

April 10, 2018

Mr. Mike Bratcher
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

**RE: Closure Report
Poker Lake Unit #279
Remediation Permit Number 2RP-4624
Eddy County, New Mexico**

Dear Mr. Bratcher;

LT Environmental, Inc. (LTE) is pleased to present to XTO Energy, Inc. (XTO) the following letter report detailing the soil sampling activities at a release from a flow line associated with the Poker Lake Unit #279 (Site). The release occurred approximately 2,284 feet southwest of the Poker Lake Unit #279 in Section 19, Township 24 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the investigation was to assess impacts to soil after a steel flow line buried under the access road crossing developed a hole due to corrosion. This caused a release of approximately 30 barrels (bbls) of produced water and 8 bbls of crude oil on February 2, 2018. The release impacted approximately 500 square feet of lease road and approximately 55 square feet of pasture northwest of the road crossing. Free-standing liquid was removed with a vacuum truck; approximately 30 bbls of produced water and 5 bbls crude oil were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on February 2, 2018, and was assigned Remediation Permit Number (RP) 2RP-4624 (Attachment 1). XTO responded by removing impacted soil. The soil sampling was conducted to confirm remediation has occurred. Based on the results of the sampling event as described herein, XTO is requesting no further action for this release.

BACKGROUND

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data and known aquifer properties. The nearest permitted water well is C 02109, located approximately 2,112 feet south of the Site, with a depth to groundwater of 150 feet bgs and a unknown total depth. The Site is greater than 1,000 feet from a water source and greater than 200 feet from a private domestic water source. The closest surface water to the Site is a creek located approximately 246 feet southeast of the Site. Based on these criteria, the NMOCD site ranking for remediation action levels is 10, and the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg benzene, toluene, ethylbenzene, and total xylenes (BTEX); and 1,000 mg/kg total petroleum hydrocarbons (TPH). Based on standard practice in this region, LTE proposes a site-specific chloride action level of 600 mg/kg or within a range (plus or minus 10 percent [%]) of the background concentrations.



SITE ACTIVITIES

LTE supervised the mechanical removal of soil by backhoe at the Site on February 23, 2018, and March 6, 2018 using visual and olfactory observations as well as field screening to guide soil removal. Tex Mex Drilling, Inc. completed excavation activities and transported approximately 115 cubic yards of impacted soil to Lea Land Disposal Facility. The extent of the final excavation is depicted on Figure 2.

Upon completion of soil removal, LTE collected five soil samples on March 6, 2018 to confirm closure standards had been met. One discrete soil sample was collected from each sidewall and from the floor of the excavation, as depicted on Figure 2. Subsurface samples were collected from each location at approximately 3.5 feet bgs. No visual or olfactory evidence of the release was observed while sampling. All sample locations and pertinent excavation information were mapped using a Trimble 6000 Series GPS unit capable of sub-meter accuracy.

The soil samples were collected directly into pre-cleaned glass jars, labeled with location, date, time, sampler, and method of analysis, and immediately placed on ice. The samples were delivered at 2.6 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and motor oil range organics (MRO) by USEPA Method 8015; and chloride by USEPA 300.0.

ANALYTICAL RESULTS

Laboratory analytical results for the five soil samples indicated BTEX and TPH concentrations were below laboratory reporting limits. Chloride concentrations ranged from 41.3 mg/kg in sample SE @ 3.5' to 92.9 mg/kg in soil sample W @ 3.5'. The chloride results were all below the NMOCD remediation action levels. Laboratory analytical results are presented on Figure 2 and in Table 1, and the complete laboratory analytical report is included as Attachment 2.

CONCLUSIONS

Laboratory analytical results for soil samples collected within the former release footprint indicate impact to soil, as defined by concentrations of BTEX, TPH, and chloride, do not exceed NMOCD site-specific standards and all impacted soil associated with the release was removed from the Site. As such, XTO requests permission to backfill the excavation with locally procured material. The area of the excavation that affected the road will be reconstructed with caliche road base. For the non-developed area, the backfill will be applied in one- to two-foot lifts, compacted, and graded to blend with the contours of the surrounding topography. XTO will seed the remediated area with Bureau of Land Management seed mix #2 via drill or broadcast method.

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





Sincerely,

LT ENVIRONMENTAL, INC.

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

Adrian Baker
Project Geologist

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

Ashley L. Ager, P.G.
Senior Geologist

Attachments:

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

cc: Kyle Littrell, XTO
Crystal Weaver, NMOCD
Jim Amos, BLM
Shelly Tucker, BLM



FIGURES



IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION

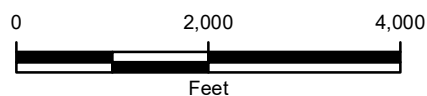


FIGURE 1
SITE LOCATION MAP
PLU #279 FLOW LINE
NENE SEC 19 T24S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



SAMPLE ID
 SAMPLE DATE
 B: BENZENE (NMOCD = 10 mg/kg)
 BTEX: TOTAL BTEX (NMOCD = 50 mg/kg)
 TPH: TOTAL PETROLEUM HYDROCARBONS
 (NMOCD = 1,000 mg/kg)
 Cl: CHLORIDE (NMOCD = 600 mg/kg)
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT
 NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
 REGULATORY STANDARD

W@3.5'
 03/06/2018
 B: <0.00202
 BTEX: <0.00202
 TPH: <15.0
 Cl: 92.9

N@3.5'
 03/06/2018
 B: <0.00202
 BTEX: <0.00202
 TPH: <15.0
 Cl: 56.4

SW@3.5'
 03/06/2018
 B: <0.00336
 BTEX: <0.00336
 TPH: <15.0
 Cl: 53.2

SE@3.5'
 03/06/2018
 B: <0.00201
 BTEX: <0.00201
 TPH: <15.0
 Cl: 41.3

FS01@3.5'
 03/06/2018
 B: <0.00330
 BTEX: <0.00330
 TPH: <15.0
 Cl: 69.5

LEGEND

- EXCAVATION SOIL SAMPLE
- - - EXCAVATION EXTENT

IMAGE COURTESY OF ESRI

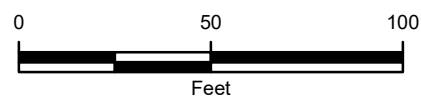


FIGURE 2
 EXCAVATION SAMPLE LOCATIONS
 PLU #279 FLOW LINE
 NENE SEC 19 T24S R30E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



TABLE



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TABLE 1
SOIL ANALYTICAL RESULTS
PLU #279 FLOW LINE
2RP-4624
EDDY COUNTY, NEW MEXICO
XTO ENERGY INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 Gasoline Range Organics (mg/kg)	C10-C28 Diesel Range Organics (mg/kg)	C28-40 Motor Oil Range Organics (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SE	3.5	3/6/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	41.3
W	3.5	3/6/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	92.9
N	3.5	3/6/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	56.4
SW	3.5	3/6/2018	<0.00336	<0.00336	<0.00336	<0.00336	<0.00336	<15.0	<15.0	<15.0	<15.0	53.2
FS01	3.5	3/6/2018	<0.00330	<0.00330	<0.00330	<0.00330	<0.00330	<15.0	<15.0	<15.0	<15.0	69.5
NMOCD Regulatory Standard		NE	10	NE	NE	NE	50	NE	NE	NE	1,000	600

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

mg/kg - milligrams per kilogram

NE - not established

NMOCD - New Mexico Oil Conservation Division

TPH - total petroleum hydrocarbons



ATTACHMENT 1
INITIAL/FINAL NMOCD FORM C-141



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NM OIL CONSERVATION

ARTESIA DISTRICT

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

FEB 15 2018

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

NAB1805034957

OPERATOR		<input checked="" type="checkbox"/> Initial Report	<input type="checkbox"/> Final Report
Name of Company: XTO Energy		Contact: Kyle Littrell	
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220		Telephone No: 432-221-7331	
Facility Name: Poker Lake Unit #279		Facility Type: Exploration and Production	
Surface Owner: Federal		Mineral Owner: Federal	API No: 30-015-35477

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	19	24S	30E	720	North	680	East	Eddy

Latitude 32.208347 Longitude -103.91440 NAD83

NATURE OF RELEASE

Type of Release	Produced Water/Crude Oil	Volume of Release	38 bbls	Volume Recovered	35 bbls
Source of Release	Flow Line	Date and Hour of Occurrence	2/2/2018 time unknown	Date and Hour of Discovery	2/2/2018 10:30 am
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher/Crystal Weaver (NMOCD), Shelly Tucker/Jim Amos (BLM)		
By Whom?	Amy Ruth	Date and Hour:	2/2/2018 3:26 pm by email		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	N/A		

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Buried steel flow line in road crossing developed a hole due to corrosion. Line was clamped and well was shut-in until the line was repaired.

Describe Area Affected and Cleanup Action Taken.*
The release affected 500 square feet of lease road caliche and approximately 55 square feet of pasture extending northwest of the road crossing. Standing fluids were recovered. An environmental contractor has been retained to assist with the remediation effort and soil samples have been collected.

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

Signature:		OIL CONSERVATION DIVISION	
Printed Name: Kyle Littrell		Approved by Environmental Specialist:	
Title: Environmental Coordinator	Approval Date: 2/16/18	Expiration Date: N/A	
E-mail Address: Kyle.Littrell@xtoenergy.com	Conditions of Approval: See attached	Attached <input type="checkbox"/> 2RP-4624	
Date: 2/15/2018	Phone: 432-221-7331		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/15/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-41624 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 3/15/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

jim.griswold@state.nm.us

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

Form C-141
Revised April 3, 2017

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

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company XTO Energy	Contact Kyle Littrell	
Address 3104 E Greene Street, Carlsbad, NM 88220	Telephone No. 432-221-7331	
Facility Name Poker Lake Unit #279	Facility Type Exploration and Production	
Surface Owner Federal	Mineral Owner Federal	API No. 30-015-35477

LOCATION OF RELEASE

Unit Letter A	Section 19	Township 24S	Range 30E	Feet from the 720	North/South Line North	Feet from the 680	East/West Line East	County Eddy
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Latitude N 32.208347 Longitude W103.91440 NAD83

NATURE OF RELEASE

Type of Release Produced Water/Crude Oil	Volume of Release 38 bbls	Volume Recovered 35 bbls
Source of Release Flow Line	Date and Hour of Occurrence 2/2/2018 time unknown	Date and Hour of Discovery 2/2/2018 10:30 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher/Crystal Weaver (NMOCD), Shelly Tucker/Jim Amos (BLM)	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

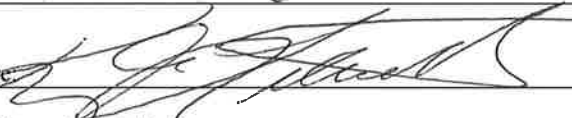
Buried steel flow line in road crossing developed a hole due to corrosion. Line was clamped and well was shut-in until repairs were completed.

Describe Area Affected and Cleanup Action Taken.*

The release affected 500 square feet of lease road caliche and approximately 55 square feet of pasture extending northwest of the road crossing. Standing fluids were recovered.

Remediation included excavation of approximately 115 cubic yards of impacted soil that was transported and disposed at Lea Land Disposal Facility. Five confirmation soil samples were collected from the excavation. Laboratory analytical results from the confirmation soil samples indicate concentrations of BTEX, TPH, and chloride do not exceed NMOCD remediation standards and all impacted soil was removed. XTO will backfill the excavation and reconstruct the access road with caliche road base. The area affected off pad will be reclaimed by contouring to natural topography and reseeded with the appropriate seed mix.

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

Signature 	OIL CONSERVATION DIVISION		
Printed Name: Kyle Littrell	Approved by Environmental Specialist:		
Title: SH&E Coordinator	Approval Date:	Expiration Date:	
E-mail Address: Kyle.Littrell@xtoenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 4/16/2018	Phone: 432-221-7331		

* Attach Additional Sheets If Necessary

ATTACHMENT 2
LABORATORY ANALYTICAL REPORT



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Analytical Report 578595

**for
LT Environmental, Inc.**

Project Manager: Adrian Baker

PLU 279

15-MAR-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-18-24), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):

Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)

Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-18-14)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)

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

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

Xenco-Atlanta (LELAP Lab ID #04176)



15-MAR-18

Project Manager: **Adrian Baker**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: XENCO Report No(s): **578595**
PLU 279
Project Address: NM

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 578595. 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. 578595 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,

Jessica Kramer
Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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



Sample Cross Reference 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SE @ 3.5'	S	03-06-18 14:00	3.5 ft	578595-001
W @ 3.5'	S	03-06-18 14:15	3.5 ft	578595-002
N @ 3.5'	S	03-06-18 14:30	3.5 ft	578595-003
SW @ 3.5'	S	03-06-18 14:45	3.5 ft	578595-004
FS01 @ 3.5'	S	03-06-18 15:00	3.5 ft	578595-005



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 279

Project ID:
Work Order Number(s): 578595

Report Date: 15-MAR-18
Date Received: 03/07/2018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3043503 BTEX by EPA 8021B

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

Batch: LBA-3043536 BTEX by EPA 8021B

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

Batch: LBA-3043580 Inorganic Anions by EPA 300

Lab Sample ID 578928-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 578595-001, -002, -003, -004, -005. The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3043732 BTEX by EPA 8021B

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



Certificate of Analysis Summary 578595

LT Environmental, Inc., Arvada, CO

Project Name: PLU 279



Project Id:

Contact: Adrian Baker

Project Location: NM

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

Report Date: 15-MAR-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	578595-001	578595-002	578595-003	578595-004	578595-005	
	<i>Field Id:</i>	SE @ 3.5'	W @ 3.5'	N @ 3.5'	SW @ 3.5'	FS01 @ 3.5'	
	<i>Depth:</i>	3.5- ft	3.5- ft	3.5- ft	3.5- ft	3.5- ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	Mar-06-18 14:00	Mar-06-18 14:15	Mar-06-18 14:30	Mar-06-18 14:45	Mar-06-18 15:00	
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-11-18 09:00	Mar-12-18 08:00	Mar-11-18 09:00	Mar-13-18 08:00	Mar-13-18 08:00	
	<i>Analyzed:</i>	Mar-11-18 15:27	Mar-12-18 10:24	Mar-11-18 14:49	Mar-13-18 14:59	Mar-13-18 15:18	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00404 0.00404	<0.00671 0.00671	<0.00660 0.00660	
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00336 0.00336	<0.00330 0.00330	
Inorganic Anions by EPA 300	<i>Extracted:</i>	Mar-12-18 16:00	Mar-12-18 16:00	Mar-12-18 16:00	Mar-12-18 16:00	Mar-12-18 16:00	
	<i>Analyzed:</i>	Mar-13-18 17:31	Mar-13-18 17:51	Mar-13-18 18:07	Mar-13-18 18:12	Mar-13-18 20:19	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		41.3 4.99	92.9 4.97	56.4 4.99	53.2 4.98	69.5 5.00	
TPH by SW8015 Mod	<i>Extracted:</i>	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	Mar-11-18 10:00	
	<i>Analyzed:</i>	Mar-12-18 16:41	Mar-12-18 17:01	Mar-12-18 17:21	Mar-12-18 17:40	Mar-12-18 18:00	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: SE @ 3.5'

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-001

Date Collected: 03.06.18 14.00

Sample Depth: 3.5 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 16.00

Basis: Wet Weight

Seq Number: 3043580

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	41.3	4.99	mg/kg	03.13.18 17.31		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.11.18 10.00

Basis: Wet Weight

Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 16.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 16.41	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 16.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 16.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.12.18 16.41	
o-Terphenyl	84-15-1	97	%	70-135	03.12.18 16.41	



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: SE @ 3.5'

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-001

Date Collected: 03.06.18 14.00

Sample Depth: 3.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.11.18 09.00

Basis: Wet Weight

Seq Number: 3043732

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.11.18 15.27	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.11.18 15.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	03.11.18 15.27		
1,4-Difluorobenzene	540-36-3	88	%	70-130	03.11.18 15.27		



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: **W @ 3.5'**
Lab Sample Id: 578595-002

Matrix: Soil
Date Collected: 03.06.18 14.15

Date Received: 03.07.18 15.08
Sample Depth: 3.5 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: OJS
Analyst: OJS
Seq Number: 3043580

Date Prep: 03.12.18 16.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	92.9	4.97	mg/kg	03.13.18 17.51		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3043520

Date Prep: 03.11.18 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	03.12.18 17.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 17.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 17.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 17.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	03.12.18 17.01	
o-Terphenyl	84-15-1	85	%	70-135	03.12.18 17.01	



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: **W @ 3.5'**

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-002

Date Collected: 03.06.18 14.15

Sample Depth: 3.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.12.18 08.00

Basis: Wet Weight

Seq Number: 3043503

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.12.18 10.24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.12.18 10.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.12.18 10.24		
1,4-Difluorobenzene	540-36-3	79	%	70-130	03.12.18 10.24		



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: N @ 3.5'
Lab Sample Id: 578595-003

Matrix: Soil
Date Collected: 03.06.18 14.30

Date Received: 03.07.18 15.08
Sample Depth: 3.5 ft

Analytical Method: Inorganic Anions by EPA 300
Tech: OJS
Analyst: OJS
Seq Number: 3043580

Date Prep: 03.12.18 16.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	56.4	4.99	mg/kg	03.13.18 18.07		1

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3043520

Date Prep: 03.11.18 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	03.12.18 17.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 17.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 17.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 17.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	03.12.18 17.21		
o-Terphenyl	84-15-1	94	%	70-135	03.12.18 17.21		

LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: N @ 3.5'
Lab Sample Id: 578595-003

Matrix: Soil
Date Collected: 03.06.18 14.30

Date Received: 03.07.18 15.08
Sample Depth: 3.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.11.18 09.00

Basis: Wet Weight

Seq Number: 3043732

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.11.18 14.49	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.11.18 14.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.11.18 14.49		
1,4-Difluorobenzene	540-36-3	83	%	70-130	03.11.18 14.49		



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: SW @ 3.5'

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-004

Date Collected: 03.06.18 14.45

Sample Depth: 3.5 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 16.00

Basis: Wet Weight

Seq Number: 3043580

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	53.2	4.98	mg/kg	03.13.18 18.12		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.11.18 10.00

Basis: Wet Weight

Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 17.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 17.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 17.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 17.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	03.12.18 17.40	
o-Terphenyl	84-15-1	95	%	70-135	03.12.18 17.40	



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: SW @ 3.5'

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-004

Date Collected: 03.06.18 14.45

Sample Depth: 3.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.13.18 08.00

Basis: Wet Weight

Seq Number: 3043536

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
Toluene	108-88-3	<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
Ethylbenzene	100-41-4	<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
m,p-Xylenes	179601-23-1	<0.00671	0.00671	mg/kg	03.13.18 14.59	U	1
o-Xylene	95-47-6	<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
Total Xylenes	1330-20-7	<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
Total BTEX		<0.00336	0.00336	mg/kg	03.13.18 14.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	88	%	70-130	03.13.18 14.59		
4-Bromofluorobenzene	460-00-4	103	%	70-130	03.13.18 14.59		



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: **FS01 @ 3.5'**

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-005

Date Collected: 03.06.18 15.00

Sample Depth: 3.5 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 16.00

Basis: Wet Weight

Seq Number: 3043580

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.5	5.00	mg/kg	03.13.18 20.19		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.11.18 10.00

Basis: Wet Weight

Seq Number: 3043520

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.12.18 18.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.12.18 18.00	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.12.18 18.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.12.18 18.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	03.12.18 18.00	
o-Terphenyl	84-15-1	85	%	70-135	03.12.18 18.00	



Certificate of Analytical Results 578595



LT Environmental, Inc., Arvada, CO

PLU 279

Sample Id: **FS01 @ 3.5'**

Matrix: Soil

Date Received: 03.07.18 15.08

Lab Sample Id: 578595-005

Date Collected: 03.06.18 15.00

Sample Depth: 3.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.13.18 08.00

Basis: Wet Weight

Seq Number: 3043536

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
Toluene	108-88-3	<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
Ethylbenzene	100-41-4	<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
m,p-Xylenes	179601-23-1	<0.00660	0.00660	mg/kg	03.13.18 15.18	U	1
o-Xylene	95-47-6	<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
Total Xylenes	1330-20-7	<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
Total BTEX		<0.00330	0.00330	mg/kg	03.13.18 15.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	84	%	70-130	03.13.18 15.18		
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.13.18 15.18		

- 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 578595

LT Environmental, Inc. PLU 279

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043580

MB Sample Id: 7640646-1-BLK

Matrix: Solid

LCS Sample Id: 7640646-1-BKS

Prep Method: E300P

Date Prep: 03.12.18

LCSD Sample Id: 7640646-1-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	271	108	244	98	90-110	10	20	mg/kg	03.13.18 15:11	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043580

Parent Sample Id: 578595-002

Matrix: Soil

MS Sample Id: 578595-002 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578595-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	92.9	249	381	116	383	117	90-110	1	20	mg/kg	03.13.18 17:56	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043580

Parent Sample Id: 578928-001

Matrix: Soil

MS Sample Id: 578928-001 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578928-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	174	247	444	109	442	109	90-110	0	20	mg/kg	03.13.18 15:34	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043520

MB Sample Id: 7640556-1-BLK

Matrix: Solid

LCS Sample Id: 7640556-1-BKS

Prep Method: TX1005P

Date Prep: 03.11.18

LCSD Sample Id: 7640556-1-BSD

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

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

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

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

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

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



QC Summary 578595

LT Environmental, Inc.

PLU 279

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043520

Parent Sample Id: 578593-001

Matrix: Soil

MS Sample Id: 578593-001 S

Prep Method: TX1005P

Date Prep: 03.11.18

MSD Sample Id: 578593-001 SD

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

Surrogate

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

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043732

MB Sample Id: 7640589-1-BLK

Matrix: Solid

LCS Sample Id: 7640589-1-BKS

Prep Method: SW5030B

Date Prep: 03.11.18

LCSD Sample Id: 7640589-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0880	89	0.0834	84	70-130	5	35	mg/kg	03.11.18 12:34	
Toluene	<0.00199	0.0994	0.0938	94	0.0891	90	70-130	5	35	mg/kg	03.11.18 12:34	
Ethylbenzene	<0.00199	0.0994	0.106	107	0.101	102	70-130	5	35	mg/kg	03.11.18 12:34	
m,p-Xylenes	<0.00398	0.199	0.208	105	0.200	101	70-130	4	35	mg/kg	03.11.18 12:34	
o-Xylene	<0.00199	0.0994	0.104	105	0.0989	100	70-130	5	35	mg/kg	03.11.18 12:34	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	84		91		87		70-130	%	03.11.18 12:34
4-Bromofluorobenzene	86		118		119		70-130	%	03.11.18 12:34

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

MB Sample Id: 7640672-1-BLK

Matrix: Solid

LCS Sample Id: 7640672-1-BKS

Prep Method: SW5030B

Date Prep: 03.12.18

LCSD Sample Id: 7640672-1-BSD

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

Surrogate

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

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

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

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

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



QC Summary 578595

LT Environmental, Inc.

PLU 279

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043536

MB Sample Id: 7640690-1-BLK

Matrix: Solid

LCS Sample Id: 7640690-1-BKS

Prep Method: SW5030B

Date Prep: 03.13.18

LCSD Sample Id: 7640690-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0768	77	0.0766	77	70-130	0	35	mg/kg	03.13.18 06:58	
Toluene	<0.00199	0.0994	0.0824	83	0.0825	83	70-130	0	35	mg/kg	03.13.18 06:58	
Ethylbenzene	<0.00199	0.0994	0.0953	96	0.0962	96	70-130	1	35	mg/kg	03.13.18 06:58	
m,p-Xylenes	<0.00398	0.199	0.189	95	0.190	95	70-130	1	35	mg/kg	03.13.18 06:58	
o-Xylene	<0.00199	0.0994	0.0951	96	0.0959	96	70-130	1	35	mg/kg	03.13.18 06:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	88		92		90		70-130	%	03.13.18 06:58
4-Bromofluorobenzene	108		110		115		70-130	%	03.13.18 06:58

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043732

Parent Sample Id: 578596-001

Matrix: Soil

MS Sample Id: 578596-001 S

Prep Method: SW5030B

Date Prep: 03.11.18

MSD Sample Id: 578596-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0624	62	0.0565	56	70-130	10	35	mg/kg	03.11.18 13:13	X
Toluene	<0.00200	0.100	0.0546	55	0.0381	38	70-130	36	35	mg/kg	03.11.18 13:13	XF
Ethylbenzene	<0.00200	0.100	0.0452	45	0.0253	25	70-130	56	35	mg/kg	03.11.18 13:13	XF
m,p-Xylenes	<0.00401	0.200	0.0864	43	0.0477	24	70-130	58	35	mg/kg	03.11.18 13:13	XF
o-Xylene	<0.00200	0.100	0.0467	47	0.0256	25	70-130	58	35	mg/kg	03.11.18 13:13	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		95		70-130	%	03.11.18 13:13
4-Bromofluorobenzene	116		114		70-130	%	03.11.18 13:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

Parent Sample Id: 578649-001

Matrix: Soil

MS Sample Id: 578649-001 S

Prep Method: SW5030B

Date Prep: 03.12.18

MSD Sample Id: 578649-001 SD

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

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

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

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

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

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



QC Summary 578595

LT Environmental, Inc.

PLU 279

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043536

Parent Sample Id: 578597-001

Matrix: Soil

MS Sample Id: 578597-001 S

Prep Method: SW5030B

Date Prep: 03.13.18

MSD Sample Id: 578597-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0674	67	0.0563	56	70-130	18	35	mg/kg	03.13.18 07:37	X
Toluene	<0.00200	0.100	0.0640	64	0.0594	59	70-130	7	35	mg/kg	03.13.18 07:37	X
Ethylbenzene	<0.00200	0.100	0.0617	62	0.0613	61	70-130	1	35	mg/kg	03.13.18 07:37	X
m,p-Xylenes	<0.00401	0.200	0.113	57	0.113	56	70-130	0	35	mg/kg	03.13.18 07:37	X
o-Xylene	<0.00200	0.100	0.0602	60	0.0585	58	70-130	3	35	mg/kg	03.13.18 07:37	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		85		70-130	%	03.13.18 07:37
4-Bromofluorobenzene	114		127		70-130	%	03.13.18 07:37

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

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

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

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

Setting the Standard since 1990
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Dallas Texas (214-902-0300)

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

Phoenix, Arizona (480-355-0900)

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Client / Reporting Information						Project Information								Analytical Information							Matrix Codes																																
Company Name / Branch: LTE / Permian						Project Name/Number: PLU 279																																															
Company Address: 3300 N. A Street Bldg 1 Suite 103 Midland TX 79705						Project Location: NM																																															
Email: Abaker@ltenv.com Phone No: 432-704-5178						Invoice To: XTO Energy - Kyle Litrell																																															
Project Contact: Adrian Baker						PO Number: 30-015-35477																																															
Samplers's Name: Aaron Williamson																																																					
No.	Field ID / Point of Collection					Collection		Number of preserved bottles										Btex EPA Method 8021							TPH EPA Method 8015							Chloride EPA Method 300.1							Field Comments														
						Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE																																			
1	SE @ 3.5'					3.5'	3-6-18	1400	S	1									X	X	X																																
2	W @ 3.5'							1415											X	X	X																																
3	N @ 3.5'							1430											X	X	X																																
4	SW @ 3.5'							1445											X	X	X																																
5	FS01 @ 3.5'							1500											X	X	X																																
6																																																					
7																																																					
8																																																					
9																																																					
10																																																					
Turnaround Time (Business days)						Data Deliverable Information						Notes:														Temp: 2.6 IR ID: R-8 CF: (0-6: -0.2°C) (6-23: +0.2°C) Corrected Temp: 2.4																											
Same Day TAT						Level II Std QC						Level IV (Full Data Pkg / raw data)						Samples: Danny Burns																																			
Next Day EMERGENCY						Level III Std QC+ Forms						TRRP Level IV																																									
2 Day EMERGENCY						Contract TAT						Level 3 (CLP Forms)						UST / RG-411																																			
3 Day EMERGENCY						STANDARD TAT						TRRP Checklist																																									
TAT Starts Day received by Lab, if received by 5:00 pm																				FED-EX / UPS: Tracking #																																	
Relinquished by Sample						Date Time:						Received By:						Date Time:						Relinquished By:						Date Time:						Received By:																	
Relinquish by:						3/6/18 1530						1 Dave						3/6/18 1430						2 [Signature]						3/6/18 1430						2 [Signature]																	
Relinquish by:						3/7 14:50						3 [Signature]						3/7/18 15:08						4 [Signature]						3/7/18 15:08						4 [Signature]																	
Relinquished by:						Date Time:						Received By:						Date Time:						Custody Seal#						Preserved Where applicable						On Ice						Cooler Temp.						Thermop Corr. Factor					
5												5																																									



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

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

Work Order #: 578595

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

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

TPH received in bulk jars

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Connie Hernandez

Date: 03/08/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 03/08/2018