LT Environmental, Inc.
3300 North "A" Street
Building 1, Unit 103
Midland, Texas 79705
432.704.5178

March 29, 2019

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

RE: Closure Request
Remuda North 25 State 902H
Remediation Permit Number 2RP-5187
Eddy County, New Mexico

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing excavation of impacted soil and confirmation soil sampling activities at the Remuda North 25 State 902H (Site) located in Unit L, Section 25, Township 23 South, Range 29 East, in Eddy County, New Mexico (Figure 1). The purpose of the excavation and soil sampling activities was to address impacts to soil after a fire at the Site.

On January 1, 2019, a flowback crew reported a fire originating from a gas combustor on site. The crew evacuated the area, and the fire department was dispatched to extinguish the fire. The fire appeared to have been ignited by static electricity. A hydraulic fracturing tank and containment liner were damaged as a result of the fire; however, no fluids were released. Approximately 1,400 square feet in the southeast corner of the well pad were affected by the release. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on January 15, 2019, and was assigned Remediation Permit (RP) Number 2RP-5187 (Attachment 1). Based on the excavation activities and results of the confirmation soil sampling events, XTO is requesting no further action for this release.

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 between 50 and 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 321717103561001 23S.29E.24.41321, located approximately 1.03 miles northeast of the Site. The water well has a depth to groundwater of 50.26 feet and the total depth is not determined. The water well is approximately 34 feet lower in elevation than the Site. The nearest continuously flowing water

or significant watercourse is an unnamed dry wash located 1,109 feet southeast 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 located in a medium 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); 100 mg/kg total petroleum hydrocarbons (TPH); and 600 mg/kg chloride.

EXCAVATION AND SOIL SAMPLING ACTIVITIES

On February 6, 2019, LTE personnel inspected the Site to evaluate the release extent. Surface staining was observed in the release area on the well pad. The release extent was mapped using a handheld Global Positing System (GPS) unit and is depicted on Figure 2. Based on the visual surface staining and information provided on the NMOCD form C-141, excavation of impacted soil was required.

During February and March 2019, LTE personnel returned to the Site to oversee excavation of impacted soil. To delineate impacts to soil and direct excavation activities, LTE screened soil using a PID and Hach® chloride QuanTab® test strips. Impacted soil was excavated to a depth of 1 foot bgs throughout the majority of the excavation. A small area in the northeast corner was excavated to a depth of 2.5 feet bgs. Following removal of impacted soil, LTE collected 5-point composite soil samples from the sidewalls and floor of the excavation. The 5-point composite samples were collected by depositing 5 aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil sample SW01 was collected from the sidewall in the northeast portion of the excavation from a depth of 0 to 2.5 feet bgs. Composite soil samples FS01 through FS08 and FS04A were collected from the floor of the excavation from depths of 1 foot or 2.5 feet bgs. Based on the shallow 1-foot depth of the excavation in the areas of composite floor samples FS01 through FS03 and FS05 through FS08, the samples were representative of the sidewalls and floor of the excavation.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, 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-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0. The excavation soil sample locations and depths presented on Figure 2.

The excavation measured approximately 1,800 square feet in area. The horizontal extent of the excavation is presented on Figure 2. A total of 130 cubic yards of impacted soil were removed

from the excavation. The impacted soil was transported and properly disposed of at the Lea Land landfill facility, in Hobbs, New Mexico.

ANALYTICAL RESULTS

Laboratory analytical results indicated that chloride concentrations initially exceeded the NMOCD Table 1 closure criteria in excavation floor sample FS04. Additional soil was removed in the area around soil sample FS04, and the subsequent confirmation floor sample FS04A was compliant with the NMOCD Table 1 closure criteria. Laboratory analytical results for floor samples FS01 through FS03, FS04A, and FS05 through FS08 and sidewall sample SW01 collected from the final excavation extents indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. The laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

The impacted soil was excavated from the release area and laboratory analytical results for the confirmation soil samples collected from the final excavation extents indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. Initial response efforts and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Number 2RP-5187. Upon approval of the no further action request, XTO will backfill the excavation with material purchased locally and recontour the Site to match pre-existing conditions. An updated NMOCD Form C-141 is included in Attachment 1. A photographic log of the Site is included as Attachment 3.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Adrian Baker
Project Geologist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Robert Hamlet, NMOCD
Ryan Mann, State Land Office

Attachments:

Figure 1	Site Location Map
Figure 2	Excavation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/Final NMOCD Form C-141 (2RP-5187)
Attachment 2	Laboratory Analytical Reports
Attachment 3	Photographic Log

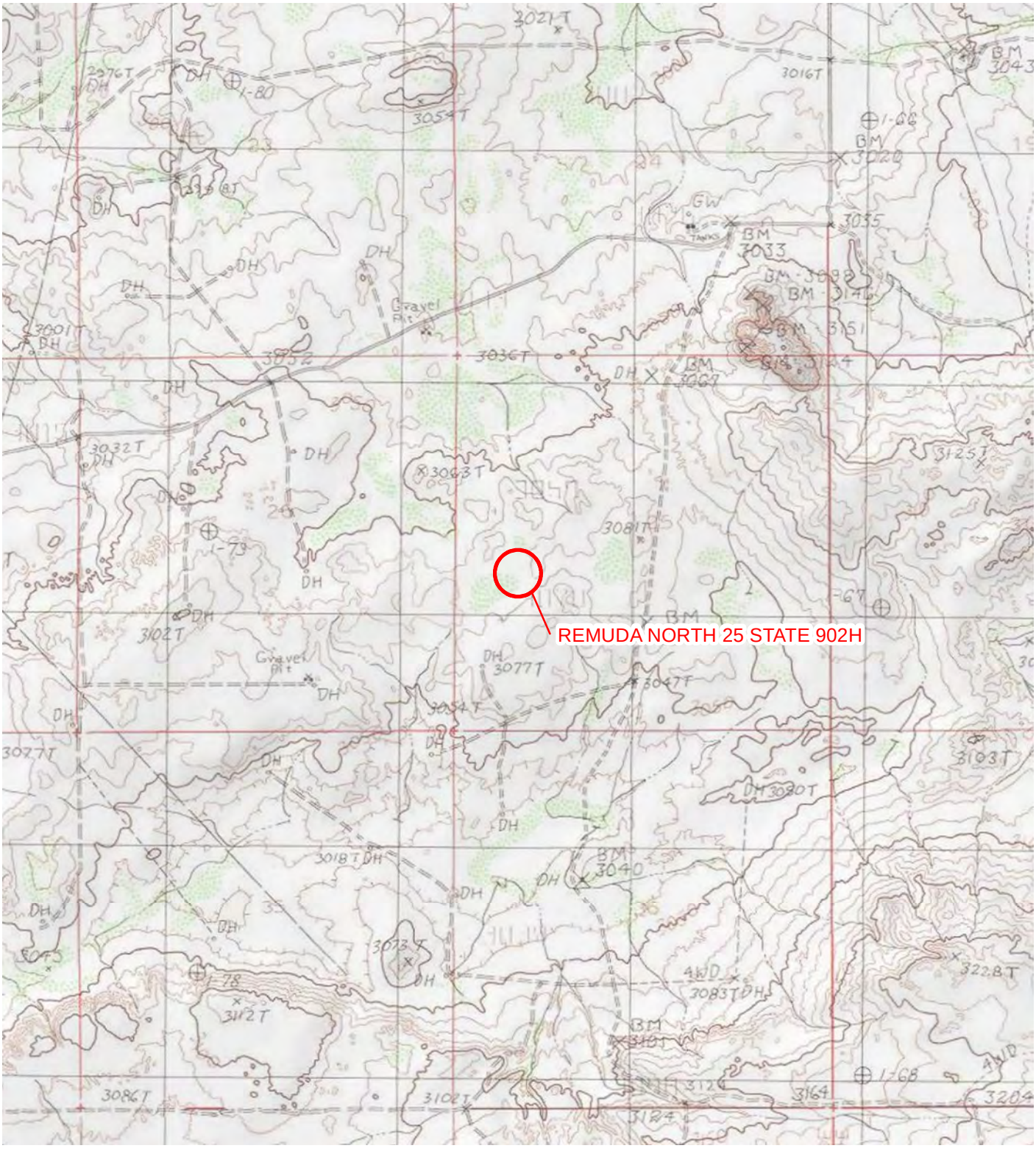


IMAGE COURTESY OF ESRI/USGS

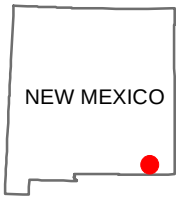
LEGEND

SITE LOCATION

0 2,000 4,000

Feet

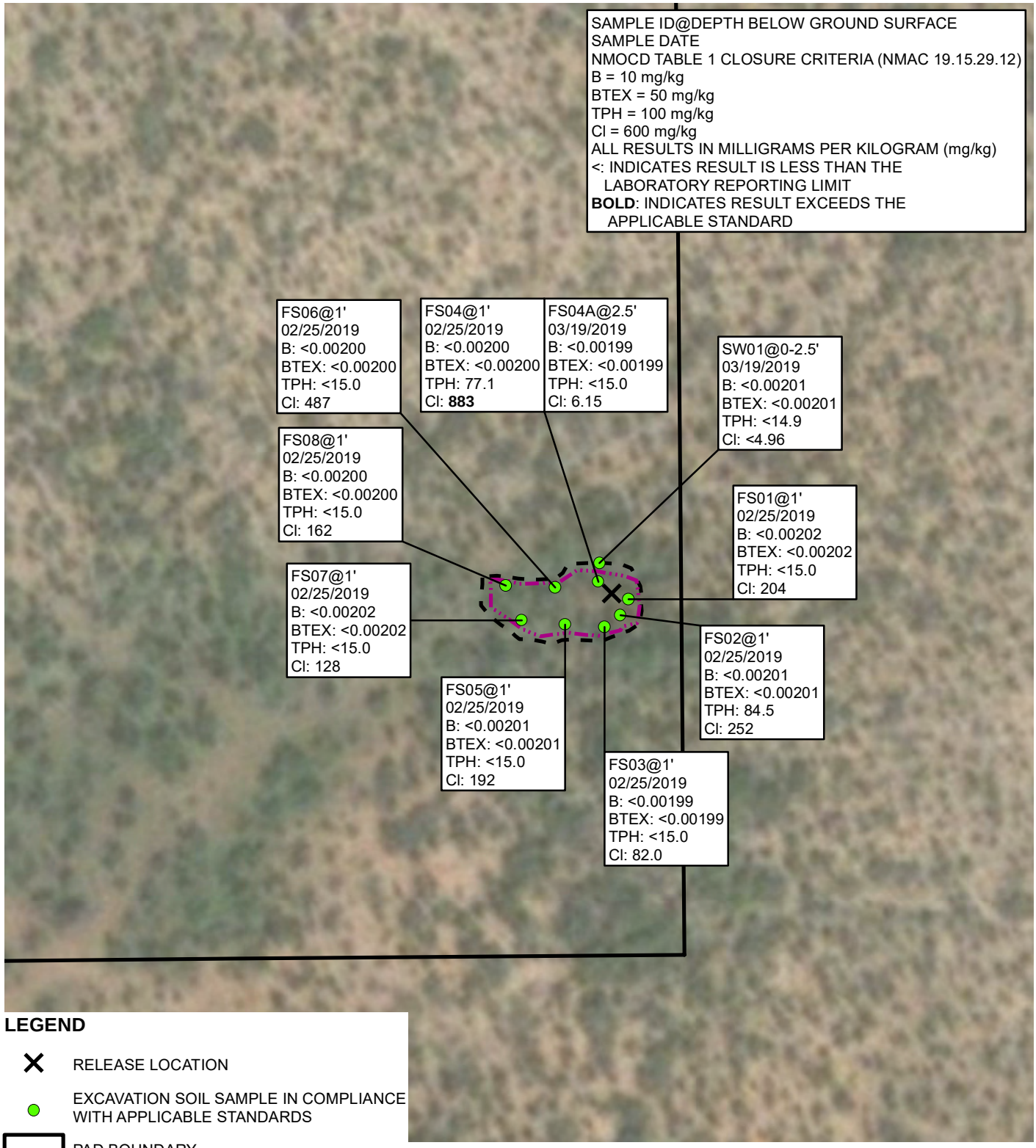
N



NOTE: REMEDIATION PERMIT NUMBER 2RP-5187

FIGURE 1
SITE LOCATION MAP
REMUDA NORTH 25 STATE 902H
UNIT L SEC 25 T23S R29E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012919011_REMUDA NORTH 25 STATE 902H\012919011_FIG01_SL_2019_5187.mxd



LEGEND

- RELEASE LOCATION
- EXCAVATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- PAD BOUNDARY
- RELEASE EXTENT
- EXCAVATION EXTENT

IMAGE COURTESY OF ESRI

0 60 120
Feet

N

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH – TOTAL PETROLEUM HYDROCARBONS
Cl - CHLORIDE
NMAC – NEW MEXICO ADMINISTRATIVE CODE
NMOCD – NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 2RP-5187

FIGURE 2
EXCAVATION SOIL SAMPLE LOCATIONS
REMUDA NORTH 25 STATE 902H
UNIT L SEC 25 T23S R29E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012919011_REMUDA NORTH 25 STATE 902H\012919011_FIG02_EXCAVATION SS_2019_5187.mxd

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA NORTH 25 STATE 902H
REMEDIATION PERMIT NUMBER 2RP-5187
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 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
FS01	1	02/25/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	204
FS02	1	02/25/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	84.5	<15.0	84.5	84.5	252
FS03	1	02/25/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	82.0
FS04	1	02/25/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	77.1	<14.9	77.1	77.1	**883**
FS05	1	02/25/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	192
FS06	1	02/25/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	487
FS07	1	02/25/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	128
FS08	1	02/25/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	162
FS04A	2.5	03/19/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	6.15
SW01	0 - 2.5	03/19/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	<4.96
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	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
DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits
Bold - indicates result exceeds the applicable regulatory standard
* - 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

ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141 (2RP-5187)

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	NAB1901752217
District RP	2 2RP-5187
Facility ID	
Application ID	pAB1901751858

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email Kyle_Littrell@xtoenergy.com	Incident # *(assigned by OCD)* NAB1901752217
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.274373° Longitude -103.945311°

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Remuda North 25 State 902H	Site Type Production Well
Date Release Discovered 1/1/2019	API# *(if applicable)* 30-015-44231

Unit Letter	Section	Township	Range	County
L	25	23S	29E	Eddy

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* New Mexico)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Fire: Flowback crew reported a fire originating from a gas buster on location. The crew evacuated the area. The fire department was dispatched and extinguished the fire. There were no injuries, though a frac tank and containment liner were damaged. Fire appears to have been ignited by static electricity. An environmental contractor has been retained to assist with remediation efforts.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1901752217
District RP	2 2RP-5187
Facility ID	
Application ID	pAB1901751858

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? An unauthorized release of a volume that results in a fire or is the result of a fire
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notice provided by Bryan Foust to Mike Bratcher, Jim Griswold (NMOCD), Ryan Mann (SLO), and Shelly Tucker (BLM) on 1/2/2019 by email	

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:

There were no released materials to contain via the use of berms or dikes, absorbent pads, or other containment devices.
There were no free liquids or recoverable materials to remove.

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 Coordinator

Signature: Kyle Littrell Date: 1-15-19

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

OCD Only

Received by: Amalia Barrameda Date: 1/17/2019

State of New Mexico
Oil Conservation Division

Incident ID	NAB1901752217
District RP	2 2RP-5187
Facility ID	
Application ID	pAB1901751858

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?	50-100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☒ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ 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 I 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	NAB1901752217
District RP	2RP-5187
Facility ID	
Application ID	pAB1901751858

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: 3/29/2019

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

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NAB1901752217
District RP	2RP-5187
Facility ID	
Application ID	pAB1901751858

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.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] 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)

[X] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] 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: 3/29/2019

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: Date:

Printed Name: Title:

ATTACHMENT 2: LABORATORY ANALYTICAL REPORTS

Analytical Report 616046

for

LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda North State 122H

12918200

06-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)

06-MAR-19

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

Reference: XENCO Report No(s): **616046**
Remuda North State 122H
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) 616046. 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. 616046 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

Jessica Kramer
Project Assistant

Sample Cross Reference 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	02-25-19 09:20	1 ft	616046-001
FS02	S	02-25-19 09:21	1 ft	616046-002
FS03	S	02-25-19 09:37	1 ft	616046-003
FS04	S	02-25-19 09:38	1 ft	616046-004
FS05	S	02-25-19 09:50	1 ft	616046-005
FS06	S	02-25-19 09:56	1 ft	616046-006
FS07	S	02-25-19 10:02	1 ft	616046-007
FS08	S	02-25-19 10:03	1 ft	616046-008

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda North State 122H

Project ID: *12918200*
Work Order Number(s): *616046*

Report Date: *06-MAR-19*
Date Received: *02/28/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3081206 BTEX by EPA 8021B

Lab Sample ID 616046-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 616046-001, -002, -003, -004, -005, -006, -007, -008.

The Laboratory Control Sample for Benzene, m,p-Xylenes, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

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

Certificate of Analysis Summary 616046

LT Environmental, Inc., Arvada, CO

Project Name: Remuda North State 122H

Project Id: 12918200
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Feb-28-19 11:35 am
Report Date: 06-MAR-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	616046-001		616046-002		616046-003		616046-004		616046-005		616046-006	
	Field Id:	FS01		FS02		FS03		FS04		FS05		FS06	
	Depth:	1- ft		1- ft		1- ft		1- ft		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-25-19 09:20		Feb-25-19 09:21		Feb-25-19 09:37		Feb-25-19 09:38		Feb-25-19 09:50		Feb-25-19 09:56	
BTEX by EPA 8021B	***Extracted:***	Mar-05-19 14:30		Mar-05-19 14:30		Mar-05-19 14:30		Mar-05-19 14:30		Mar-05-19 14:30		Mar-05-19 14:30	
	Analyzed:	Mar-05-19 17:45		Mar-05-19 18:05		Mar-05-19 18:27		Mar-05-19 18:49		Mar-05-19 19:11		Mar-05-19 19:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Toluene		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Ethylbenzene		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
m,p-Xylenes		<0.00403	0.00403	<0.00402	0.00402	<0.00398	0.00398	<0.00400	0.00400	<0.00402	0.00402	<0.00400	0.00400
o-Xylene		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total Xylenes		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total BTEX		<0.00202	0.00202	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Inorganic Anions by EPA 300	***Extracted:***	Mar-02-19 11:30		Mar-02-19 11:30		Mar-02-19 11:30		Mar-02-19 11:30		Mar-02-19 11:30		Mar-02-19 11:30	
	Analyzed:	Mar-04-19 11:27		Mar-02-19 23:00		Mar-02-19 23:06		Mar-02-19 23:26		Mar-02-19 23:32		Mar-02-19 23:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		204	4.99	252	4.97	82.0	5.00	883	5.00	192	5.00	487	5.00
TPH by SW8015 Mod	***Extracted:***	Mar-01-19 16:00		Mar-01-19 16:00		Mar-01-19 16:00		Feb-28-19 14:00		Feb-28-19 14:00		Feb-28-19 14:00	
	Analyzed:	Mar-01-19 21:50		Mar-01-19 22:48		Mar-01-19 23:07		Mar-01-19 04:18		Mar-01-19 04:38		Mar-01-19 04:58	
	Units/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	<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	84.5	15.0	<15.0	15.0	77.1	14.9	<15.0	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	84.5	15.0	<15.0	15.0	77.1	14.9	<15.0	15.0	<15.0	15.0

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 616046

LT Environmental, Inc., Arvada, CO

Project Name: Remuda North State 122H

Project Id: 12918200
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Feb-28-19 11:35 am
Report Date: 06-MAR-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	616046-007		616046-008					
	Field Id:	FS07		FS08					
	Depth:	1- ft		1- ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Feb-25-19 10:02		Feb-25-19 10:03					
BTEX by EPA 8021B	***Extracted:***	Mar-05-19 14:30		Mar-05-19 14:30					
	Analyzed:	Mar-05-19 19:54		Mar-05-19 20:15					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00202	0.00202	<0.00200	0.00200				
Toluene		<0.00202	0.00202	<0.00200	0.00200				
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200				
m,p-Xylenes		<0.00403	0.00403	<0.00399	0.00399				
o-Xylene		<0.00202	0.00202	<0.00200	0.00200				
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200				
Total BTEX		<0.00202	0.00202	<0.00200	0.00200				
Inorganic Anions by EPA 300	***Extracted:***	Mar-02-19 11:30		Mar-02-19 11:30					
	Analyzed:	Mar-02-19 23:45		Mar-02-19 23:52					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		128	4.96	162	4.95				
TPH by SW8015 Mod	***Extracted:***	Feb-28-19 14:00		Feb-28-19 14:00					
	Analyzed:	Mar-01-19 05:18		Mar-01-19 05:38					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0				
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0				
Total TPH		<15.0	15.0	<15.0	15.0				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-001	Date Collected:	02.25.19 09.20	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**204**	4.99	mg/kg	03.04.19 11.27		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.01.19 16.00	Basis:	Wet Weight
Seq Number:	3080901				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 21.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 21.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 21.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 21.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	03.01.19 21.50	
o-Terphenyl	84-15-1	96	%	70-135	03.01.19 21.50	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-001	Date Collected:	02.25.19 09.20	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.05.19 17.45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.05.19 17.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	03.05.19 17.45	
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.05.19 17.45	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-002	Date Collected:	02.25.19 09.21	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**252**	4.97	mg/kg	03.02.19 23.00		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.01.19 16.00	Basis:	Wet Weight
Seq Number:	3080901				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 22.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	**84.5**	15.0	mg/kg	03.01.19 22.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 22.48	U	1
Total TPH	PHC635	**84.5**	15.0	mg/kg	03.01.19 22.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.01.19 22.48	
o-Terphenyl	84-15-1	96	%	70-135	03.01.19 22.48	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-002	Date Collected:	02.25.19 09.21	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.05.19 18.05	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.05.19 18.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	03.05.19 18.05	
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.05.19 18.05	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-003	Date Collected:	02.25.19 09.37	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**82.0**	5.00	mg/kg	03.02.19 23.06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.01.19 16.00	Basis:	Wet Weight
Seq Number:	3080901				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 23.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 23.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 23.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 23.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.01.19 23.07	
o-Terphenyl	84-15-1	92	%	70-135	03.01.19 23.07	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-003	Date Collected:	02.25.19 09.37	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.05.19 18.27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.05.19 18.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	03.05.19 18.27	
4-Bromofluorobenzene	460-00-4	104	%	70-130	03.05.19 18.27	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-004	Date Collected:	02.25.19 09.38	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**883**	5.00	mg/kg	03.02.19 23.26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.28.19 14.00	Basis:	Wet Weight
Seq Number:	3080795				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.01.19 04.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	**77.1**	14.9	mg/kg	03.01.19 04.18		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.01.19 04.18	U	1
Total TPH	PHC635	**77.1**	14.9	mg/kg	03.01.19 04.18		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.01.19 04.18	
o-Terphenyl	84-15-1	95	%	70-135	03.01.19 04.18	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-004	Date Collected:	02.25.19 09.38	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.05.19 18.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.19 18.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.05.19 18.49	
4-Bromofluorobenzene	460-00-4	102	%	70-130	03.05.19 18.49	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS05**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-005	Date Collected:	02.25.19 09.50	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**192**	5.00	mg/kg	03.02.19 23.32		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.28.19 14.00	Basis:	Wet Weight
Seq Number:	3080795				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 04.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 04.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 04.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 04.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.01.19 04.38	
o-Terphenyl	84-15-1	94	%	70-135	03.01.19 04.38	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS05**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-005	Date Collected:	02.25.19 09.50	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.05.19 19.11	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.05.19 19.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	03.05.19 19.11	
4-Bromofluorobenzene	460-00-4	102	%	70-130	03.05.19 19.11	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-006	Date Collected:	02.25.19 09.56	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**487**	5.00	mg/kg	03.02.19 23.39		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.28.19 14.00	Basis:	Wet Weight
Seq Number:	3080795				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 04.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 04.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 04.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 04.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	03.01.19 04.58	
o-Terphenyl	84-15-1	81	%	70-135	03.01.19 04.58	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-006	Date Collected:	02.25.19 09.56	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.05.19 19.32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.19 19.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	104	%	70-130	03.05.19 19.32	
1,4-Difluorobenzene	540-36-3	104	%	70-130	03.05.19 19.32	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-007	Date Collected:	02.25.19 10.02	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**128**	4.96	mg/kg	03.02.19 23.45		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.28.19 14.00	Basis:	Wet Weight
Seq Number:	3080795				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 05.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 05.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 05.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 05.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.01.19 05.18	
o-Terphenyl	84-15-1	89	%	70-135	03.01.19 05.18	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-007	Date Collected:	02.25.19 10.02	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.05.19 19.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.05.19 19.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	03.05.19 19.54	
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.05.19 19.54	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-008	Date Collected:	02.25.19 10.03	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.02.19 11.30	Basis:	Wet Weight
Seq Number:	3081027				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**162**	4.95	mg/kg	03.02.19 23.52		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.28.19 14.00	Basis:	Wet Weight
Seq Number:	3080795				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.01.19 05.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.01.19 05.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.01.19 05.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.01.19 05.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	03.01.19 05.38	
o-Terphenyl	84-15-1	101	%	70-135	03.01.19 05.38	

Certificate of Analytical Results 616046

LT Environmental, Inc., Arvada, CO

Remuda North State 122H

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	02.28.19 11.35
Lab Sample Id:	616046-008	Date Collected:	02.25.19 10.03	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.05.19 14.30	Basis:	Wet Weight
Seq Number:	3081206				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.05.19 20.15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.19 20.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	03.05.19 20.15	
4-Bromofluorobenzene	460-00-4	107	%	70-130	03.05.19 20.15	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 616046

LT Environmental, Inc.

Remuda North State 122H

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081027 Matrix: Solid Date Prep: 03.02.19
MB Sample Id: 7672867-1-BLK LCS Sample Id: 7672867-1-BKS LCSD Sample Id: 7672867-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	245	98	247	99	90-110	1	20	mg/kg	03.02.19 20:56	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081027 Matrix: Soil Date Prep: 03.02.19
Parent Sample Id: 616014-005 MS Sample Id: 616014-005 S MSD Sample Id: 616014-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	260	105	262	106	90-110	1	20	mg/kg	03.02.19 21:16	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081027 Matrix: Soil Date Prep: 03.02.19
Parent Sample Id: 616046-001 MS Sample Id: 616046-001 S MSD Sample Id: 616046-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	204	250	453	100	429	90	90-110	5	20	mg/kg	03.04.19 11:33	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3080795 Matrix: Solid Date Prep: 02.28.19
MB Sample Id: 7672743-1-BLK LCS Sample Id: 7672743-1-BKS LCSD Sample Id: 7672743-1-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	906	91	900	90	70-135	1	20	mg/kg	02.28.19 21:25	
Diesel Range Organics (DRO)	<8.13	1000	953	95	941	94	70-135	1	20	mg/kg	02.28.19 21:25	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		126		121		70-135	%	02.28.19 21:25
o-Terphenyl	102		107		100		70-135	%	02.28.19 21:25

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 616046

LT Environmental, Inc.

Remuda North State 122H

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3080901 Matrix: Solid Date Prep: 03.01.19
MB Sample Id: 7672838-1-BLK LCS Sample Id: 7672838-1-BKS LCSD Sample Id: 7672838-1-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	1000	100	977	98	70-135	2	20	mg/kg	03.01.19 21:12	
Diesel Range Organics (DRO)	<8.13	1000	1060	106	1030	103	70-135	3	20	mg/kg	03.01.19 21:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		127		122		70-135	%	03.01.19 21:12
o-Terphenyl	103		113		112		70-135	%	03.01.19 21:12

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3080795 Matrix: Soil Date Prep: 02.28.19
Parent Sample Id: 616045-001 MS Sample Id: 616045-001 S MSD Sample Id: 616045-001 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)	<7.99	999	895	90	891	89	70-135	0	20	mg/kg	02.28.19 22:24	
Diesel Range Organics (DRO)	66.7	999	963	90	968	90	70-135	1	20	mg/kg	02.28.19 22:24	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		121		70-135	%	02.28.19 22:24
o-Terphenyl	115		112		70-135	%	02.28.19 22:24

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3080901 Matrix: Soil Date Prep: 03.01.19
Parent Sample Id: 616046-001 MS Sample Id: 616046-001 S MSD Sample Id: 616046-001 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)	<7.99	998	927	93	928	93	70-135	0	20	mg/kg	03.01.19 22:09	
Diesel Range Organics (DRO)	8.55	998	964	96	972	96	70-135	1	20	mg/kg	03.01.19 22:09	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		126		70-135	%	03.01.19 22:09
o-Terphenyl	119		104		70-135	%	03.01.19 22:09

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 616046

LT Environmental, Inc.

Remuda North State 122H

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3081206 Matrix: Solid Date Prep: 03.05.19

MB Sample Id: 7673016-1-BLK LCS Sample Id: 7673016-1-BKS LCSD Sample Id: 7673016-1-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	0.101	101	0.104	104	70-130	3	35	mg/kg	03.05.19 15:37	
Toluene	<0.00200	0.100	0.107	107	0.110	110	70-130	3	35	mg/kg	03.05.19 15:37	
Ethylbenzene	<0.00200	0.100	0.124	124	0.120	120	70-130	3	35	mg/kg	03.05.19 15:37	
m,p-Xylenes	<0.00401	0.200	0.225	113	0.232	116	70-130	3	35	mg/kg	03.05.19 15:37	
o-Xylene	<0.00200	0.100	0.120	120	0.125	125	70-130	4	35	mg/kg	03.05.19 15:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		118		105		70-130	%	03.05.19 15:37
4-Bromofluorobenzene	94		100		108		70-130	%	03.05.19 15:37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3081206 Matrix: Soil Date Prep: 03.05.19

Parent Sample Id: 616046-001 MS Sample Id: 616046-001 S MSD Sample Id: 616046-001 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	0.0998	0.0786	79	0.0690	69	70-130	13	35	mg/kg	03.05.19 16:20	X
Toluene	<0.00200	0.0998	0.0808	81	0.0697	70	70-130	15	35	mg/kg	03.05.19 16:20	
Ethylbenzene	<0.00200	0.0998	0.0877	88	0.0748	75	70-130	16	35	mg/kg	03.05.19 16:20	
m,p-Xylenes	<0.00399	0.200	0.156	78	0.127	64	70-130	20	35	mg/kg	03.05.19 16:20	X
o-Xylene	<0.00200	0.0998	0.0834	84	0.0688	69	70-130	19	35	mg/kg	03.05.19 16:20	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		105		70-130	%	03.05.19 16:20
4-Bromofluorobenzene	107		112		70-130	%	03.05.19 16:20

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

XENCO LABORATORIES

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) www.xenco.com

Work Order No: 1611414

Page 1 of 1

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	432.704.5178	Email:	abaker@ltenv.com; mwills@ltenv.com

Work Order Comments

Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ ST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Remuda North State 902H	Turn Around	
Project Number:	12918200	Routine	X
P.O. Number:	2RP-5187	Rush:	
Sampler's Name:	Martin Wills	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	0-3|0.2	Thermometer ID	RE	
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
FS01	S	2/25/2019	920	1'	1	X	X	X
FS02	S	2/25/2019	921	1'	1	X	X	X
FS03	S	2/25/2019	937	1'	1	X	X	X
FS04	S	2/25/2019	938	1'	1	X	X	X
FS05	S	2/25/2019	950	1'	1	X	X	X
FS06	S	2/25/2019	956	1'	1	X	X	X
FS07	S	2/25/2019	1002	1'	1	X	X	X
FS08	S	2/25/2019	1003	1'	1	X	X	X

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

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 Tl 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 Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		2/27/19 0150	2		2/28/19 1135
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Final 1.000

Page 27 of 29

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

SHIP DATE: 27FEB19
ACTWGT: 22.00 LB
CAD: 101813706/INET4100
DIMS: 16x10x14 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
INV:
PO:
REF:
DEPT:

J19101901070101uv

FedEx Express

565J2/0E3D/23AD

THU - 28 FEB HOLD
STANDARD OVERNIGHT
HLD

TRK# 0201 7745 7953 4261

41 MAFA

MAFA
LBB
TX-US

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.

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02/28/2019 11:35:00 AM

Work Order #: 616046

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 Date: 02/28/2019
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 02/28/2019
Jessica Kramer

Analytical Report 618387

for

LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda North 25 State 902H

22-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)

22-MAR-19

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

Reference: XENCO Report No(s): **618387**
Remuda North 25 State 902H
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) 618387. 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. 618387 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

Jessica Kramer
Project Assistant

Sample Cross Reference 618387

LT Environmental, Inc., Arvada, CO

Remuda North 25 State 902H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS04A	S	03-19-19 12:25	2.5 ft	618387-001
SW01	S	03-19-19 12:55	0 - 2.5 ft	618387-002

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3082934 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 618387-002.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 618387

LT Environmental, Inc., Arvada, CO

Project Name: Remuda North 25 State 902H

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

Date Received in Lab: Thu Mar-21-19 11:30 am
Report Date: 22-MAR-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	618387-001		618387-002					
	Field Id:	FS04A		SW01					
	Depth:	2.5- ft		0-2.5 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Mar-19-19 12:25		Mar-19-19 12:55					
BTEX by EPA 8021B	***Extracted:***	Mar-21-19 16:00		Mar-21-19 16:00					
	Analyzed:	Mar-21-19 19:32		Mar-21-19 19:51					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00199	0.00199	<0.00201	0.00201				
Toluene		<0.00199	0.00199	<0.00201	0.00201				
Ethylbenzene		<0.00199	0.00199	<0.00201	0.00201				
m,p-Xylenes		<0.00398	0.00398	<0.00402	0.00402				
o-Xylene		<0.00199	0.00199	<0.00201	0.00201				
Total Xylenes		<0.00199	0.00199	<0.00201	0.00201				
Total BTEX		<0.00199	0.00199	<0.00201	0.00201				
Inorganic Anions by EPA 300	***Extracted:***	Mar-21-19 13:30		Mar-21-19 13:30					
	Analyzed:	Mar-21-19 19:58		Mar-21-19 20:15					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		6.15	4.98	<4.96	4.96				
TPH by SW8015 Mod	***Extracted:***	Mar-21-19 16:00		Mar-21-19 16:00					
	Analyzed:	Mar-22-19 02:12		Mar-22-19 02:32					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<14.9	14.9				
Diesel Range Organics (DRO)		<15.0	15.0	<14.9	14.9				
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<14.9	14.9				
Total TPH		<15.0	15.0	<14.9	14.9				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 618387

LT Environmental, Inc., Arvada, CO

Remuda North 25 State 902H

Sample Id:	**FS04A**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618387-001	Date Collected:	03.19.19 12.25	Sample Depth:	2.5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 13.30	Basis:	Wet Weight
Seq Number:	3082960				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.15**	4.98	mg/kg	03.21.19 19.58		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.21.19 16.00	Basis:	Wet Weight
Seq Number:	3082947				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.22.19 02.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.22.19 02.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.22.19 02.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.22.19 02.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	03.22.19 02.12	
o-Terphenyl	84-15-1	100	%	70-135	03.22.19 02.12	

Certificate of Analytical Results 618387

LT Environmental, Inc., Arvada, CO

Remuda North 25 State 902H

Sample Id:	**FS04A**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618387-001	Date Collected:	03.19.19 12.25	Sample Depth:	2.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.19 16.00	Basis:	Wet Weight
Seq Number:	3082934				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.21.19 19.32	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.21.19 19.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	03.21.19 19.32	
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.21.19 19.32	

Certificate of Analytical Results 618387

LT Environmental, Inc., Arvada, CO

Remuda North 25 State 902H

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618387-002	Date Collected:	03.19.19 12.55	Sample Depth:	0 - 2.5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 13.30	Basis:	Wet Weight
Seq Number:	3082960				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	03.21.19 20.15	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.21.19 16.00	Basis:	Wet Weight
Seq Number:	3082947				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.22.19 02.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.22.19 02.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.22.19 02.32	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.22.19 02.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	03.22.19 02.32	
o-Terphenyl	84-15-1	97	%	70-135	03.22.19 02.32	

Certificate of Analytical Results 618387

LT Environmental, Inc., Arvada, CO

Remuda North 25 State 902H

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618387-002	Date Collected:	03.19.19 12.55	Sample Depth:	0 - 2.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.19 16.00	Basis:	Wet Weight
Seq Number:	3082934				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.21.19 19.51	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.21.19 19.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	145	%	70-130	03.21.19 19.51	**
1,4-Difluorobenzene	540-36-3	109	%	70-130	03.21.19 19.51	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 618387

LT Environmental, Inc.

Remuda North 25 State 902H

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082960 Matrix: Solid Date Prep: 03.21.19
MB Sample Id: 7674054-1-BLK LCS Sample Id: 7674054-1-BKS LCSD Sample Id: 7674054-1-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	249	100	90-110	1	20	mg/kg	03.21.19 19:47	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082960 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 618364-013 MS Sample Id: 618364-013 S MSD Sample Id: 618364-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.35	248	255	101	251	99	90-110	2	20	mg/kg	03.21.19 21:23	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082960 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 618387-001 MS Sample Id: 618387-001 S MSD Sample Id: 618387-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.15	249	251	98	250	98	90-110	0	20	mg/kg	03.21.19 20:04	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3082947 Matrix: Solid Date Prep: 03.21.19
MB Sample Id: 7674076-1-BLK LCS Sample Id: 7674076-1-BKS LCSD Sample Id: 7674076-1-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	1130	113	1190	119	70-135	5	20	mg/kg	03.21.19 19:00	
Diesel Range Organics (DRO)	<8.13	1000	1110	111	1160	116	70-135	4	20	mg/kg	03.21.19 19:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		127		128		70-135	%	03.21.19 19:00
o-Terphenyl	107		109		120		70-135	%	03.21.19 19:00

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 618387

LT Environmental, Inc.

Remuda North 25 State 902H

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3082947 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 617904-001 MS Sample Id: 617904-001 S MSD Sample Id: 617904-001 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)	<7.99	999	1010	101	991	99	70-135	2	20	mg/kg	03.21.19 19:59	
Diesel Range Organics (DRO)	<8.12	999	1000	100	988	99	70-135	1	20	mg/kg	03.21.19 19:59	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		108		70-135	%	03.21.19 19:59
o-Terphenyl	101		98		70-135	%	03.21.19 19:59

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3082934 Matrix: Solid Date Prep: 03.21.19
MB Sample Id: 7674064-1-BLK LCS Sample Id: 7674064-1-BKS LCSD Sample Id: 7674064-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.110	109	0.106	107	70-130	4	35	mg/kg	03.21.19 17:02	
Toluene	<0.00201	0.101	0.116	115	0.112	113	70-130	4	35	mg/kg	03.21.19 17:02	
Ethylbenzene	<0.000568	0.101	0.102	101	0.0991	100	70-130	3	35	mg/kg	03.21.19 17:02	
m,p-Xylenes	<0.00102	0.201	0.202	100	0.197	99	70-130	3	35	mg/kg	03.21.19 17:02	
o-Xylene	<0.00201	0.101	0.101	100	0.0982	99	70-130	3	35	mg/kg	03.21.19 17:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	117		107		106		70-130	%	03.21.19 17:02
4-Bromofluorobenzene	112		106		107		70-130	%	03.21.19 17:02

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3082934 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 618388-001 MS Sample Id: 618388-001 S MSD Sample Id: 618388-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.100	99	0.0853	86	70-130	16	35	mg/kg	03.21.19 17:40	
Toluene	0.00192	0.101	0.109	106	0.0909	89	70-130	18	35	mg/kg	03.21.19 17:40	
Ethylbenzene	0.00189	0.101	0.0939	91	0.0768	75	70-130	20	35	mg/kg	03.21.19 17:40	
m,p-Xylenes	0.00325	0.202	0.188	91	0.154	76	70-130	20	35	mg/kg	03.21.19 17:40	
o-Xylene	<0.00202	0.101	0.0945	94	0.0774	78	70-130	20	35	mg/kg	03.21.19 17:40	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		108		70-130	%	03.21.19 17:40
4-Bromofluorobenzene	112		115		70-130	%	03.21.19 17:40

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Work Order No: 618387

XENCO LABORATORIES

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)

www.xenco.com Page 1 of 1

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.704.5178	Email:	abyers@ltenv.com & abaker@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Remuda North 25 State 901H	Turn Around	
Project Number:		Routine ☐	
P.O. Number:	2RP 5187	Rush: same day	
Sampler's Name:	Anna Byers	Due Date:	

SAMPLE RECEIPT				
Temperature (°C):	0.3 / 0.2	Temp Blank: Yes (No)	Wet Ice: (Yes) No	
Received Intact:	(Yes) No	Thermometer ID:	IR	
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
FS04A	S	3/19/19	1225	2.5'	1	X	X	X
SW01	S	3/19/19	1255	0-2.5'	1	X	X	X

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

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 Tl 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 Tl U **1631 / 245.1 / 7470 / 7471** : Hg

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			3/19/19 1600	2	03/19/19 17:15	
3			3/21/19 1130	4		
5				6		

Revised Date 051418 Rev. 2018.1

Final 1.000

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

SHIP DATE: 20MAR19
ACTWGT: 14.00 LB
CAD: 101813706/INET4100
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
INV:
PO:
REF:
DEPT:

565J1/46D3/23AD

FedEx Express

J181018016701uv

THU - 21 MAR HOLD
STANDARD OVERNIGHT
HLD

TRK# 0201 7747 5685 6269

41 MAFA

MAFA
LBB
TX-US

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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 #: 618387

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 Date: 03/21/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 03/21/2019

Jessica Kramer

View of the release location and area prior to excavation activities.

Project: 012919011	XTO Energy, Inc. Remuda North 25 State 902H	LTE Advancing Opportunity
February 6, 2019	Photographic Log	

Eastern view of the final excavation extent. The sidewalls of the excavation are sloped, and the final excavation depth is 2.5 feet.

Project: 012919011	XTO Energy, Inc. Remuda North 25 State 902H	LTE Advancing Opportunity
March 19, 2019	Photographic Log	