

April 17, 2019

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

**RE: Closure Request
James Ranch Unit 31
Remediation Permit Number 2RP-2370
Eddy County, New Mexico**

Dear Mr. Billings:

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 James Ranch Unit 31 (Site) in Unit G, Section 36, Township 22 South, Range 30 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 release of crude oil and produced water onto the surface of the caliche well pad.

The release was discovered on June 16, 2014, and was the result of a ruptured hose from the wellhead to a high pressure kill switch. Approximately 1 barrel (bbl) of crude oil and 4 bbls of produced water were released onto the surface of the well pad. Approximately 750 square feet of the pad was affected by the release. The hose was replaced and a vacuum truck was dispatched to the Site to recover the free-standing fluid; approximately 1 bbl of fluid was recovered. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on July 10, 2014, and was assigned Remediation Permit (RP) Number 2RP-2370 (Attachment 1). Although this release occurred while the facility was operated by the previous operator, XTO is the current operator and is committed to addressing any releases that remain unresolved.

The release is included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the NMOCD effective November 13, 2018. The purpose of the Compliance Agreement is to ensure that reportable releases that occurred prior to August 14, 2018, where XTO is responsible for the corrective action, comply with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) as amended on August 14, 2018. The release is categorized as a Tier III site in the Compliance Agreement, meaning remediation of the release began before prior to August 14, 2018, the effective date of 19.15.29 NMAC, however remediation was ongoing. Based on the excavation activities and



results of the confirmation soil sampling events, XTO is requesting no further action for this release.

BACKGROUND

According to Section 12 of 19.15.29 NMAC, LTE applied Table 1, *Closure Criteria for Soils Impacted by a Release*. Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well is the United States Geological Survey (USGS) well 321937103503701, located approximately 9,263 feet southwest of the Site, with a depth to groundwater of 260.75 feet bgs and a total depth of 320 feet bgs. The water well is approximately 67 feet lower in elevation than the Site. The nearest continuously flowing water or significant watercourse to the Site is a dry wash located approximately 8,806 feet south 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 low karst zone. Based on these criteria, the following NMOCD Table 1 closure criteria were applied: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 2,500 mg/kg total petroleum hydrocarbons (TPH); 1,000 mg/kg TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO); and 20,000 mg/kg chloride.

PRELIMINARY SOIL SAMPLING ACTIVITIES

On March 9, 2018, May 25, 2018, and March 13, 2019, an LTE scientist collected ten preliminary soil samples (SS1 through SS3 and SS04 through SS10) within the release area to assess the lateral extent of impacted soil. The soil sample locations, depicted on Figure 2, were selected based on information provided on the initial Form C-141 and field observations. To eliminate the effects from weathering and natural degradation of contaminants at the ground surface, the soil samples were collected from depths ranging from 0.5 feet to 1.5 feet bgs. The soil samples were screened for volatile aromatic hydrocarbons and chlorides using a photo-ionization detector (PID) and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, method of analysis, and immediately placed on ice. The soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0.

Laboratory analytical results indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria in preliminary soil samples SS1 through SS3 and SS04 through SS10. Soil samples SS1 through SS3 and SS07 through SS10 were collected prior to the Compliance Agreement and the August 14, 2018, NMOCD modification to 19.15.29 NMAC, which affected the remediation action level for chloride. At the time of sampling, XTO





proceeded with remediation based on visible surface hydrocarbon staining and laboratory analytical results for preliminary soil samples SS07 and SS08 indicating chloride concentrations exceeded 600 mg/kg chloride, which was the standard applied to all sites at that time. The laboratory analytical results are depicted on Figure 2 and summarized in Table 1.

EXCAVATION SOIL SAMPLING ACTIVITIES

During June and July 2018, an LTE scientist was at the Site to oversee excavation of impacted soil as indicated by laboratory analytical results and visible hydrocarbon staining. 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 from the release area to a depth of 1.5 feet to 2 feet bgs.

During March 2019, LTE returned to the Site to collect confirmation soil samples from the excavation to comply with the sampling requirements of 19.15.29.12 NMAC. LTE collected 5-point composite soil samples every 200 square feet 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 samples FS01 through FS09 were collected from the floor of the excavation from a depth of 1.5 feet or 2 feet bgs. Composite soil samples SW01 through SW08 were collected from the sidewalls of the excavation from a depth of 0 to 1.5 feet bgs or 0 to 2 feet bgs. The soil samples were collected, handled, and analyzed as described above and submitted to Xenco Laboratories (Xenco) in Midland, Texas. The excavation soil sample locations are presented on Figure 3.

The excavation measured approximately 2,590 square feet in area and was completed to a depth of 1.5 feet to 2 feet bgs. The horizontal extent of the excavation is presented on Figure 3. A total of approximately 100 cubic yards of impacted soil were removed from the excavation. The impacted soil was transported and disposed of at the Lea Land landfill facility, in Hobbs, New Mexico.

ANALYTICAL RESULTS

Laboratory analytical results indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria in preliminary soil samples SS1 through SS3 and SS04 through SS10. Impacted soil was excavated from the release area based on visible hydrocarbon staining and elevated chloride concentrations. Laboratory analytical results for confirmation soil samples SW01 through SW08 and FS01 through FS09 collected from the final excavation extent indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria and no further excavation was required. The laboratory analytical results are presented on Figure 2 and Figure 3 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 3.





CONCLUSIONS

Impacted soil was excavated from the release area and laboratory analytical results for the confirmation soil samples collected from the final excavation extent indicated that BTEX, GRO/DRO, 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 the Site. XTO requests no further action for RP Number 2RP-2370. 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.

Sincerely,
LT ENVIRONMENTAL, INC.

Adrian Baker
Project Geologist

Ashley L. Ager, P.G.
Senior Geologist

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

Attachments:

Figure 1 Site Location Map
Figure 2 Preliminary Soil Sample Locations
Figure 3 Excavation Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141 (2RP-2370)
Attachment 2 Laboratory Analytical Reports
Attachment 3 Photographic Log



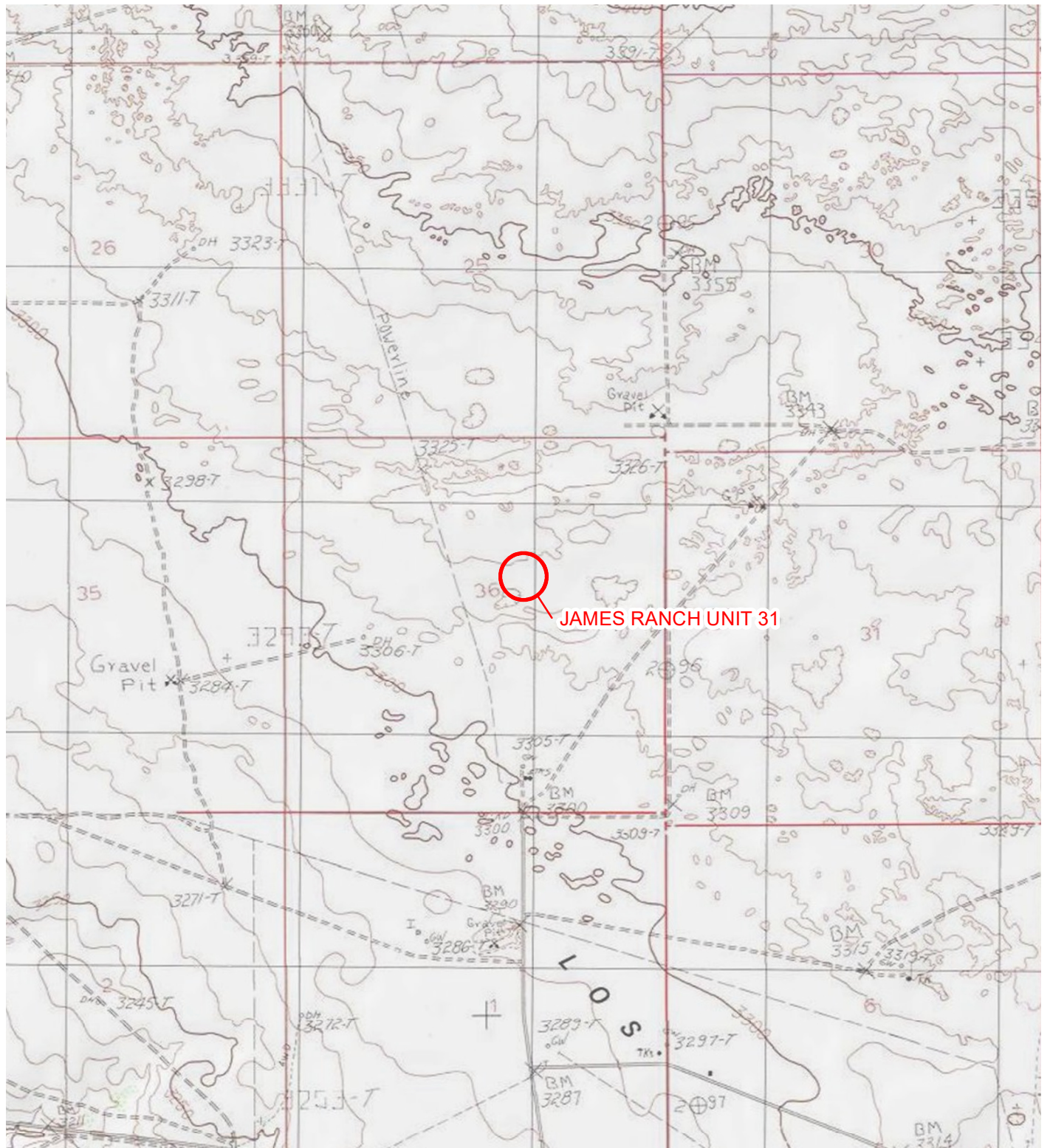
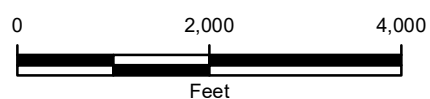


IMAGE COURTESY OF ESRI/USGS

LEGEND

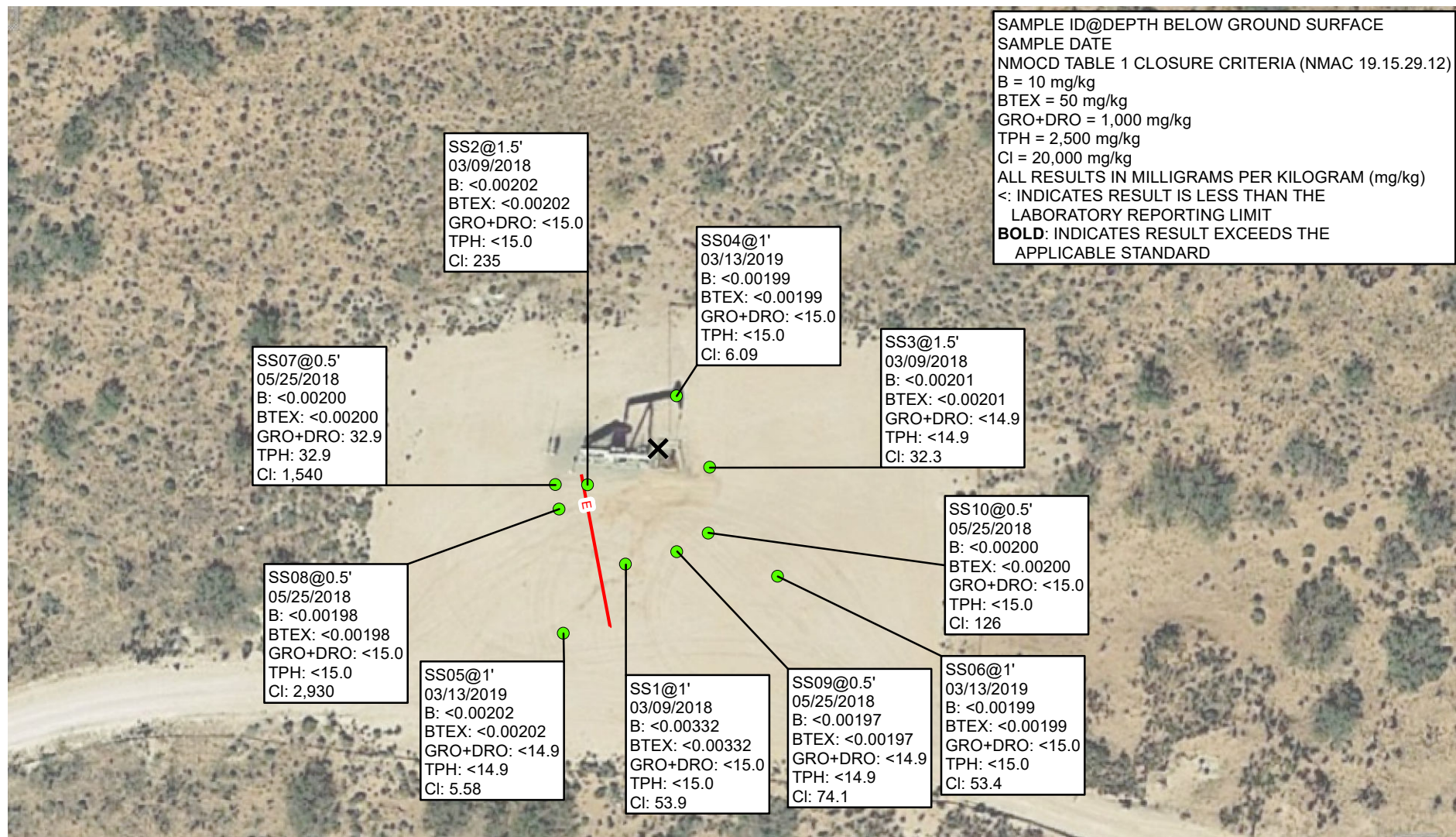
 SITE LOCATION



NOTE: REMEDIATION PERMIT
NUMBER 2RP-2370

FIGURE 1
SITE LOCATION MAP
JAMES RANCH UNIT 31
UNIT G SEC 36 T22S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.





SAMPLE ID@DEPTH BELOW GROUND SURFACE
SAMPLE DATE
NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)
B = 10 mg/kg
BTEX = 50 mg/kg
GRO+DRO = 1,000 mg/kg
TPH = 2,500 mg/kg
Cl = 20,000 mg/kg
ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
<: INDICATES RESULT IS LESS THAN THE
LABORATORY REPORTING LIMIT
BOLD: INDICATES RESULT EXCEEDS THE
APPLICABLE STANDARD

LEGEND

X RELEASE LOCATION ● PRELIMINARY SOIL SAMPLE IN COMPLIANCE
WITH APPLICABLE STANDARDS

E ELECTRICAL LINE

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO – GASOLINE RANGE ORGANICS
DRO – DIESEL RANGE ORGANICS
TPH – TOTAL PETROLEUM HYDROCARBONS
Cl – CHLORIDE
NMAC – NEW MEXICO ADMINISTRATIVE CODE
NMOCD – NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 2RP-2370

IMAGE COURTESY OF GOOGLE EARTH 2017

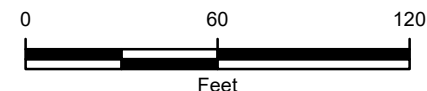
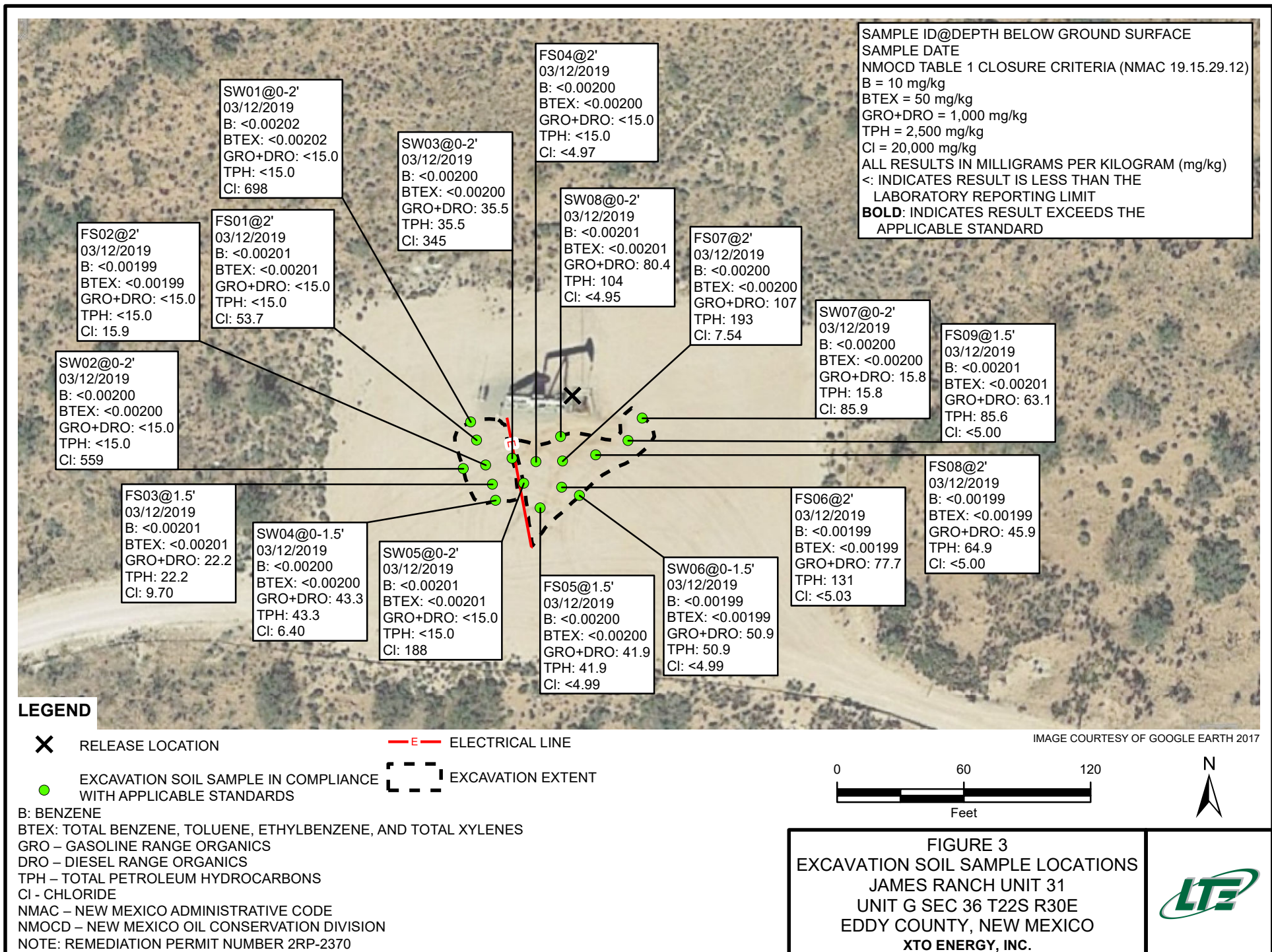


FIGURE 2
PRELIMINARY SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT 31
UNIT G SEC 36 T22S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.





**TABLE 1
SOIL ANALYTICAL RESULTS**

**JAMES RANCH UNIT 31
REMEDATION PERMIT NUMBER 2RP-2370
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)
SS1	1	03/09/2018	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<15.0	<15.0	<15.0	<15.0	<15.0	53.9
SS2	1.5	03/09/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	235
SS3	1.5	03/09/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	32.3
SS07	0.5	05/25/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	32.9	<15.0	32.9	32.9	1,540
SS08	0.5	05/25/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	2,930
SS09	0.5	05/25/2018	<0.00197	<0.00197	<0.00197	<0.00197	<0.00197	<14.9	<14.9	<14.9	<14.9	<14.9	74.1
SS10	0.5	05/25/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	126
FS01	2	03/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	53.7
FS02	2	03/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	15.9
FS03	1.5	03/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	22.2	<14.9	22.2	22.2	9.70
FS04	2	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.97
FS05	1.5	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	41.9	<15.0	41.9	41.9	<4.99
FS06	2	03/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	77.7	53.7	77.7	131	<5.03
FS07	2	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	107	85.5	107	193	7.54
FS08	2	03/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	45.9	19.0	45.9	64.9	<5.00
FS09	1.5	03/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	63.1	22.5	63.1	85.6	<5.00
SW01	0 - 2	03/12/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	698
SW02	0 - 2	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	559
SW03	0 - 2	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	35.5	<15.0	35.5	35.5	345
SW04	0 - 1.5	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	43.3	<15.0	43.3	43.3	6.40
SW05	0 - 2	03/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	188
SW06	0 - 1.5	03/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	50.9	<15.0	50.9	50.9	<4.99
SW07	0 - 2	03/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	15.8	<15.0	15.8	15.8	85.9
SW08	0 - 2	03/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	80.4	23.9	80.4	104	<4.95
SS04	1	03/13/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	6.09
SS05	1	03/13/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	5.58
SS06	1	03/13/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	53.4



TABLE 1 (Continued)
SOIL ANALYTICAL RESULTS

JAMES RANCH UNIT 31
REMEDIATION PERMIT NUMBER 2RP-2370
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)
NMOC Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

mg/kg - milligrams per kilogram

NE - not established

NMOC - 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





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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

nHMP1419929757

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. 260737

Contact: Tony Savoie

Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220

Telephone No. 575-887-7329

Facility Name: James Ranch Unit 31

Facility Type: Exploration and Production

Surface Owner: State of N.M.

Mineral Owner: State of N.M.

API No. 30-015-30829

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	36	22S	30E	1980	North	1980	East	Eddy

Latitude N 32.350402 Longitude W 103.832032

NATURE OF RELEASE

Type of Release: Crude oil and Produced water	Volume of Release: 1 bbl oil and 4 bbls PW	Volume Recovered: 1 bbl total fluid
Source of Release: 1/4" Hose	Date and Hour of Occurrence: 6/16/14 time unknown	Date and Hour of Discovery: 6/16/14 at approximately 9:00 a.m.
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

NM OIL CONSERVATION

ARTESIA DISTRICT

JUL 10 2014

Describe Cause of Problem and Remedial Action Taken.*

A 1/4" hose going from the wellhead to a high pressure kill switch ruptured. The hose has been replaced.

RECEIVED

Describe Area Affected and Cleanup Action Taken.*

The spill impacted approximately 750 sq.ft. of caliche pad. A vacuum truck removed the free-standing fluid, the stained soil was left in place until the area can be cleaned up in accordance to the NMOCD remediation rules.

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

Signature: Tony Savoie

Printed Name: Tony Savoie

Title: Waste Management and Remediation Specialist

E-mail Address: tasavoie@basspet.com

Date: 7/10/14

Phone: 432-556-8730

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: 

Approval Date: 7/18/14

Expiration Date: NA

Conditions of Approval:

Remediation per OCD Rule &
Guidelines. SUBMIT REMEDIATION
PROPOSAL NO LATER THAN:
8/18/14

Attached ☐

2RP-2370

* Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	2RP-2370
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

Latitude 32.350402 Longitude -103.832032
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit 31	Site Type Exploration and Production
Date Release Discovered 6/16/2014	API# (if applicable) 30-015-30829

Unit Letter	Section	Township	Range	County
G	36	22S	30E	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) 1	Volume Recovered (bbls) 1
☒ Produced Water	Volume Released (bbls) 4	Volume Recovered (bbls)
	Is the concentration of dissolved chloride 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

A ¼" hose going from the wellhead to a high pressure kill switch ruptured. The hose was replaced. The spill impacted approximately 750 sq. ft. of caliche pad. A vacuum truck removed the free-standing fluid, the stained soil was left in place until the area can be cleaned up in accordance to the NMOCD remediation rules.

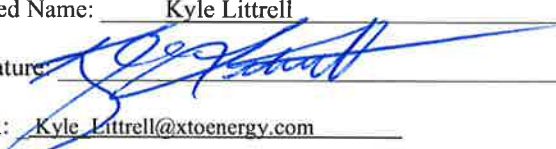
State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-2370
Facility ID	
Application ID	

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? N/A
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? N/A	

Initial Response

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

☒ The source of the release has been stopped.	
☒ The impacted area has been secured to protect human health and the environment.	
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u>	Title: <u>SH&E Coordinator</u>
Signature: 	Date: <u>4/22/2019</u>
email: <u>Kyle.Littrell@xtoenergy.com</u>	Telephone: <u>432-221-7331</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	2RP-2370
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	☐ 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.*

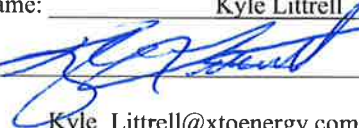
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile 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 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-2370
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator
Signature:  Date: 4/22/2019
email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-2370
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature:  Date: 4/22/2019

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

OCD Only

Received by: _____ Date: _____

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

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

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

Site/RP is closed, however, site/pad restoration will need to be completed in future when pd is no longer in service.

Bradford Billings



Analytical Report 578898

for
LT Environmental, Inc.

Project Manager: Adrian Baker

JRU #31

17-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)



17-MAR-18

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

Reference: XENCO Report No(s): **578898**
JRU #31
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) 578898. 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. 578898 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 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS1	S	03-09-18 11:00	12 In	578898-001
SS2	S	03-09-18 11:05	18 In	578898-002
SS3	S	03-09-18 11:10	18 In	578898-003



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *JRU #31*

Project ID:
Work Order Number(s): 578898

Report Date: 17-MAR-18
Date Received: 03/10/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3043914 BTEX by EPA 8021B

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



Certificate of Analysis Summary 578898

LT Environmental, Inc., Arvada, CO

Project Name: JRU #31



Project Id:

Contact: Adrian Baker

Project Location: NM

Date Received in Lab: Sat Mar-10-18 12:21 pm

Report Date: 17-MAR-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	578898-001	578898-002	578898-003			
	Field Id:	SS1	SS2	SS3			
	Depth:	12- In	18- In	18- In			
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	Mar-09-18 11:00	Mar-09-18 11:05	Mar-09-18 11:10			
BTEX by EPA 8021B	Extracted:	Mar-14-18 16:45	Mar-14-18 16:45	Mar-14-18 16:45			
	Analyzed:	Mar-15-18 08:57	Mar-15-18 03:54	Mar-15-18 04:12			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
Toluene		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
Ethylbenzene		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
m,p-Xylenes		<0.00664 0.00664	<0.00403 0.00403	<0.00402 0.00402			
o-Xylene		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
Total Xylenes		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
Total BTEX		<0.00332 0.00332	<0.00202 0.00202	<0.00201 0.00201			
Inorganic Anions by EPA 300	Extracted:	Mar-14-18 11:00	Mar-14-18 11:00	Mar-14-18 11:00			
	Analyzed:	Mar-14-18 18:04	Mar-14-18 18:09	Mar-14-18 18:14			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		53.9 4.99	235 4.99	32.3 4.99			
TPH by SW8015 Mod	Extracted:	Mar-14-18 07:00	Mar-14-18 07:00	Mar-14-18 07:00			
	Analyzed:	Mar-15-18 12:02	Mar-15-18 12:29	Mar-15-18 12:55			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9			
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9			
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<14.9 14.9			
Total TPH		<15.0 15.0	<15.0 15.0	<14.9 14.9			

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 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS1 Matrix: Soil Date Received: 03.10.18 12.21
Lab Sample Id: 578898-001 Date Collected: 03.09.18 11.00 Sample Depth: 12 In
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: OJS % Moisture:
Analyst: OJS Date Prep: 03.14.18 11.00 Basis: Wet Weight
Seq Number: 3043793

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	53.9	4.99	mg/kg	03.14.18 18.04		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.14.18 07.00 Basis: Wet Weight
Seq Number: 3043812

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.15.18 12.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.15.18 12.02	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.15.18 12.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.15.18 12.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	03.15.18 12.02	
o-Terphenyl	84-15-1	101	%	70-135	03.15.18 12.02	



Certificate of Analytical Results 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS1
Lab Sample Id: 578898-001

Matrix: Soil
Date Collected: 03.09.18 11.00

Date Received: 03.10.18 12.21
Sample Depth: 12 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.14.18 16.45

Basis: Wet Weight

Seq Number: 3043914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
Toluene	108-88-3	<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
Ethylbenzene	100-41-4	<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
m,p-Xylenes	179601-23-1	<0.00664	0.00664	mg/kg	03.15.18 08.57	U	1
o-Xylene	95-47-6	<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
Total Xylenes	1330-20-7	<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
Total BTEX		<0.00332	0.00332	mg/kg	03.15.18 08.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	03.15.18 08.57		
1,4-Difluorobenzene	540-36-3	88	%	70-130	03.15.18 08.57		



Certificate of Analytical Results 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS2 Matrix: Soil Date Received: 03.10.18 12.21
Lab Sample Id: 578898-002 Date Collected: 03.09.18 11.05 Sample Depth: 18 In
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: OJS % Moisture:
Analyst: OJS Date Prep: 03.14.18 11.00 Basis: Wet Weight
Seq Number: 3043793

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	235	4.99	mg/kg	03.14.18 18.09		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.14.18 07.00 Basis: Wet Weight
Seq Number: 3043812

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.15.18 12.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.15.18 12.29	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.15.18 12.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.15.18 12.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.15.18 12.29	
o-Terphenyl	84-15-1	95	%	70-135	03.15.18 12.29	



Certificate of Analytical Results 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS2
Lab Sample Id: 578898-002

Matrix: Soil
Date Collected: 03.09.18 11.05

Date Received: 03.10.18 12.21
Sample Depth: 18 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.14.18 16.45

Basis: Wet Weight

Seq Number: 3043914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.15.18 03.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.15.18 03.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	71	%	70-130	03.15.18 03.54		
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.15.18 03.54		



Certificate of Analytical Results 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS3 Matrix: Soil Date Received: 03.10.18 12.21
Lab Sample Id: 578898-003 Date Collected: 03.09.18 11.10 Sample Depth: 18 In
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: OJS % Moisture:
Analyst: OJS Date Prep: 03.14.18 11.00 Basis: Wet Weight
Seq Number: 3043793

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.3	4.99	mg/kg	03.14.18 18.14		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.14.18 07.00 Basis: Wet Weight
Seq Number: 3043812

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.15.18 12.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.15.18 12.55	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	03.15.18 12.55	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.15.18 12.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	03.15.18 12.55	
o-Terphenyl	84-15-1	106	%	70-135	03.15.18 12.55	



Certificate of Analytical Results 578898



LT Environmental, Inc., Arvada, CO

JRU #31

Sample Id: SS3
Lab Sample Id: 578898-003

Matrix: Soil
Date Collected: 03.09.18 11.10

Date Received: 03.10.18 12.21
Sample Depth: 18 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.14.18 16.45

Basis: Wet Weight

Seq Number: 3043914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.15.18 04.12	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.15.18 04.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	03.15.18 04.12		
1,4-Difluorobenzene	540-36-3	84	%	70-130	03.15.18 04.12		

- 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 578898

LT Environmental, Inc.

JRU #31

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043793

MB Sample Id: 7640799-1-BLK

Matrix: Solid

LCS Sample Id: 7640799-1-BKS

Prep Method: E300P

Date Prep: 03.14.18

LCSD Sample Id: 7640799-1-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	250	100	251	100	90-110	0	20	mg/kg	03.14.18 15:40	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043793

Parent Sample Id: 578842-001

Matrix: Soil

MS Sample Id: 578842-001 S

Prep Method: E300P

Date Prep: 03.14.18

MSD Sample Id: 578842-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	257	104	246	99	90-110	4	20	mg/kg	03.14.18 15:55	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3043793

Parent Sample Id: 578897-001

Matrix: Soil

MS Sample Id: 578897-001 S

Prep Method: E300P

Date Prep: 03.14.18

MSD Sample Id: 578897-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	275	111	290	117	90-110	5	20	mg/kg	03.14.18 17:32	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043812

MB Sample Id: 7640872-1-BLK

Matrix: Solid

LCS Sample Id: 7640872-1-BKS

Prep Method: TX1005P

Date Prep: 03.14.18

LCSD Sample Id: 7640872-1-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	997	100	1190	119	70-135	18	35	mg/kg	03.15.18 07:39	
Diesel Range Organics (DRO)	<15.0	1000	1030	103	1180	118	70-135	14	35	mg/kg	03.15.18 07:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		111		126		70-135	%	03.15.18 07:39
o-Terphenyl	105		111		128		70-135	%	03.15.18 07:39

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 578898

LT Environmental, Inc.

JRU #31

Analytical Method: TPH by SW8015 Mod

Seq Number: 3043812

Parent Sample Id: 578897-001

Matrix: Soil

MS Sample Id: 578897-001 S

Prep Method: TX1005P

Date Prep: 03.14.18

MSD Sample Id: 578897-001 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	1140	114	969	97	70-135	16	35	mg/kg	03.15.18 10:18	
Diesel Range Organics (DRO)	<15.0	998	1140	114	988	99	70-135	14	35	mg/kg	03.15.18 10:18	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		110		70-135	%	03.15.18 10:18
o-Terphenyl	115		106		70-135	%	03.15.18 10:18

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043914

MB Sample Id: 7640818-1-BLK

Matrix: Solid

LCS Sample Id: 7640818-1-BKS

Prep Method: SW5030B

Date Prep: 03.14.18

LCSD Sample Id: 7640818-1-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	0.100	0.115	115	0.0834	83	70-130	32	35	mg/kg	03.15.18 00:30	
Toluene	<0.00201	0.100	0.111	111	0.0819	81	70-130	30	35	mg/kg	03.15.18 00:30	
Ethylbenzene	<0.00201	0.100	0.114	114	0.0873	86	70-130	27	35	mg/kg	03.15.18 00:30	
m,p-Xylenes	<0.00402	0.201	0.223	111	0.169	84	70-130	28	35	mg/kg	03.15.18 00:30	
o-Xylene	<0.00201	0.100	0.114	114	0.0882	87	70-130	26	35	mg/kg	03.15.18 00:30	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		73		71		70-130	%	03.15.18 00:30
4-Bromofluorobenzene	123		129		127		70-130	%	03.15.18 00:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043914

Parent Sample Id: 578896-001

Matrix: Soil

MS Sample Id: 578896-001 S

Prep Method: SW5030B

Date Prep: 03.14.18

MSD Sample Id: 578896-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0831	83	0.0961	96	70-130	15	35	mg/kg	03.15.18 01:05	
Toluene	<0.00201	0.100	0.0816	82	0.0938	94	70-130	14	35	mg/kg	03.15.18 01:05	
Ethylbenzene	<0.00201	0.100	0.0870	87	0.0977	98	70-130	12	35	mg/kg	03.15.18 01:05	
m,p-Xylenes	<0.00402	0.201	0.168	84	0.191	96	70-130	13	35	mg/kg	03.15.18 01:05	
o-Xylene	<0.00201	0.100	0.0878	88	0.0963	97	70-130	9	35	mg/kg	03.15.18 01:05	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	71		88		70-130	%	03.15.18 01:05
4-Bromofluorobenzene	127		119		70-130	%	03.15.18 01:05

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

CHAIN OF CUSTODY

Page 1 of 1

Revision 2016.1

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes					
Company Name / Branch: LTE / Permian				Project Name/Number: EC #31													
Company Address: 3300 N. A Street Bldg 1 Suite 103				Project Location: NM													
Email: Abaker@itemv.com				Invoice To: XTO Energy - Kyle Littrell													
Phone No: 432-704-5178																	
Project Contact: Adrian Baker				PO Number: 30-015-30809													
Samplers Name: Eric Carrell																	
No.	Field ID / Point of Collection	Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	Field Comments	
1	SS1		12"	3/11/19	11:00	S	1									X	BTEX EPA method 8021
2	SS2		18"		11:05	S	1									X	TPH EPA method 8015
3	SS3		18"		11:10	S	1									X	Chloride EPA method 300.1
4																	
5																	
6																	
7																	
8																	
9																	
10																	
Turnaround Time (Business days)																	
Data Deliverable Information																	
Notes:																	
☐ Same Day TAT ☐ 5 Day TAT ☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data) ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG -411 ☐ 3 Day EMERGENCY ☒ Standard ☐ Level II Report with TRRP checklist																	
TAT Starts Day received by Lab, if received by 5:00 pm																	
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																	
FED-EX / UPS: Tracking #																	
Relinquished by Sampler:				Date Time:				Received By:				Date Time:					
1 <i>Eric Carrell</i>				3/11/19 17:30				2 <i>Adrian Baker</i>				3/11/19 15:00					
Relinquished by:				Date Time:				Received By:				Date Time:					
3 <i>Adrian Baker</i>				3/11/19 12:11				3 <i>Adrian Baker</i>				3/11/19 12:11					
Relinquished by:				Date Time:				Received By:				Date Time:					
5								4									

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the loss of samples or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples rec sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Temp: 2.1
CF: (0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 1.9
IPR ID: R-8



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 03/10/2018 12:21:00 PM

Work Order #: 578898

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)?	1.9
#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: 
Katie Lowe

Date: 03/10/2018

Checklist reviewed by: 
Jessica Kramer

Date: 03/12/2018

Analytical Report 587532

for
LT Environmental, Inc.

Project Manager: Adrian Baker

JRU-31

04-JUN-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-26), 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)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



04-JUN-18

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

Reference: XENCO Report No(s): **587532**
JRU-31
Project Address: New Mexico

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) 587532. 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. 587532 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 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS07	S	05-25-18 12:45	- 6 In	587532-001
SS08	S	05-25-18 12:58	- 6 In	587532-002
SS09	S	05-25-18 13:34	- 6 In	587532-003
SS10	S	05-25-18 13:42	- 6 In	587532-004



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *JRU-31*

Project ID:
Work Order Number(s): 587532

Report Date: 04-JUN-18
Date Received: 05/30/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3052090 Inorganic Anions by EPA 300

Lab Sample ID 587532-003 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: 587532-001, -002, -003, -004.

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

Batch: LBA-3052094 BTEX by EPA 8021B

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



Certificate of Analysis Summary 587532

LT Environmental, Inc., Arvada, CO

Project Name: JRU-31



Project Id:

Contact: Adrian Baker

Project Location: New Mexico

Date Received in Lab: Wed May-30-18 10:40 am

Report Date: 04-JUN-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	587532-001	587532-002	587532-003	587532-004		
	Field Id:	SS07	SS08	SS09	SS10		
	Depth:	6 In	6 In	6 In	6 In		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	May-25-18 12:45	May-25-18 12:58	May-25-18 13:34	May-25-18 13:42		
BTEX by EPA 8021B	Extracted:	May-31-18 15:00	May-31-18 15:00	May-31-18 15:00	May-31-18 15:00		
	Analyzed:	Jun-01-18 00:02	Jun-01-18 00:20	Jun-01-18 00:39	Jun-01-18 00:57		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
m,p-Xylenes		<0.00399 0.00399	<0.00397 0.00397	<0.00394 0.00394	<0.00399 0.00399		
o-Xylene		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
Total Xylenes		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
Total BTEX		<0.00200 0.00200	<0.00198 0.00198	<0.00197 0.00197	<0.00200 0.00200		
Inorganic Anions by EPA 300	Extracted:	May-31-18 12:00	May-31-18 12:00	May-31-18 12:00	May-31-18 12:00		
	Analyzed:	Jun-01-18 10:00	Jun-01-18 10:05	Jun-01-18 09:43	Jun-01-18 10:10		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		1540 24.7	2930 24.8	74.1 4.98	126 4.96		
TPH by SW8015 Mod	Extracted:	May-31-18 07:00	May-31-18 07:00	May-31-18 07:00	May-31-18 07:00		
	Analyzed:	Jun-01-18 07:11	May-31-18 19:03	Jun-01-18 07:32	May-31-18 19:39		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0		
Diesel Range Organics (DRO)		32.9 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0		
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0		
Total TPH		32.9 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0		

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS07**
Lab Sample Id: 587532-001

Matrix: Soil
Date Collected: 05.25.18 12.45

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3052090

Date Prep: 05.31.18 12.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1540	24.7	mg/kg	06.01.18 10.00		5

Analytical Method: TPH by SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3052046

Date Prep: 05.31.18 07.00

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	06.01.18 07.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	32.9	15.0	mg/kg	06.01.18 07.11		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	06.01.18 07.11	U	1
Total TPH	PHC635	32.9	15.0	mg/kg	06.01.18 07.11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	06.01.18 07.11	
o-Terphenyl	84-15-1	97	%	70-135	06.01.18 07.11	



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: SS07
Lab Sample Id: 587532-001

Matrix: Soil
Date Collected: 05.25.18 12.45

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: JUM

% Moisture:

Analyst: JUM

Date Prep: 05.31.18 15.00

Basis: Wet Weight

Seq Number: 3052094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.01.18 00.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.01.18 00.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	06.01.18 00.02		
1,4-Difluorobenzene	540-36-3	84	%	70-130	06.01.18 00.02		



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS08** Matrix: Soil Date Received: 05.30.18 10.40
Lab Sample Id: 587532-002 Date Collected: 05.25.18 12.58 Sample Depth: 6 In
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: SCM % Moisture:
Analyst: SCM Date Prep: 05.31.18 12.00 Basis: Wet Weight
Seq Number: 3052090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2930	24.8	mg/kg	06.01.18 10.05		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.31.18 07.00 Basis: Wet Weight
Seq Number: 3052046

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.31.18 19.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.31.18 19.03	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.31.18 19.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.31.18 19.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	74	%	70-135	05.31.18 19.03	
o-Terphenyl	84-15-1	74	%	70-135	05.31.18 19.03	



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS08**
Lab Sample Id: 587532-002

Matrix: Soil
Date Collected: 05.25.18 12.58

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: JUM

% Moisture:

Analyst: JUM

Date Prep: 05.31.18 15.00

Basis: Wet Weight

Seq Number: 3052094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	06.01.18 00.20	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.01.18 00.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	95	%	70-130	06.01.18 00.20		
4-Bromofluorobenzene	460-00-4	122	%	70-130	06.01.18 00.20		



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS09**
Lab Sample Id: 587532-003

Matrix: Soil
Date Collected: 05.25.18 13.34

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3052090

Date Prep: 05.31.18 12.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	74.1	4.98	mg/kg	06.01.18 09.43		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3052046

Date Prep: 05.31.18 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	06.01.18 07.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	06.01.18 07.32	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	06.01.18 07.32	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	06.01.18 07.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	06.01.18 07.32	
o-Terphenyl	84-15-1	91	%	70-135	06.01.18 07.32	



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS09**
Lab Sample Id: 587532-003

Matrix: Soil
Date Collected: 05.25.18 13.34

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: JUM

% Moisture:

Analyst: JUM

Date Prep: 05.31.18 15.00

Basis: Wet Weight

Seq Number: 3052094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
Toluene	108-88-3	<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
Ethylbenzene	100-41-4	<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
m,p-Xylenes	179601-23-1	<0.00394	0.00394	mg/kg	06.01.18 00.39	U	1
o-Xylene	95-47-6	<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
Total Xylenes	1330-20-7	<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
Total BTEX		<0.00197	0.00197	mg/kg	06.01.18 00.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	06.01.18 00.39		
4-Bromofluorobenzene	460-00-4	116	%	70-130	06.01.18 00.39		



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS10** Matrix: Soil Date Received: 05.30.18 10.40
Lab Sample Id: 587532-004 Date Collected: 05.25.18 13.42 Sample Depth: 6 In
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: SCM % Moisture:
Analyst: SCM Date Prep: 05.31.18 12.00 Basis: Wet Weight
Seq Number: 3052090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	126	4.96	mg/kg	06.01.18 10.10		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.31.18 07.00 Basis: Wet Weight
Seq Number: 3052046

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.31.18 19.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.31.18 19.39	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.31.18 19.39	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.31.18 19.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	76	%	70-135	05.31.18 19.39	
o-Terphenyl	84-15-1	76	%	70-135	05.31.18 19.39	



Certificate of Analytical Results 587532



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS10**
Lab Sample Id: 587532-004

Matrix: Soil
Date Collected: 05.25.18 13.42

Date Received: 05.30.18 10.40
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: JUM

% Moisture:

Analyst: JUM

Date Prep: 05.31.18 15.00

Basis: Wet Weight

Seq Number: 3052094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.01.18 00.57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.01.18 00.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	06.01.18 00.57		
1,4-Difluorobenzene	540-36-3	82	%	70-130	06.01.18 00.57		

- 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 587532

LT Environmental, Inc.

JRU-31

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3052090

MB Sample Id: 7655801-1-BLK

Matrix: Solid

LCS Sample Id: 7655801-1-BKS

Prep Method: E300P

Date Prep: 05.31.18

LCSD Sample Id: 7655801-1-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	275	110	274	110	90-110	0	20	mg/kg	06.01.18 09:33	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3052090

Parent Sample Id: 587510-004

Matrix: Soil

MS Sample Id: 587510-004 S

Prep Method: E300P

Date Prep: 05.31.18

MSD Sample Id: 587510-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	30.9	246	313	115	318	117	90-110	2	20	mg/kg	06.01.18 11:04	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3052090

Parent Sample Id: 587532-003

Matrix: Soil

MS Sample Id: 587532-003 S

Prep Method: E300P

Date Prep: 05.31.18

MSD Sample Id: 587532-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	74.1	249	356	113	354	112	90-110	1	20	mg/kg	06.01.18 09:49	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3052046

MB Sample Id: 7655868-1-BLK

Matrix: Solid

LCS Sample Id: 7655868-1-BKS

Prep Method: TX1005P

Date Prep: 05.31.18

LCSD Sample Id: 7655868-1-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	920	92	953	95	70-135	4	20	mg/kg	05.31.18 10:15	
Diesel Range Organics (DRO)	<15.0	1000	993	99	1040	104	70-135	5	20	mg/kg	05.31.18 10:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	86		126		128		70-135	%	05.31.18 10:15
o-Terphenyl	92		119		121		70-135	%	05.31.18 10:15

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 587532

LT Environmental, Inc.

JRU-31

Analytical Method: TPH by SW8015 Mod

Seq Number: 3052046

Parent Sample Id: 587529-001

Matrix: Soil

MS Sample Id: 587529-001 S

Prep Method: TX1005P

Date Prep: 05.31.18

MSD Sample Id: 587529-001 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	999	896	90	894	90	70-135	0	20	mg/kg	05.31.18 11:19	
Diesel Range Organics (DRO)	<15.0	999	979	98	980	98	70-135	0	20	mg/kg	05.31.18 11:19	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		103		70-135	%	05.31.18 11:19
o-Terphenyl	103		104		70-135	%	05.31.18 11:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3052094

MB Sample Id: 7655894-1-BLK

Matrix: Solid

LCS Sample Id: 7655894-1-BKS

Prep Method: SW5030B

Date Prep: 05.31.18

LCSD Sample Id: 7655894-1-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	0.102	102	0.0961	96	70-130	6	35	mg/kg	05.31.18 18:01	
Toluene	<0.00200	0.100	0.0948	95	0.0990	99	70-130	4	35	mg/kg	05.31.18 18:01	
Ethylbenzene	<0.00200	0.100	0.0949	95	0.0962	96	70-130	1	35	mg/kg	05.31.18 18:01	
m,p-Xylenes	<0.00401	0.200	0.201	101	0.202	100	70-130	0	35	mg/kg	05.31.18 18:01	
o-Xylene	<0.00200	0.100	0.109	109	0.107	107	70-130	2	35	mg/kg	05.31.18 18:01	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		93		91		70-130	%	05.31.18 18:01
4-Bromofluorobenzene	125		86		103		70-130	%	05.31.18 18:01

Analytical Method: BTEX by EPA 8021B

Seq Number: 3052094

Parent Sample Id: 587374-002

Matrix: Soil

MS Sample Id: 587374-002 S

Prep Method: SW5030B

Date Prep: 05.31.18

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	0.00616	0.0992	0.0262	20	70-130	mg/kg	05.31.18 18:35	X
Toluene	0.0459	0.0992	0.0540	8	70-130	mg/kg	05.31.18 18:35	X
Ethylbenzene	0.0117	0.0992	0.0177	6	70-130	mg/kg	05.31.18 18:35	X
m,p-Xylenes	0.0893	0.198	0.0957	3	70-130	mg/kg	05.31.18 18:35	X
o-Xylene	0.0314	0.0992	0.0334	2	70-130	mg/kg	05.31.18 18:35	X

Surrogate

	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	81		70-130	%	05.31.18 18:35
4-Bromofluorobenzene	102		70-130	%	05.31.18 18:35

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

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

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

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

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Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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Xenon Job #

1007532

Client / Reporting Information						Project Information								Analytical Information							Matrix Codes								
Company Name / Branch: LT Environmental, Inc. - Permian Office Company Address: 3300 North "A" Street, Building 1, Unit #103, Midland, TX 79705 Email: A.Baker@LENY.COM Phone No.: (432) 704-5178						Project Name/Number: JEN 31 Project Location: NEW MEXICO																							
Adrian Baker Sample's Name Katharine House						Invoice To: XTO Energy - Kyle Littlell PO Number: APP-2370 30-015-30824																							
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Maux	# of bottles	ID	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEQH	NONE	BTEX EPA METHOD 8021	TPH EPA METHOD 8015	CHLORIDE EPA METHOD 300.0												
1	S507	W"	5/8/18	1245	S	1									X	X	X												
2	S508	W"		1258	S	1									X	X	X												
3	S509	W"		1334	S	1									X	X	X												
4	S510	W"		1342	S	1									X														
5																													
6																													
7																													
8																													
9																													
10																													
Turnaround Time (Business days)						Data Deliverable Information						Notes:																	
☐ Same Day TAT						☐ Level II Std QC						☐ Level IV (Full Data Pkg / raw data)																	
☐ Next Day EMERGENCY						☐ 7 Day TAT						☐ Level III Std QC + Forms						☐ TRRP Level IV											
☐ 2 Day EMERGENCY						☐ Contract TAT						☐ Level 3 (CLP Forms)						☐ UST / RG -411											
☐ 3 Day EMERGENCY												☐ TRRP Checklist																	
TAT Starts Day received by Lab, if received by 5:00 pm																		FED-EX / UPS: Tracking #											
Relinquished By Sampler: Alexander Baker						Date Time: 5/8/18 1550						Received By: [Signature]						Date Time: 5-30-18 10:40						Received By: [Signature]					
Relinquished By: [Signature]						Date Time: 5/24/18 0300						Received By: [Signature]						Date Time: 5-30-18 10:40						Received By: [Signature]					
Relinquished By: [Signature]						Date Time: 5/24/18 0300						Received By: [Signature]						Date Time: 5-30-18 10:40						Received By: [Signature]					
On Ice						Cooler Temp: 5.0						Thermop. Corr. Factor: 1.19 0.0																	



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 05/30/2018 10:40:00 AM

Work Order #: 587532

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 05/30/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 05/30/2018

Analytical Report 617809

for
LT Environmental, Inc.

Project Manager: Adrian Baker

JRU-31

25-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)



25-MAR-19

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

Reference: XENCO Report No(s): **617809**
JRU-31
Project Address: ---

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) 617809. 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. 617809 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

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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	03-12-19 14:20	2 ft	617809-001
FS02	S	03-12-19 14:30	2 ft	617809-002
FS03	S	03-12-19 14:40	1.5 ft	617809-003
FS04	S	03-12-19 15:30	2 ft	617809-004
FS05	S	03-12-19 15:35	1.5 ft	617809-005
FS06	S	03-12-19 15:40	2 ft	617809-006
FS07	S	03-12-19 15:45	2 ft	617809-007
FS08	S	03-12-19 15:50	2 ft	617809-008
FS09	S	03-12-19 16:00	1.5 ft	617809-009
SW01	S	03-12-19 14:45	0 - 2 ft	617809-010
SW02	S	03-12-19 14:50	0 - 2 ft	617809-011
SW03	S	03-12-19 14:55	0 - 2 ft	617809-012
SW04	S	03-12-19 15:00	0 - 1.5 ft	617809-013
SW05	S	03-12-19 15:10	0 - 2 ft	617809-014
SW06	S	03-12-19 15:15	0 - 1.5 ft	617809-015
SW07	S	03-12-19 15:20	0 - 2 ft	617809-016
SW08	S	03-12-19 15:30	0 - 2 ft	617809-017
SS04	S	03-13-19 11:55	1 ft	617809-018
SS05	S	03-13-19 12:05	1 ft	617809-019
SS06	S	03-13-19 11:50	1 ft	617809-020



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: JRU-31

Project ID: ---
Work Order Number(s): 617809

Report Date: 25-MAR-19
Date Received: 03/15/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3082545 Inorganic Anions by EPA 300

Lab Sample ID 617825-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 617809-011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

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

Batch: LBA-3083149 BTEX by EPA 8021B

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

Batch: LBA-3083162 BTEX by EPA 8021B

Lab Sample ID 617809-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 617809-006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

The Laboratory Control Sample for Benzene 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.

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

Samples affected are: 617809-006 S, 617809-006 SD, 617809-017, 617809-012, 617809-014, 617809-016, 617809-007, 617809-006, 617809-011.



Certificate of Analysis Summary 617809

LT Environmental, Inc., Arvada, CO

Project Name: JRU-31



Project Id: ---
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Fri Mar-15-19 11:46 am
Report Date: 25-MAR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	617809-001	617809-002	617809-003	617809-004	617809-005	617809-006
	Field Id:	FS01	FS02	FS03	FS04	FS05	FS06
	Depth:	2- ft	2- ft	1.5- ft	2- ft	1.5- ft	2- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-12-19 14:20	Mar-12-19 14:30	Mar-12-19 14:40	Mar-12-19 15:30	Mar-12-19 15:35	Mar-12-19 15:40
BTEX by EPA 8021B	Extracted:	Mar-22-19 12:00	Mar-22-19 12:00	Mar-22-19 12:00	Mar-22-19 12:00	Mar-22-19 12:00	Mar-22-19 13:00
	Analyzed:	Mar-22-19 14:10	Mar-22-19 20:09	Mar-22-19 20:28	Mar-22-19 20:47	Mar-22-19 21:07	Mar-22-19 23:55
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00402 0.00402	<0.00400 0.00400	<0.00400 0.00400	<0.00398 0.00398
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Inorganic Anions by EPA 300	Extracted:	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45
	Analyzed:	Mar-15-19 20:08	Mar-15-19 20:26	Mar-15-19 20:32	Mar-15-19 20:50	Mar-15-19 20:56	Mar-15-19 21:02
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		53.7 5.00	15.9 4.95	9.70 4.95	<4.97 4.97	<4.99 4.99	<5.03 5.03
TPH by SW8015 Mod	Extracted:	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00
	Analyzed:	Mar-16-19 14:35	Mar-16-19 15:33	Mar-16-19 15:53	Mar-16-19 16:13	Mar-16-19 16:32	Mar-16-19 16:51
	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	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	22.2 14.9	<15.0 15.0	41.9 15.0	77.7 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	53.7 15.0
Total TPH		<15.0 15.0	<15.0 15.0	22.2 14.9	<15.0 15.0	41.9 15.0	131 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 617809

LT Environmental, Inc., Arvada, CO

Project Name: JRU-31



Project Id: ---
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Fri Mar-15-19 11:46 am
Report Date: 25-MAR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	617809-007	617809-008	617809-009	617809-010	617809-011	617809-012
	Field Id:	FS07	FS08	FS09	SW01	SW02	SW03
	Depth:	2- ft	2- ft	1.5- ft	0-2 ft	0-2 ft	0-2 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-12-19 15:45	Mar-12-19 15:50	Mar-12-19 16:00	Mar-12-19 14:45	Mar-12-19 14:50	Mar-12-19 14:55
BTEX by EPA 8021B	Extracted:	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00
	Analyzed:	Mar-23-19 00:14	Mar-23-19 00:33	Mar-23-19 00:52	Mar-23-19 01:11	Mar-23-19 01:30	Mar-23-19 01:49
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00400 0.00400	<0.00398 0.00398	<0.00402 0.00402	<0.00403 0.00403	<0.00399 0.00399	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Inorganic Anions by EPA 300	Extracted:	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45	Mar-15-19 14:45	Mar-18-19 08:00	Mar-18-19 08:00
	Analyzed:	Mar-15-19 21:08	Mar-15-19 21:14	Mar-15-19 21:20	Mar-15-19 21:26	Mar-18-19 09:11	Mar-18-19 09:42
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		7.54 4.99	<5.00 5.00	<5.00 5.00	698 5.00	559 5.00	345 4.96
TPH by SW8015 Mod	Extracted:	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00
	Analyzed:	Mar-16-19 17:11	Mar-16-19 17:30	Mar-16-19 17:49	Mar-18-19 06:31	Mar-16-19 19:07	Mar-16-19 19:26
	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	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		107 15.0	45.9 15.0	63.1 14.9	<15.0 15.0	<15.0 15.0	35.5 15.0
Motor Oil Range Hydrocarbons (MRO)		85.5 15.0	19.0 15.0	22.5 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		193 15.0	64.9 15.0	85.6 14.9	<15.0 15.0	<15.0 15.0	35.5 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 617809

LT Environmental, Inc., Arvada, CO

Project Name: JRU-31



Project Id: ---
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Fri Mar-15-19 11:46 am
Report Date: 25-MAR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	617809-013	617809-014	617809-015	617809-016	617809-017	617809-018
	Field Id:	SW04	SW05	SW06	SW07	SW08	SS04
	Depth:	0-1.5 ft	0-2 ft	0-1.5 ft	0-2 ft	0-2 ft	1- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-12-19 15:00	Mar-12-19 15:10	Mar-12-19 15:15	Mar-12-19 15:20	Mar-12-19 15:30	Mar-13-19 11:55
BTEX by EPA 8021B	Extracted:	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00	Mar-22-19 13:00
	Analyzed:	Mar-23-19 02:08	Mar-23-19 02:27	Mar-23-19 02:46	Mar-23-19 04:00	Mar-23-19 04:19	Mar-23-19 04:38
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
m,p-Xylenes		<0.00400 0.00400	<0.00402 0.00402	<0.00398 0.00398	<0.00400 0.00400	<0.00402 0.00402	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Inorganic Anions by EPA 300	Extracted:	Mar-18-19 08:00	Mar-18-19 08:00	Mar-18-19 08:00	Mar-18-19 08:00	Mar-18-19 08:00	Mar-18-19 08:00
	Analyzed:	Mar-18-19 09:52	Mar-18-19 10:02	Mar-18-19 10:13	Mar-18-19 10:44	Mar-18-19 10:54	Mar-18-19 11:04
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		6.40 4.98	188 5.00	<4.99 4.99	85.9 4.96	<4.95 4.95	6.09 4.95
TPH by SW8015 Mod	Extracted:	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00	Mar-16-19 07:00
	Analyzed:	Mar-16-19 19:46	Mar-16-19 20:05	Mar-16-19 20:25	Mar-16-19 20:44	Mar-16-19 21:03	Mar-16-19 21:23
	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	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		43.3 15.0	<15.0 15.0	50.9 15.0	15.8 15.0	80.4 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	23.9 15.0	<15.0 15.0
Total TPH		43.3 15.0	<15.0 15.0	50.9 15.0	15.8 15.0	104 15.0	<15.0 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 617809

LT Environmental, Inc., Arvada, CO

Project Name: JRU-31



Project Id: ---
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Fri Mar-15-19 11:46 am
Report Date: 25-MAR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	617809-019	617809-020				
	Field Id:	SS05	SS06				
	Depth:	1- ft	1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Mar-13-19 12:05	Mar-13-19 11:50				
BTEX by EPA 8021B	Extracted:	Mar-22-19 13:00	Mar-22-19 13:00				
	Analyzed:	Mar-23-19 04:57	Mar-23-19 05:16				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00202 0.00202	<0.00199 0.00199				
Toluene		<0.00202 0.00202	<0.00199 0.00199				
Ethylbenzene		<0.00202 0.00202	<0.00199 0.00199				
m,p-Xylenes		<0.00403 0.00403	<0.00398 0.00398				
o-Xylene		<0.00202 0.00202	<0.00199 0.00199				
Total Xylenes		<0.00202 0.00202	<0.00199 0.00199				
Total BTEX		<0.00202 0.00202	<0.00199 0.00199				
Inorganic Anions by EPA 300	Extracted:	Mar-18-19 08:00	Mar-18-19 08:00				
	Analyzed:	Mar-18-19 11:15	Mar-18-19 11:25				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		5.58 4.95	53.4 4.95				
TPH by SW8015 Mod	Extracted:	Mar-16-19 07:00	Mar-16-19 07:00				
	Analyzed:	Mar-16-19 21:42	Mar-16-19 22:01				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0				
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0				
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9	<15.0 15.0				
Total TPH		<14.9 14.9	<15.0 15.0				

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS01**
Lab Sample Id: 617809-001

Matrix: Soil
Date Collected: 03.12.19 14.20

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	53.7	5.00	mg/kg	03.15.19 20.08		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 14.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 14.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 14.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 14.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	03.16.19 14.35	
o-Terphenyl	84-15-1	89	%	70-135	03.16.19 14.35	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS01**
Lab Sample Id: 617809-001

Matrix: Soil
Date Collected: 03.12.19 14.20

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 12.00

Basis: Wet Weight

Seq Number: 3083149

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.22.19 14.10	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.22.19 14.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.22.19 14.10		
4-Bromofluorobenzene	460-00-4	107	%	70-130	03.22.19 14.10		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS02**
Lab Sample Id: 617809-002

Matrix: Soil
Date Collected: 03.12.19 14.30

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.9	4.95	mg/kg	03.15.19 20.26		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 15.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 15.33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 15.33	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 15.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.16.19 15.33	
o-Terphenyl	84-15-1	92	%	70-135	03.16.19 15.33	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS02**
Lab Sample Id: 617809-002

Matrix: Soil
Date Collected: 03.12.19 14.30

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 12.00

Basis: Wet Weight

Seq Number: 3083149

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.22.19 20.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.22.19 20.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.22.19 20.09		
4-Bromofluorobenzene	460-00-4	105	%	70-130	03.22.19 20.09		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS03**
Lab Sample Id: 617809-003

Matrix: Soil
Date Collected: 03.12.19 14.40

Date Received: 03.15.19 11.46
Sample Depth: 1.5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.70	4.95	mg/kg	03.15.19 20.32		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.16.19 15.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	22.2	14.9	mg/kg	03.16.19 15.53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.16.19 15.53	U	1
Total TPH	PHC635	22.2	14.9	mg/kg	03.16.19 15.53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.16.19 15.53	
o-Terphenyl	84-15-1	94	%	70-135	03.16.19 15.53	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS03**
Lab Sample Id: 617809-003

Matrix: Soil
Date Collected: 03.12.19 14.40

Date Received: 03.15.19 11.46
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 12.00

Basis: Wet Weight

Seq Number: 3083149

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.22.19 20.28	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.22.19 20.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.22.19 20.28		
4-Bromofluorobenzene	460-00-4	118	%	70-130	03.22.19 20.28		



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS04**
Lab Sample Id: 617809-004

Matrix: Soil
Date Collected: 03.12.19 15.30

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	03.15.19 20.50	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 16.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 16.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 16.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 16.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.16.19 16.13	
o-Terphenyl	84-15-1	93	%	70-135	03.16.19 16.13	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS04**
Lab Sample Id: 617809-004

Matrix: Soil
Date Collected: 03.12.19 15.30

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 12.00

Basis: Wet Weight

Seq Number: 3083149

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.22.19 20.47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.22.19 20.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.22.19 20.47		
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.22.19 20.47		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS05** Matrix: Soil Date Received: 03.15.19 11.46
Lab Sample Id: 617809-005 Date Collected: 03.12.19 15.35 Sample Depth: 1.5 ft
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 03.15.19 14.45 Basis: Wet Weight
Seq Number: 3082347

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.15.19 20.56	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.16.19 07.00 Basis: Wet Weight
Seq Number: 3082340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.16.19 16.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	41.9	15.0	mg/kg	03.16.19 16.32		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 16.32	U	1
Total TPH	PHC635	41.9	15.0	mg/kg	03.16.19 16.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	03.16.19 16.32	
o-Terphenyl	84-15-1	101	%	70-135	03.16.19 16.32	



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS05**
Lab Sample Id: 617809-005

Matrix: Soil
Date Collected: 03.12.19 15.35

Date Received: 03.15.19 11.46
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083149

Date Prep: 03.22.19 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.22.19 21.07	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.22.19 21.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.22.19 21.07		
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.22.19 21.07		



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS06**
Lab Sample Id: 617809-006

Matrix: Soil
Date Collected: 03.12.19 15.40

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.03	5.03	mg/kg	03.15.19 21.02	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 16.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	77.7	15.0	mg/kg	03.16.19 16.51		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	53.7	15.0	mg/kg	03.16.19 16.51		1
Total TPH	PHC635	131	15.0	mg/kg	03.16.19 16.51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	03.16.19 16.51	
o-Terphenyl	84-15-1	83	%	70-135	03.16.19 16.51	



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LT Environmental, Inc., Arvada, CO

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Sample Id: **FS06**
Lab Sample Id: 617809-006

Matrix: Soil
Date Collected: 03.12.19 15.40

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.22.19 23.55	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.22.19 23.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	124	%	70-130	03.22.19 23.55		
4-Bromofluorobenzene	460-00-4	363	%	70-130	03.22.19 23.55	**	



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS07** Matrix: Soil Date Received: 03.15.19 11.46
Lab Sample Id: 617809-007 Date Collected: 03.12.19 15.45 Sample Depth: 2 ft
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 03.15.19 14.45 Basis: Wet Weight
Seq Number: 3082347

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.54	4.99	mg/kg	03.15.19 21.08		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.16.19 07.00 Basis: Wet Weight
Seq Number: 3082340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.16.19 17.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	107	15.0	mg/kg	03.16.19 17.11		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	85.5	15.0	mg/kg	03.16.19 17.11		1
Total TPH	PHC635	193	15.0	mg/kg	03.16.19 17.11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.16.19 17.11	
o-Terphenyl	84-15-1	84	%	70-135	03.16.19 17.11	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS07**
Lab Sample Id: 617809-007

Matrix: Soil
Date Collected: 03.12.19 15.45

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.23.19 00.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.23.19 00.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	141	%	70-130	03.23.19 00.14	**	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.23.19 00.14		



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS08**
Lab Sample Id: 617809-008

Matrix: Soil
Date Collected: 03.12.19 15.50

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	03.15.19 21.14	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 17.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	45.9	15.0	mg/kg	03.16.19 17.30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	19.0	15.0	mg/kg	03.16.19 17.30		1
Total TPH	PHC635	64.9	15.0	mg/kg	03.16.19 17.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.16.19 17.30	
o-Terphenyl	84-15-1	86	%	70-135	03.16.19 17.30	



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LT Environmental, Inc., Arvada, CO

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Sample Id: **FS08**
Lab Sample Id: 617809-008

Matrix: Soil
Date Collected: 03.12.19 15.50

Date Received: 03.15.19 11.46
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.23.19 00.33	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.23.19 00.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.23.19 00.33		
4-Bromofluorobenzene	460-00-4	123	%	70-130	03.23.19 00.33		



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS09**
Lab Sample Id: 617809-009

Matrix: Soil
Date Collected: 03.12.19 16.00

Date Received: 03.15.19 11.46
Sample Depth: 1.5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082347

Date Prep: 03.15.19 14.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	03.15.19 21.20	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.16.19 17.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	63.1	14.9	mg/kg	03.16.19 17.49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	22.5	14.9	mg/kg	03.16.19 17.49		1
Total TPH	PHC635	85.6	14.9	mg/kg	03.16.19 17.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	03.16.19 17.49	
o-Terphenyl	84-15-1	95	%	70-135	03.16.19 17.49	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **FS09**
Lab Sample Id: 617809-009

Matrix: Soil
Date Collected: 03.12.19 16.00

Date Received: 03.15.19 11.46
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.23.19 00.52	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.23.19 00.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.23.19 00.52		
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.23.19 00.52		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW01** Matrix: Soil Date Received: 03.15.19 11.46
Lab Sample Id: 617809-010 Date Collected: 03.12.19 14.45 Sample Depth: 0 - 2 ft
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 03.15.19 14.45 Basis: Wet Weight
Seq Number: 3082347

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	698	5.00	mg/kg	03.15.19 21.26		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.16.19 07.00 Basis: Wet Weight
Seq Number: 3082340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.18.19 06.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.18.19 06.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.18.19 06.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.18.19 06.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.18.19 06.31	
o-Terphenyl	84-15-1	87	%	70-135	03.18.19 06.31	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW01**
Lab Sample Id: 617809-010

Matrix: Soil
Date Collected: 03.12.19 14.45

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.23.19 01.11	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.23.19 01.11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.23.19 01.11		
4-Bromofluorobenzene	460-00-4	115	%	70-130	03.23.19 01.11		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW02**
Lab Sample Id: 617809-011

Matrix: Soil
Date Collected: 03.12.19 14.50

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	559	5.00	mg/kg	03.18.19 09.11		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 19.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 19.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 19.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 19.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	03.16.19 19.07	
o-Terphenyl	84-15-1	86	%	70-135	03.16.19 19.07	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW02**
Lab Sample Id: 617809-011

Matrix: Soil
Date Collected: 03.12.19 14.50

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.23.19 01.30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.23.19 01.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	150	%	70-130	03.23.19 01.30	**	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.23.19 01.30		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW03**
Lab Sample Id: 617809-012

Matrix: Soil
Date Collected: 03.12.19 14.55

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	345	4.96	mg/kg	03.18.19 09.42		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 19.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	35.5	15.0	mg/kg	03.16.19 19.26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 19.26	U	1
Total TPH	PHC635	35.5	15.0	mg/kg	03.16.19 19.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.16.19 19.26	
o-Terphenyl	84-15-1	88	%	70-135	03.16.19 19.26	



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW03**
Lab Sample Id: 617809-012

Matrix: Soil
Date Collected: 03.12.19 14.55

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Prep Method: SW5030B

% Moisture:

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.23.19 01.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.23.19 01.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.23.19 01.49		
4-Bromofluorobenzene	460-00-4	158	%	70-130	03.23.19 01.49	**	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW04** Matrix: Soil Date Received: 03.15.19 11.46
Lab Sample Id: 617809-013 Date Collected: 03.12.19 15.00 Sample Depth: 0 - 1.5 ft
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 03.18.19 08.00 Basis: Wet Weight
Seq Number: 3082545

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.40	4.98	mg/kg	03.18.19 09.52		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.16.19 07.00 Basis: Wet Weight
Seq Number: 3082340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.16.19 19.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	43.3	15.0	mg/kg	03.16.19 19.46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 19.46	U	1
Total TPH	PHC635	43.3	15.0	mg/kg	03.16.19 19.46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.16.19 19.46	
o-Terphenyl	84-15-1	86	%	70-135	03.16.19 19.46	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW04**
Lab Sample Id: 617809-013

Matrix: Soil
Date Collected: 03.12.19 15.00

Date Received: 03.15.19 11.46
Sample Depth: 0 - 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.23.19 02.08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.23.19 02.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.23.19 02.08		
4-Bromofluorobenzene	460-00-4	111	%	70-130	03.23.19 02.08		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW05**
Lab Sample Id: 617809-014

Matrix: Soil
Date Collected: 03.12.19 15.10

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	188	5.00	mg/kg	03.18.19 10.02		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 20.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 20.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 20.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 20.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	03.16.19 20.05	
o-Terphenyl	84-15-1	86	%	70-135	03.16.19 20.05	



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LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW05**
Lab Sample Id: 617809-014

Matrix: Soil
Date Collected: 03.12.19 15.10

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.23.19 02.27	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.23.19 02.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.23.19 02.27		
4-Bromofluorobenzene	460-00-4	153	%	70-130	03.23.19 02.27	**	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW06** Matrix: Soil Date Received: 03.15.19 11.46
Lab Sample Id: 617809-015 Date Collected: 03.12.19 15.15 Sample Depth: 0 - 1.5 ft
Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 03.18.19 08.00 Basis: Wet Weight
Seq Number: 3082545

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.18.19 10.13	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.16.19 07.00 Basis: Wet Weight
Seq Number: 3082340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.16.19 20.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	50.9	15.0	mg/kg	03.16.19 20.25		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 20.25	U	1
Total TPH	PHC635	50.9	15.0	mg/kg	03.16.19 20.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	03.16.19 20.25	
o-Terphenyl	84-15-1	84	%	70-135	03.16.19 20.25	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW06**
Lab Sample Id: 617809-015

Matrix: Soil
Date Collected: 03.12.19 15.15

Date Received: 03.15.19 11.46
Sample Depth: 0 - 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.23.19 02.46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.23.19 02.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.23.19 02.46		
4-Bromofluorobenzene	460-00-4	112	%	70-130	03.23.19 02.46		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW07**
Lab Sample Id: 617809-016

Matrix: Soil
Date Collected: 03.12.19 15.20

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	85.9	4.96	mg/kg	03.18.19 10.44		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 20.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	15.8	15.0	mg/kg	03.16.19 20.44		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 20.44	U	1
Total TPH	PHC635	15.8	15.0	mg/kg	03.16.19 20.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	03.16.19 20.44	
o-Terphenyl	84-15-1	100	%	70-135	03.16.19 20.44	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW07**
Lab Sample Id: 617809-016

Matrix: Soil
Date Collected: 03.12.19 15.20

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.23.19 04.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.23.19 04.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	03.23.19 04.00		
4-Bromofluorobenzene	460-00-4	145	%	70-130	03.23.19 04.00	**	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW08**
Lab Sample Id: 617809-017

Matrix: Soil
Date Collected: 03.12.19 15.30

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	03.18.19 10.54	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 21.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	80.4	15.0	mg/kg	03.16.19 21.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	23.9	15.0	mg/kg	03.16.19 21.03		1
Total TPH	PHC635	104	15.0	mg/kg	03.16.19 21.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.16.19 21.03	
o-Terphenyl	84-15-1	90	%	70-135	03.16.19 21.03	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SW08**
Lab Sample Id: 617809-017

Matrix: Soil
Date Collected: 03.12.19 15.30

Date Received: 03.15.19 11.46
Sample Depth: 0 - 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.23.19 04.19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.23.19 04.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	03.23.19 04.19		
4-Bromofluorobenzene	460-00-4	154	%	70-130	03.23.19 04.19	**	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS04**
Lab Sample Id: 617809-018

Matrix: Soil
Date Collected: 03.13.19 11.55

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.09	4.95	mg/kg	03.18.19 11.04		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 21.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 21.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 21.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 21.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	03.16.19 21.23	
o-Terphenyl	84-15-1	91	%	70-135	03.16.19 21.23	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS04**
Lab Sample Id: 617809-018

Matrix: Soil
Date Collected: 03.13.19 11.55

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 03.22.19 13.00

Basis: Wet Weight

Seq Number: 3083162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.23.19 04.38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.23.19 04.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	03.23.19 04.38		
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.23.19 04.38		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: SS05
Lab Sample Id: 617809-019

Matrix: Soil
Date Collected: 03.13.19 12.05

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.58	4.95	mg/kg	03.18.19 11.15		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.16.19 21.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.16.19 21.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.16.19 21.42	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.16.19 21.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.16.19 21.42	
o-Terphenyl	84-15-1	92	%	70-135	03.16.19 21.42	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: SS05
Lab Sample Id: 617809-019

Matrix: Soil
Date Collected: 03.13.19 12.05

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.23.19 04.57	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.23.19 04.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	129	%	70-130	03.23.19 04.57		
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.23.19 04.57		



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS06**
Lab Sample Id: 617809-020

Matrix: Soil
Date Collected: 03.13.19 11.50

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3082545

Date Prep: 03.18.19 08.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	53.4	4.95	mg/kg	03.18.19 11.25		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3082340

Date Prep: 03.16.19 07.00

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	03.16.19 22.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.16.19 22.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.16.19 22.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.16.19 22.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	03.16.19 22.01	
o-Terphenyl	84-15-1	83	%	70-135	03.16.19 22.01	



Certificate of Analytical Results 617809



LT Environmental, Inc., Arvada, CO

JRU-31

Sample Id: **SS06**
Lab Sample Id: 617809-020

Matrix: Soil
Date Collected: 03.13.19 11.50

Date Received: 03.15.19 11.46
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3083162

Date Prep: 03.22.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.23.19 05.16	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.23.19 05.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.23.19 05.16		
1,4-Difluorobenzene	540-36-3	113	%	70-130	03.23.19 05.16		

- 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 617809

LT Environmental, Inc.

JRU-31

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082347

MB Sample Id: 7673659-1-BLK

Matrix: Solid

LCS Sample Id: 7673659-1-BKS

Prep Method: E300P

Date Prep: 03.15.19

LCSD Sample Id: 7673659-1-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	238	95	238	95	90-110	0	20	mg/kg	03.15.19 18:31	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082545

MB Sample Id: 7673713-1-BLK

Matrix: Solid

LCS Sample Id: 7673713-1-BKS

Prep Method: E300P

Date Prep: 03.18.19

LCSD Sample Id: 7673713-1-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	254	102	251	100	90-110	1	20	mg/kg	03.18.19 08:50	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082347

Parent Sample Id: 617764-002

Matrix: Soil

MS Sample Id: 617764-002 S

Prep Method: E300P

Date Prep: 03.15.19

MSD Sample Id: 617764-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.43	250	261	102	251	98	90-110	4	20	mg/kg	03.15.19 18:50	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082347

Parent Sample Id: 617809-001

Matrix: Soil

MS Sample Id: 617809-001 S

Prep Method: E300P

Date Prep: 03.15.19

MSD Sample Id: 617809-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	53.7	250	312	103	309	102	90-110	1	20	mg/kg	03.15.19 20:14	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082545

Parent Sample Id: 617809-011

Matrix: Soil

MS Sample Id: 617809-011 S

Prep Method: E300P

Date Prep: 03.18.19

MSD Sample Id: 617809-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	559	250	773	86	775	86	90-110	0	20	mg/kg	03.18.19 09:21	X

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

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

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

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



QC Summary 617809

LT Environmental, Inc.

JRU-31

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3082545

Parent Sample Id: 617825-001

Matrix: Soil

MS Sample Id: 617825-001 S

Prep Method: E300P

Date Prep: 03.18.19

MSD Sample Id: 617825-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.58	250	266	106	266	106	90-110	0	20	mg/kg	03.18.19 11:46	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3082340

MB Sample Id: 7673712-1-BLK

Matrix: Solid

LCS Sample Id: 7673712-1-BKS

Prep Method: TX1005P

Date Prep: 03.16.19

LCSD Sample Id: 7673712-1-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	1060	106	987	99	70-135	7	20	mg/kg	03.16.19 13:56	
Diesel Range Organics (DRO)	<8.13	1000	1060	106	997	100	70-135	6	20	mg/kg	03.16.19 13:56	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		118		109		70-135	%	03.16.19 13:56
o-Terphenyl	94		108		96		70-135	%	03.16.19 13:56

Analytical Method: TPH by SW8015 Mod

Seq Number: 3082340

Parent Sample Id: 617809-001

Matrix: Soil

MS Sample Id: 617809-001 S

Prep Method: TX1005P

Date Prep: 03.16.19

MSD Sample Id: 617809-001 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	914	91	928	93	70-135	2	20	mg/kg	03.16.19 14:55	
Diesel Range Organics (DRO)	<8.12	999	920	92	963	96	70-135	5	20	mg/kg	03.16.19 14:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		109		70-135	%	03.16.19 14:55
o-Terphenyl	86		90		70-135	%	03.16.19 14:55

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

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

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

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



QC Summary 617809

LT Environmental, Inc.

JRU-31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083149

MB Sample Id: 7674222-1-BLK

Matrix: Solid

LCS Sample Id: 7674222-1-BKS

Prep Method: SW5030B

Date Prep: 03.22.19

LCSD Sample Id: 7674222-1-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	0.105	106	0.112	112	70-130	6	35	mg/kg	03.22.19 12:12	
Toluene	<0.00199	0.0994	0.109	110	0.116	116	70-130	6	35	mg/kg	03.22.19 12:12	
Ethylbenzene	<0.000561	0.0994	0.0947	95	0.0997	100	70-130	5	35	mg/kg	03.22.19 12:12	
m,p-Xylenes	<0.00101	0.199	0.187	94	0.196	98	70-130	5	35	mg/kg	03.22.19 12:12	
o-Xylene	<0.00199	0.0994	0.0950	96	0.0990	99	70-130	4	35	mg/kg	03.22.19 12:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	117		107		107		70-130	%	03.22.19 12:12
4-Bromofluorobenzene	110		105		102		70-130	%	03.22.19 12:12

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083162

MB Sample Id: 7674226-1-BLK

Matrix: Solid

LCS Sample Id: 7674226-1-BKS

Prep Method: SW5030B

Date Prep: 03.22.19

LCSD Sample Id: 7674226-1-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	0.0998	0.114	114	0.114	113	70-130	0	35	mg/kg	03.22.19 22:03	
Toluene	<0.00200	0.0998	0.118	118	0.118	117	70-130	0	35	mg/kg	03.22.19 22:03	
Ethylbenzene	<0.00200	0.0998	0.102	102	0.103	102	70-130	1	35	mg/kg	03.22.19 22:03	
m,p-Xylenes	<0.00399	0.200	0.199	100	0.202	100	70-130	1	35	mg/kg	03.22.19 22:03	
o-Xylene	<0.00200	0.0998	0.100	100	0.102	101	70-130	2	35	mg/kg	03.22.19 22:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	116		107		108		70-130	%	03.22.19 22:03
4-Bromofluorobenzene	111		101		104		70-130	%	03.22.19 22:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083149

Parent Sample Id: 617809-001

Matrix: Soil

MS Sample Id: 617809-001 S

Prep Method: SW5030B

Date Prep: 03.22.19

MSD Sample Id: 617809-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000384	0.0998	0.104	104	0.0999	100	70-130	4	35	mg/kg	03.22.19 12:50	
Toluene	0.000612	0.0998	0.106	106	0.102	102	70-130	4	35	mg/kg	03.22.19 12:50	
Ethylbenzene	<0.000564	0.0998	0.0900	90	0.0875	88	70-130	3	35	mg/kg	03.22.19 12:50	
m,p-Xylenes	<0.00101	0.200	0.176	88	0.171	86	70-130	3	35	mg/kg	03.22.19 12:50	
o-Xylene	<0.000344	0.0998	0.0888	89	0.0854	86	70-130	4	35	mg/kg	03.22.19 12:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		109		70-130	%	03.22.19 12:50
4-Bromofluorobenzene	106		106		70-130	%	03.22.19 12:50

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

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

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

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



QC Summary 617809

LT Environmental, Inc.

JRU-31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3083162

Parent Sample Id: 617809-006

Matrix: Soil

MS Sample Id: 617809-006 S

Prep Method: SW5030B

Date Prep: 03.22.19

MSD Sample Id: 617809-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.0757	75	0.0660	66	70-130	14	35	mg/kg	03.22.19 22:41	X
Toluene	<0.00201	0.101	0.105	104	0.0832	84	70-130	23	35	mg/kg	03.22.19 22:41	
Ethylbenzene	<0.00201	0.101	0.0927	92	0.0783	79	70-130	17	35	mg/kg	03.22.19 22:41	
m,p-Xylenes	<0.00402	0.201	0.186	93	0.161	81	70-130	14	35	mg/kg	03.22.19 22:41	
o-Xylene	<0.00201	0.101	0.0958	95	0.0833	84	70-130	14	35	mg/kg	03.22.19 22:41	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		127		70-130	%	03.22.19 22:41
4-Bromofluorobenzene	132	**	178	**	70-130	%	03.22.19 22:41

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



Page 1 of 2

Work Order Comments				
Program: UST/ST	☐ RP	☐ Rowfields	☐ C	☐ Depthend
State of Project:				
Reporting Level II	☐ Level III	☐ ST/UST	☐ RP	☐ Level IV
Deliverables: EDD	☐	ADAPT	☐	Other:

Project Name:	JRU-31	Turn Around	
Project Number:		Routine	☒
P.O. Number:	2 R P - 2370	Rush:	
Sampler's Name:	Robert M.	Due Date:	

SAMPLE RECEIPT			
Temperature (°C):	0.3/0.4	Temp Blank:	Yes ☐ No ☒
Received Inact:	Yes ☒ No ☐	Thermometer ID	16
Cooler Custody Seals:	Yes ☐ No ☒	Correction Factor:	-0.1
Sample Custody Seals:	Yes ☒ No ☐ N/A	Total Containers:	

ANALYSIS REQUEST										Work Order Notes
Number of Containers										
EPA 8015)										TAT starts the day received by the lab, if received by 4:30pm
EPA 8021)										
e (EPA 300.0)										

[illegible]

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		3/13/19 16:45	2 		3/15/19
3			4		1/14/0
			6		
5					



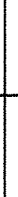
www.xenon.com Page 2 of 2

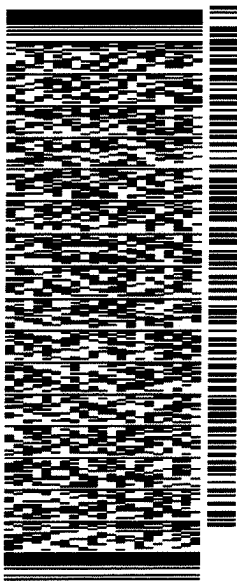
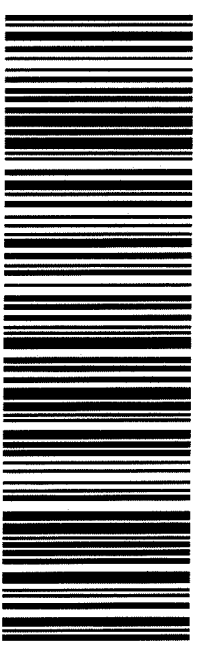
Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Litrel
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO - Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	432.704.5178	Email:	rwcafee@ltenv.com

Work Order Comments			
Program: UST/PST	☐ RP	☐ Rowfields	☐ C ☐ perfund
State of Project:			
Reporting Level II	☐ Level III	☐ ST/UST	☐ RP ☐ Level IV ☐
Deliverables: EDD	☐	ADAPT	☐ Other:

[illegible]

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Total 200.7 / 6010		200.8 / 6020:		8RCRA 13PPM Texas 11		Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn	
Circle Method(s) and Metal(s) to be analyzed				TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U			
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.							
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time		
1 		3/13/19	2 		3/15/19		
3 			4		1/14/20		
5			6				

ORIGIN ID:CAOA (575) 887-6245 XENCO PAC N MAIL 910 W PIERCE ST CARLSBAD, NM 88220 UNITED STATES US		SHIP DATE: 14MAR19 ACTWGT: 35.00 LB CAD: 101813706/NET4100 DMS: 18x12x15 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: REF: DEPT:		
 		
TRK# 7747 0965 6030 0201 41 MAFA TX-US LBB	FRI - 15 MAR HOLD STANDARD OVERNIGHT HLD	
		

565J146D3/23AD

After printing this label:

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

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

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 03/15/2019 11:46:00 AM

Work Order #: 617809

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 03/15/2019

Checklist reviewed by:

Kalei Stout

Kalei Stout

Date: 03/17/2019





Southern view of release area prior to excavation activities.

Project: 012918022	XTO Energy, Inc. James Ranch Unit 31	 <i>Advancing Opportunity</i>
June 5, 2018	Photographic Log	



Southeastern view of final excavation extent.

Project: 012918022	XTO Energy, Inc. James Ranch Unit 31	 <i>Advancing Opportunity</i>
June 5, 2018	Photographic Log	