.00200	0.100	0.0919	92	0.0888	88	70-130	3	35	mg/kg	04.09.19 01:30	
Ethylbenzene	<0.00200	0.100	0.0938	94	0.0906	90	70-130	3	35	mg/kg	04.09.19 01:30	
m,p-Xylenes	<0.00102	0.200	0.188	94	0.182	91	70-130	3	35	mg/kg	04.09.19 01:30	
o-Xylene	<0.00200	0.100	0.0969	97	0.0944	93	70-130	3	35	mg/kg	04.09.19 01:30	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		97		96		70-130	%	04.09.19 01:30
4-Bromofluorobenzene	106		102		103		70-130	%	04.09.19 01:30

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 620072

LT Environmental, Inc. PLU 183Q

Analytical Method: BTEX by EPA 8021B

Seq Number: 3084980

Parent Sample Id: 620302-001

Matrix: Soil

MS Sample Id: 620302-001 S

Prep Method: SW5030B

Date Prep: 04.08.19

MSD Sample Id: 620302-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0523	52	0.0762	75	70-130	37	35	mg/kg	04.08.19 16:24	XF
Toluene	<0.000457	0.100	0.0673	67	0.0879	87	70-130	27	35	mg/kg	04.08.19 16:24	X
Ethylbenzene	<0.000567	0.100	0.0727	73	0.0920	91	70-130	23	35	mg/kg	04.08.19 16:24	
m,p-Xylenes	<0.00102	0.201	0.127	63	0.192	96	70-130	41	35	mg/kg	04.08.19 16:24	XF
o-Xylene	<0.000346	0.100	0.0624	62	0.0985	98	70-130	45	35	mg/kg	04.08.19 16:24	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		97		70-130	%	04.08.19 16:24
4-Bromofluorobenzene	137	**	118		70-130	%	04.08.19 16:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085025

Parent Sample Id: 620072-004

Matrix: Soil

MS Sample Id: 620072-004 S

Prep Method: SW5030B

Date Prep: 04.08.19

MSD Sample Id: 620072-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0770	77	0.0740	75	70-130	4	35	mg/kg	04.09.19 02:08	
Toluene	<0.000457	0.100	0.0782	78	0.0754	76	70-130	4	35	mg/kg	04.09.19 02:08	
Ethylbenzene	<0.000567	0.100	0.0779	78	0.0749	76	70-130	4	35	mg/kg	04.09.19 02:08	
m,p-Xylenes	<0.00102	0.201	0.157	78	0.150	76	70-130	5	35	mg/kg	04.09.19 02:08	
o-Xylene	<0.000346	0.100	0.0807	81	0.0767	77	70-130	5	35	mg/kg	04.09.19 02:08	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		70-130	%	04.09.19 02:08
4-Bromofluorobenzene	104		105		70-130	%	04.09.19 02:08

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

Houston, TX (281) 240-4200 Dallas, TX (214) 802-0300 San Antonio, TX (210) 509-3334
 (575-392-7550) Phoenix AZ (480-355-0900) Atlanta GA (770-449-8800) Tampa FL (813-
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

www.yancco.com Page 7 of 7





Project Manager:	Adrian Baker	Bill to: (if different)	
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTS Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	432.704.5178	Email:	abaker@ltxenv.com, laurabaker@ltxenv.com

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting Level II	<input type="checkbox"/> Level III <input type="checkbox"/> UST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

[illegible]

Total	200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Tl	Sn	U	V	Zn
<i>Circle Method(s) and Metal(s) to be analyzed</i>			TCLP	/ SPLP	6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Tl	U											
			1631 / 245.1 / 7470 / 7471 : Hg																														

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 	2 	04/03/19 7:00	3 	4 	4/4/19 11:35
5			6		

Revised Date 05/14/18 Rev. 2018

ORIGIN ID:CAOA (575) 887-6245
XENCO
PAC N MAIL
910 W PIERCE ST
CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 03APR19
ACTWGT: 39.00 LB
CAD: 101813706NET14100
DIMS: 26x15x14 IN
BILL RECIPIENT

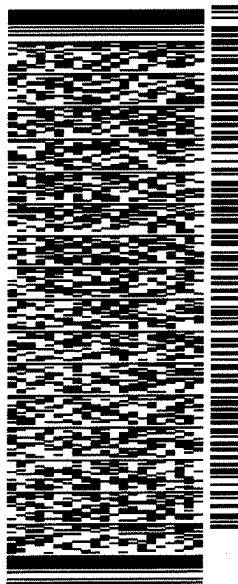
TO HOLD FOR XENCO

FEDEX EXPRESS SHIP CENTER
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MIDLAND TX 79711

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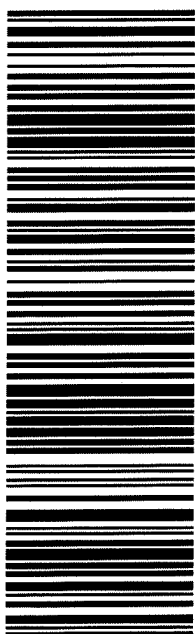
565J1/D7E5/23AD

TRK# 7748 7833 8790
0201

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41 MAFA

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 04/04/2019 11:35:00 AM

Work Order #: 620072

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 04/04/2019

Checklist reviewed by:

Kalei Stout


Kalei Stout

Date: 04/05/2019






Southeastern view of the pasture area south of the lease road during delineation activities.

Project: 012918035	XTO Energy, Inc. Poker Lake Unit 183Q	 <i>Advancing Opportunity</i>
April 1, 2019	Photographic Log	



Southern view of the pasture area south of the lease road during delineation activities.

Project: 012918035	XTO Energy, Inc. Poker Lake Unit 183Q	 <i>Advancing Opportunity</i>
April 1, 2019	Photographic Log	