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

January 25, 2020

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

**RE: Closure Request**
**Poker Lake Unit 261**
**Remediation Permit Number 2RP-3947**
**Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing site assessment, soil sampling, and excavation activities at the Poker Lake Unit (PLU) 261 (Site) in Unit J, Section 21, Township 24 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil after a release of crude oil at the Site.

The release is included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the New Mexico Oil Conservation Division (NMOCD) effective November 13, 2018. The purpose of the Compliance Agreement is to ensure 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 IV site in the Compliance Agreement, meaning the release occurred prior to August 14, 2018, the effective date of 19.15.29 NMAC; however, remediation was ongoing.

## RELEASE BACKGROUND

On October 18, 2016, a gasket on the heater-treater failed, causing approximately 20 barrels (bbls) of crude oil to release within the earthen berm around the process equipment. A vacuum truck was used to recover approximately 2 bbls of free-standing fluid. 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 October 19, 2016, and was assigned Remediation Permit (RP) Number 2RP-3947 (Attachment 1).

Although the 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. Based on the site assessment activities and results of the soil sampling events, XTO is requesting no further action for this release.

## SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of 19.15.29.12 of the NMAC. Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 321214103525501, located approximately 1,005 feet north-northeast of the Site. The water well has a depth to groundwater of 339.5 feet, the total depth is not specified. Ground surface elevation at the water well location is 3,374 feet above mean sea level (AMSL), which is approximately 49 feet higher in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an unnamed dry wash located approximately 662 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-potential karst area.

## CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg);
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg;
- TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg;
- Total petroleum hydrocarbons (TPH): 2,500 mg/kg; and
- Chloride: 20,000 mg/kg.

## SITE ASSESSMENT, EXCAVATION, AND DELINEATION SOIL SAMPLING ACTIVITIES

On March 3, 2018, LTE personnel inspected the Site to evaluate the release extent. Five preliminary soil samples (SS1 through SS5) were collected within and around 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 each sample location from a depth of 0.5 feet bgs.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were shipped at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX following United States

Environmental Protection Agency (USEPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following USEPA Method 8015M/D; and chloride following USEPA Method 300.0.

Between August and November 2019, LTE personnel returned to the Site to oversee excavation and site assessment activities.

Impacted soil was excavated from the release area as indicated by visual observations, field screening activities, and laboratory analytical results for the preliminary soil samples. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Impacted soil was excavated to a depth ranging from 1 foot to 2.5 feet bgs. Following removal of impacted soil, 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 five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 through SW08 and SW01A were collected from the sidewalls of the excavation from depths ranging from the ground surface to 2 feet bgs. Composite soil samples FS01 through FS06, FS01A, FS01B, FS02A, FS04A, and FS05A were collected from the floor of the excavation from depths ranging from 1 foot to 2.5 feet bgs. The excavation extent and excavation soil sample locations are depicted on Figure 3.

Boreholes were advanced via hand auger at three locations around the process equipment to confirm the lateral and vertical extent of impacted soil. Boreholes BH01 through BH03 were advanced to a depth of 2.5 feet bgs. Two delineation soil samples were collected from each borehole from depths of 1 foot and 2.5 feet bgs. Soil from the boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the boreholes were logged on lithologic/soil sampling logs, which are included in Attachment 2. The delineation soil sample locations are depicted on Figure 4.

The excavation and delineation soil samples were collected, handled, and analyzed as described above and submitted to Xenco. Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 3.

The excavation measured approximately 1,300 square feet in area and was completed to depths ranging from 1 foot bgs to 2.5 feet bgs. A total of approximately 100 cubic yards of impacted soil were removed from the excavation. The impacted soil was transported and properly disposed of at the R360 Landfill located in Hobbs, New Mexico.

## ANALYTICAL RESULTS

Laboratory analytical results indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in preliminary soil samples SS2, SS3, and SS4. Laboratory analytical results indicated that GRO/DRO and TPH concentrations exceeded the Closure Criteria in preliminary soil samples SS1 and SS5, collected at 0.5 feet bgs. Based on field screening results and laboratory analytical results for the preliminary soil samples, excavation and delineation of impacted soil was conducted.

Laboratory analytical results for initial excavation soil samples SW03, SW04, FS01, FS01A, FS04, and FS05 indicated that TPH and/or GRO/DRO concentrations exceeded the Closure Criteria. Additional impacted soil was removed from the excavation and laboratory analytical results for excavation soil samples SW01A, SW02, SW05 through SW08, FS01B, FS02A, FS03, FS04A, FS05A, and FS06, collected from the final excavation extent, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria.

Laboratory analytical results for delineation soil samples BH01/BH01A through BH03/BH03A indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

## CLOSURE REQUEST

Impacted soil was excavated from the Site to address the October 18, 2016, release of crude oil within the process equipment containment berm. Laboratory analytical results for the excavation soil samples, collected from the final excavation extent, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Delineation soil sampling was completed around the process equipment to confirm the absence of additional impacted soil. Laboratory analytical results for the delineation soil samples indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the excavation and delineation soil sample analytical results, no further remediation was required.

Initial response efforts, natural attenuation, and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Number 2RP-3947. XTO will backfill the excavation with material purchased locally and recontour the Site to match pre-existing site conditions. An updated NMOCD Form C-141 is included in Attachment 1.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Aimee Cole
Project Environmental Scientist

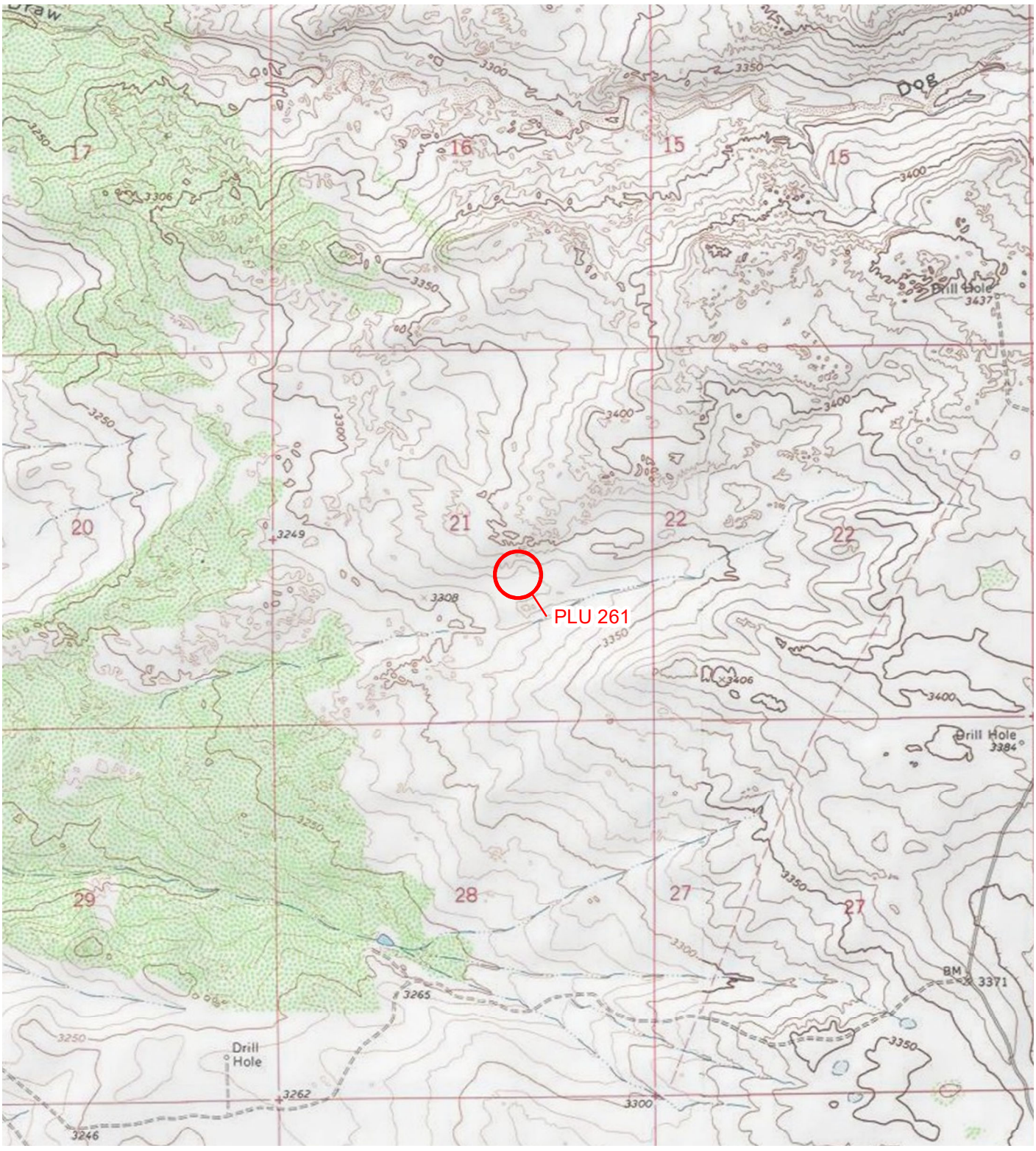
Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Bureau of Land Management
Mike Bratcher, NMOCD

Attachments:

| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Preliminary Soil Sample Locations |
| Figure 3 | Excavation Soil Sample Locations |
| Figure 4 | Delineation Soil Sample Locations |
| Table 1 | Soil Analytical Results |
| Attachment 1 | Initial/Final NMOCD Form C-141 (2RP-3947) |
| Attachment 2 | Lithologic / Soil Sample Logs |
| Attachment 3 | Photographic Log |
| Attachment 4 | Laboratory Analytical Reports |

# FIGURES




**LEGEND**

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 2RP-3947

FIGURE 1
SITE LOCATION MAP
POKER LAKE UNIT 261
UNIT J SEC 21 T24S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012918083_PLU-261\012918083_FIG01_SL_2018_3947.mxd

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

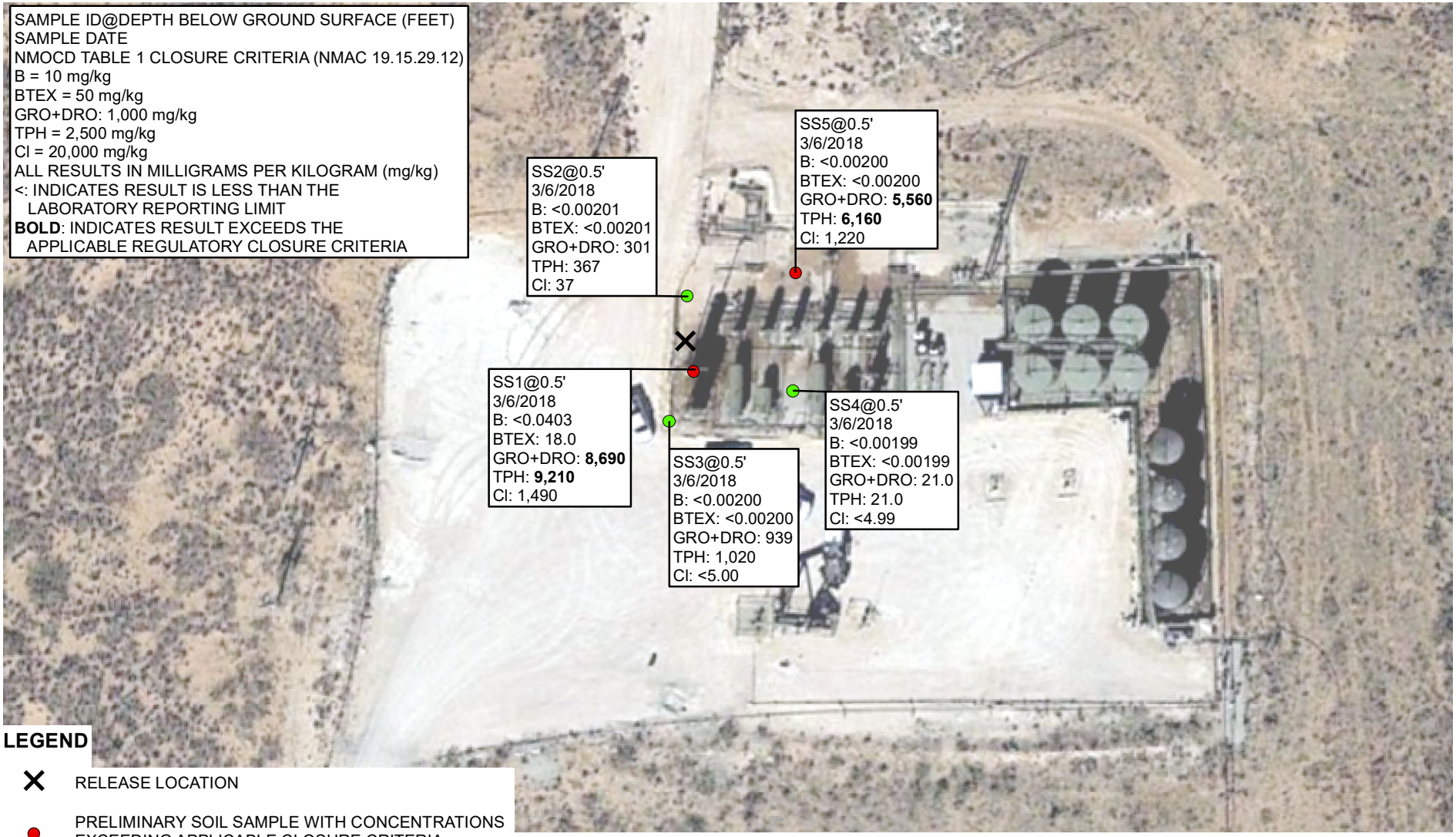



IMAGE COURTESY OF GOOGLE EARTH 2017

**LEGEND**

- RELEASE LOCATION
- PRELIMINARY SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE CLOSURE CRITERIA
- PRELIMINARY SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA

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-3947

0 60 120
Feet

N

FIGURE 2
PRELIMINARY SOIL SAMPLE LOCATIONS
POKER LAKE UNIT 261
UNIT J SEC 21 T24S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012918083_PLU-261\012918083_FIG02_PRELIMINARY_3947.mxd

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

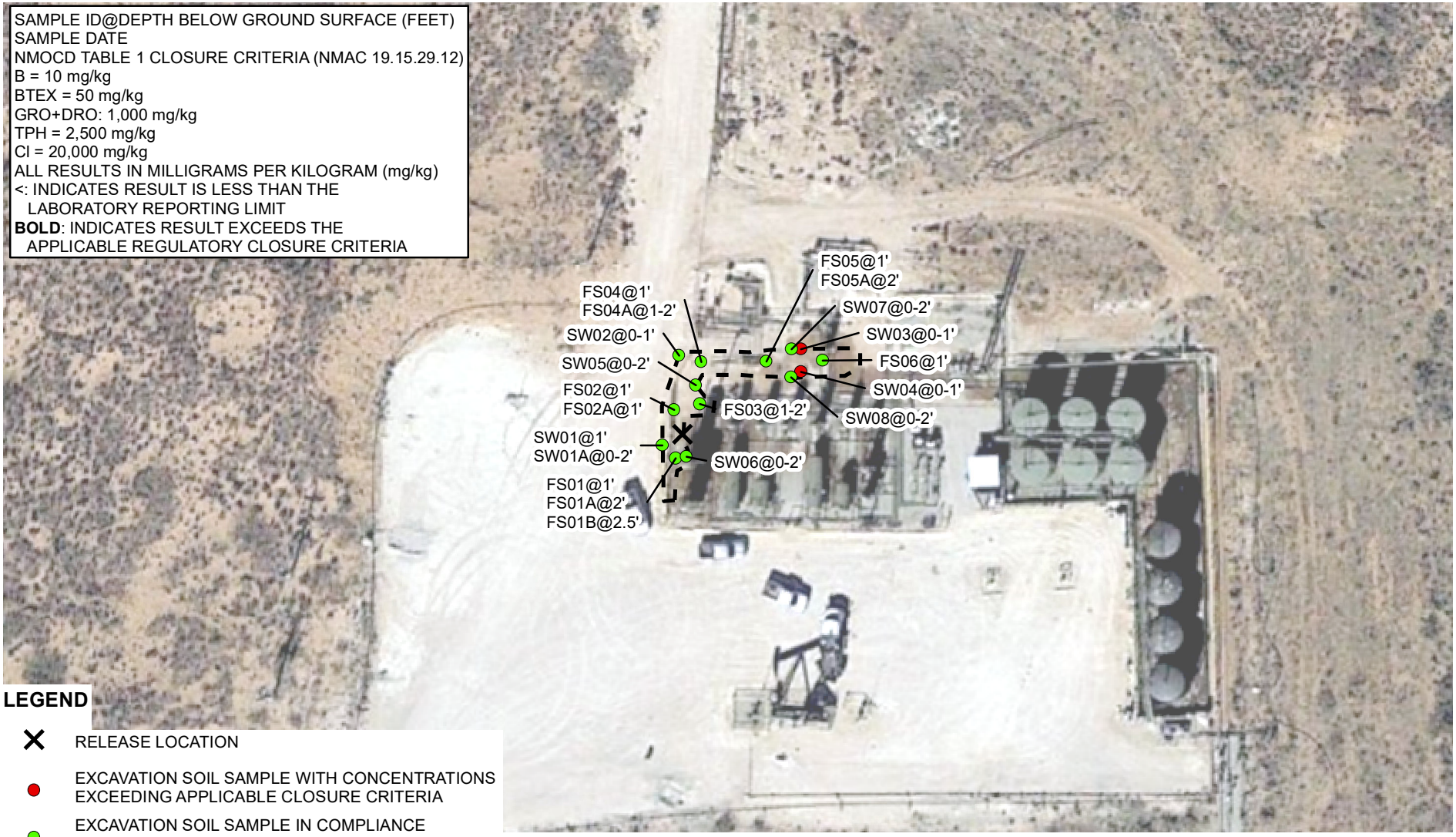



IMAGE COURTESY OF GOOGLE EARTH 2017

**LEGEND**

- RELEASE LOCATION
- EXCAVATION SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE CLOSURE CRITERIA
- EXCAVATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- EXCAVATION EXTENT

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
CI: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 2RP-3947

0 60 120
Feet

N

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
POKER LAKE UNIT 261
UNIT J SEC 21 T24S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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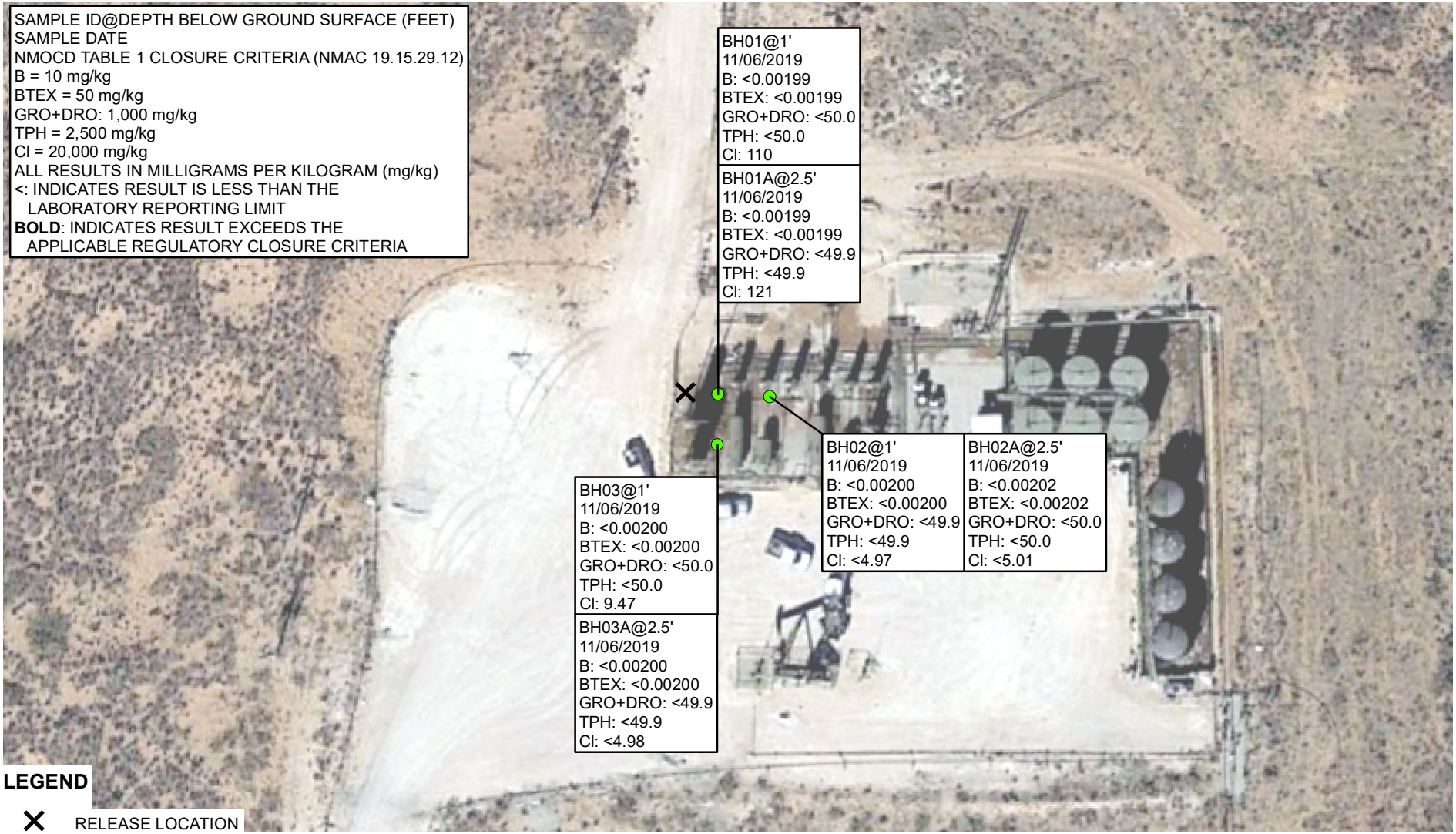


**LEGEND**

✕ RELEASE LOCATION

● DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA

IMAGE COURTESY OF GOOGLE EARTH 2017

0 60 120
Feet

N

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-3947

FIGURE 4
DELINEATION SOIL SAMPLE LOCATIONS
POKER LAKE UNIT 261
UNIT J SEC 21 T24S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012918083_PLU-261\012918083_FIG04_DELINEATION_3947.mxd

# TABLES

**TABLE 1**
**SOIL ANALYTICAL RESULTS**

**POKER LANE UNIT 261**
**REMEDIATION PERMIT NUMBER 2RP-3974**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS1 | 0.5 | 03/06/2018 | <0.0403 | 0.889 | 2.34 | 14.7 | 18 | 1,520 | 7,170 | 522 | **8,690** | **9,210** | 1,490 |
| SS2 | 0.5 | 03/06/2018 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <15.0 | 301 | 65.5 | 301 | 367 | 36.8 |
| SS3 | 0.5 | 03/06/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | 939 | 85.1 | 939 | 1,020 | <5.00 |
| SS4 | 0.5 | 03/06/2018 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | 21 | <15.0 | 21.0 | 21.0 | <4.99 |
| SS5 | 0.5 | 03/06/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <74.9 | 5,560 | 602 | **5,560** | **6,160** | 1,220 |
| SW01 | 1 | 08/13/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <24.9 | 999 | 135 | 999 | 1,130 | 111 |
| SW01A | 0-2 | 08/26/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <25.0 | 581 | 151 | 581 | 732 | 30.4 |
| SW02 | 0-1 | 08/26/2019 | <0.00201 | <0.00201 | <0.00201 | 0.00364 | 0.00364 | <24.9 | 250 | 68.1 | 250 | 318 | 254 |
| SW03 | 0-1 | 08/26/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <25.0 | 1,060 | 276 | **1,060** | 1,340 | 154 |
| SW04 | 0-2 | 08/26/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <25.0 | 2,720 | 377 | **2,720** | **3,100** | 534 |
| SW05 | 0-2 | 08/26/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <24.9 | 595 | 237 | 595 | 832 | 235 |
| SW06 | 0-2 | 08/26/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <24.9 | 384 | 117 | 384 | 501 | 88.5 |
| SW07 | 0-2 | 09/18/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <50.0 | 199 | <50.0 | 199 | 199 | 224 |
| SW08 | 0-2 | 09/18/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <50.0 | 788 | 106 | 788 | 894 | 768 |
| FS01 | 1 | 08/13/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <25.0 | 3,460 | 275 | **3,460** | **3,740** | 319 |
| FS01A | 2 | 08/26/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <24.9 | 1,200 | 198 | **1,200** | 1,400 | 73.3 |
| FS01B | 2.5 | 09/18/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <49.9 | 227 | <49.9 | 227 | 227 | 35.3 |
| FS02 | 1 | 08/13/2019 | <0.00200 | <0.00200 | <0.00200 | 0.00313 | 0.00313 | <25.0 | 847 | 84.8 | 847 | 932 | 167 |
| FS02A | 1 | 08/26/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <24.9 | 578 | 120 | 578 | 698 | 148 |
| FS03 | 1-2 | 08/26/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <25.0 | 92.2 | <25.0 | 92.2 | 92.2 | 122 |
| FS04 | 1 | 08/26/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <25.0 | 1,200 | 226 | **1,200** | 1,430 | 723 |
| FS04A | 1-2 | 09/18/2019 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <49.9 | 67.9 | <49.9 | 67.9 | 67.9 | 387 |
| FS05 | 1 | 08/26/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <25.0 | 1,510 | 294 | **1,510** | 1,800 | 795 |
| FS05A | 2 | 09/18/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <50.0 | 65.3 | <50.0 | 65.3 | 65.3 | 254 |
| FS06 | 1 | 08/26/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <24.9 | 943 | 173 | 943 | 1,120 | 44.3 |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

# TABLE 1
# SOIL ANALYTICAL RESULTS

## POKER LANE UNIT 261
## REMEDIATION PERMIT NUMBER 2RP-3974
## EDDY COUNTY, NEW MEXICO
## XTO ENERGY, INC.

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH01 | 1 | 11/06/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 110 |
| BH01A | 2.5 | 11/06/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 121 |
| BH02 | 1 | 11/06/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | <4.97 |
| BH02A | 2.5 | 11/06/2019 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | <5.01 |
| BH03 | 1 | 11/06/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 9.47 |
| BH03A | 2.5 | 11/06/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | <4.98 |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

**Notes:**

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

NE - not established

TPH - total petroleum hydrocarbons

< - indicates result is below laboratory reporting limits

Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018

ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141 (2RP-3947)

NM OIL CONSERVATION
ARTESIA DISTRICT



OCT 19 2016

RECEIVED

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

NAB1629556325 2160737

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. | Contact: Bradley Blevins |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: PLU 261 | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: Federal | Mineral Owner: Federal | API No. 30-015-34877 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/***South Line*** | Feet from the | ***East***/West Line | County |
|---|---|---|---|---|---|---|---|---|
| J | 21 | 24S | 30E | | 1980 | 1880 | | Eddy |

**Latitude**: 32.20171 **Longitude**: 103.88377

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Crude Oil | Volume of Release: 20 barrels | Volume Recovered: 2 barrels |
| Source of Release: Failed Gasket on Heater Treater | Date and Hour of Occurrence: 10-18-16 @ 1:00pm | Date and Hour of Discovery: 10-18-16 @ 1:25pm |
| 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.*

Describe Cause of Problem and Remedial Action Taken.*
Lease operator reported a release at the PLU 261 due to a failed heater treater gasket. The fluid was contained inside an earth berm around production equipment. A vacuum truck was called to the location and was able to recover 2 barrels of oil from the ground surface.

Describe Area Affected and Cleanup Action Taken.*
A vacuum truck was called to the location and was able to recover 2 barrels of oil from the ground surface.

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: Bradley Blevins

Printed Name: Bradley Blevins

Title: Assistant Remediation Foreman

E-mail Address: bblevins@basspet.com

Date: 10/19/2016 Phone: 432-214-3704

## OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By

Approval Date: 10/19/16 Expiration Date: N/A

Conditions of Approval: Attached ☐

**Remediation per O.C.D. Rules & Guidelines**
**SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 11/2/2016**

2RP-3947

* 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

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

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

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3947 |
| 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 #: 2RP-3947 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude N 32.20171 Longitude W -103.88377
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name: PLU 261 | Site Type: Production Well Facility |
| Date Release Discovered: 10/18/2016 | API# *(if applicable):* 30-015-34877 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| J | 21 | 24S | 30E | Eddy |

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

## 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): 20 | Volume Recovered (bbls): 2 |
| ☐ Produced Water | Volume Released (bbls): | 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
The lease operator reported a release at the PLU 261 due to a failed heater-treater gasket. The fluid was contained inside an earth berm around production equipment. A vacuum truck was called to the location and was able to recover 2 barrels of oil from the ground surface.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3947 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☐ Yes ☒ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was less than 25 bbls. |
| If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?<br>NA | |

## Initial Response

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

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 1-25-2020

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-3947 |
| 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? | >100 (ft bgs) |
| Did this release impact groundwater or surface water? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 1000 feet of any other fresh water well or spring? | ☐ Yes ☒ No |
| Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of a wetland? | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying a subsurface mine? | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying an unstable area such as karst geology? | ☐ Yes ☒ No |
| Are the lateral extents of the release within a 100-year floodplain? | ☐ Yes ☒ No |
| Did the release impact areas **not** on an exploration, development, production, or storage site? | ☐ Yes ☒ No |

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

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

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

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 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-3947 |
| Facility ID | |
| Application ID | |

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 1-25-2020

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-3947 |
| Facility ID | |
| Application ID | |

# Closure

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

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

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

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

☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 1-25-2020

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

**OCD Only**

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

# ATTACHMENT 2: LITHOLOGIC / SOIL SAMPLE LOGS

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

| Identifier: | Date: |
|---|---|
| BH01 | 11/6/19 |
| **Project Name:** | **RP Number:** |
| PLU 261 | 2RP-3947 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: B.B. / Method: Hand Auger |
| Lat/Long: / Field Screening: CHLORIDES, PID. | Hole Diameter: 3.5" / Total Depth: 2.5' |

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | CCHE | 0-1' CALICHE, tan - light brown, moist, poorly consolidated, some brown stain, trace H/C odor, fill. |
| M | <128 | 0.3 | N | BH01 | 1 | 1' | SP | 1'-2.5' SAND, brown - red, moist, poorly graded, fine - medium grain, no stain, no odor. |
| M | <128 | 0.2 | N | BH01A | 2 | 2.5' | | |
| | | | | | 3 | | | TD @ 2.5' |
| | | | | | 4 | | | |
| | | | | | 5 | | | |
| | | | | | 6 | | | |
| | | | | | 7 | | | |
| | | | | | 8 | | | |
| | | | | | 9 | | | |
| | | | | | 10 | | | |
| | | | | | 11 | | | |
| | | | | | 12 | | | |

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

| Identifier: | Date: |
|---|---|
| BH02 | 11/6/19 |
| **Project Name:** | **RP Number:** |
| PLU 261 | 2RP-3947 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: B.B. / Method: Hand Auger |
| Lat/Long: / Field Screening: CHLORIDES, PID. | Hole Diameter: 3.5" / Total Depth: 2.5' |

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | CCHE | 0-1' CALICHE, tan-light brown, moist, poorly consolidated, no stain, no odor, fill. |
| M | <128 | 0.3 | N | BH02 | 1 | 1' | SP | 1'-2.5' SAND, brown-red, moist, poorly graded, fine-medium grain, no stain, no odor. |
| M | <128 | 0.1 | N | BH02A | 2 | 2.5' | | TD @ 2.5' |
| | | | | | 3 | | | |
| | | | | | 4 | | | |
| | | | | | 5 | | | |
| | | | | | 6 | | | |
| | | | | | 7 | | | |
| | | | | | 8 | | | |
| | | | | | 9 | | | |
| | | | | | 10 | | | |
| | | | | | 11 | | | |
| | | | | | 12 | | | |

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

| Identifier: BH03 | Date: 11/6/19 |
|---|---|
| Project Name: PLU 261 | RP Number: 2RP-3947 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: B.B. / Method: Hand Auger |
| Lat/Long: | Field Screening: CHLORIDES, PID. / Hole Diameter: 3.5" / Total Depth: 2.5' |

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | CCHE | 0-1' CALICHE, tan - light brown, moist, poorly consolidated, no stain, no odor, fill. |
| M | <128 | 0.2 | N | BH03 | 1 | 1' | SP | 1'-2.5' SAND, brown - red, moist, poorly graded, fine - medium grain, no stain, no odor. |
| M | <128 | 0.1 | N | BH03A | 2 | 2.5 | | TD @ 2.5' |
| | | | | | 3 | | | |
| | | | | | 4 | | | |
| | | | | | 5 | | | |
| | | | | | 6 | | | |
| | | | | | 7 | | | |
| | | | | | 8 | | | |
| | | | | | 9 | | | |
| | | | | | 10 | | | |
| | | | | | 11 | | | |
| | | | | | 12 | | | |

# ATTACHMENT 3: PHOTOGRAPHIC LOG

# PHOTOGRAPHIC LOG

**Photograph 1:** East facing view of excavation.

**Photograph 2:** East facing view of excavation.

**Photograph 3:** South facing view of excavation.

**Photograph 4:** West facing view of excavation.

Poker Lake Unit 261
Eddy County, New Mexico
Photographs Taken: August and September 2019

# ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS

# Analytical Report 578600

## for

## LT Environmental, Inc.

**Project Manager: Adrian Baker**

**PLU #261 2RP-2947**

**15-MAR-18**

Collected By: Client

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

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

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

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

15-MAR-18

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

Reference: XENCO Report No(s): **578600**
**PLU #261 2RP-2947**
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) 578600. 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. 578600 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

**Jessica Kramer**
Project Assistant

# Sample Cross Reference 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SS1 | S | 03-06-18 14:15 | 6 In | 578600-001 |
| SS2 | S | 03-06-18 14:20 | 6 In | 578600-002 |
| SS3 | S | 03-06-18 14:30 | 6 In | 578600-003 |
| SS4 | S | 03-06-18 14:35 | 6 In | 578600-004 |
| SS5 | S | 03-06-18 14:40 | 6 In | 578600-005 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: PLU #261 2RP-2947***

Project ID:
Work Order Number(s): *578600*

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

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3043702 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 578600-001.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 578600

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU #261 2RP-2947

**Project Id:**
**Contact:** Adrian Baker
**Project Location:** NM

**Date Received in Lab:** Wed Mar-07-18 03:08 pm
**Report Date:** 15-MAR-18
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 578600-001 | | 578600-002 | | 578600-003 | | 578600-004 | | 578600-005 | |
| | ***Field Id:*** | SS1 | | SS2 | | SS3 | | SS4 | | SS5 | |
| | ***Depth:*** | 6- In | | 6- In | | 6- In | | 6- In | | 6- In | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Mar-06-18 14:15 | | Mar-06-18 14:20 | | Mar-06-18 14:30 | | Mar-06-18 14:35 | | Mar-06-18 14:40 | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Mar-14-18 08:00 | | Mar-14-18 08:00 | | Mar-14-18 08:00 | | Mar-14-18 08:00 | | Mar-14-18 08:00 | |
| | ***Analyzed:*** | Mar-14-18 12:41 | | Mar-14-18 11:00 | | Mar-14-18 10:41 | | Mar-14-18 10:22 | | Mar-14-18 10:03 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.0403 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| Toluene | | 0.889 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| Ethylbenzene | | 2.34 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| m,p-Xylenes | | 9.91 | 0.0806 | <0.00402 | 0.00402 | <0.00401 | 0.00401 | <0.00398 | 0.00398 | <0.00399 | 0.00399 |
| o-Xylene | | 4.83 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| Total Xylenes | | 14.7 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| Total BTEX | | 18.0 | 0.0403 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 |
| **Inorganic Anions by EPA 300** | ***Extracted:*** | Mar-13-18 16:30 | | Mar-13-18 16:30 | | Mar-13-18 16:30 | | Mar-13-18 16:30 | | Mar-13-18 16:30 | |
| | ***Analyzed:*** | Mar-14-18 01:49 | | Mar-14-18 01:54 | | Mar-14-18 02:00 | | Mar-14-18 02:05 | | Mar-14-18 02:10 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 1490 | 25.0 | 36.8 | 5.00 | <5.00 | 5.00 | <4.99 | 4.99 | 1220 | 4.95 |
| **TPH by SW8015 Mod** | ***Extracted:*** | Mar-13-18 16:00 | | Mar-13-18 16:00 | | Mar-13-18 16:00 | | Mar-13-18 16:00 | | Mar-13-18 16:00 | |
| | ***Analyzed:*** | Mar-14-18 06:23 | | Mar-14-18 06:50 | | Mar-14-18 07:15 | | Mar-14-18 07:40 | | Mar-14-18 08:07 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | 1520 | 74.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <74.9 | 74.9 |
| Diesel Range Organics (DRO) | | 7170 | 74.9 | 301 | 15.0 | 939 | 15.0 | 21.0 | 15.0 | 5560 | 74.9 |
| Oil Range Hydrocarbons (ORO) | | 522 | 74.9 | 65.5 | 15.0 | 85.1 | 15.0 | <15.0 | 15.0 | 602 | 74.9 |
| Total TPH | | 9210 | 74.9 | 367 | 15.0 | 1020 | 15.0 | 21.0 | 15.0 | 6160 | 74.9 |





Version: 1.%

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS1** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-001 | Date Collected: | 03.06.18 14.15 | Sample Depth: | 6 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | OJS | | | % Moisture: | |
| Analyst: | OJS | Date Prep: | 03.13.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3043636 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1490** | 25.0 | mg/kg | 03.14.18 01.49 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 03.13.18 16.00 | Basis: | Wet Weight |
| Seq Number: | 3043650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons (GRO)** | PHC610 | **1520** | 74.9 | mg/kg | 03.14.18 06.23 | | 5 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **7170** | 74.9 | mg/kg | 03.14.18 06.23 | | 5 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **522** | 74.9 | mg/kg | 03.14.18 06.23 | | 5 |
| **Total TPH** | PHC635 | **9210** | 74.9 | mg/kg | 03.14.18 06.23 | | 5 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 112 | % | 70-135 | 03.14.18 06.23 | |
| o-Terphenyl | 84-15-1 | 105 | % | 70-135 | 03.14.18 06.23 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS1** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-001 | Date Collected: | 03.06.18 14.15 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALJ | | | % Moisture: | |
| Analyst: | ALJ | Date Prep: | 03.14.18 08.00 | Basis: | Wet Weight |
| Seq Number: | 3043702 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.0403 | 0.0403 | mg/kg | 03.14.18 12.41 | U | 20 |
| **Toluene** | 108-88-3 | **0.889** | 0.0403 | mg/kg | 03.14.18 12.41 | | 20 |
| **Ethylbenzene** | 100-41-4 | **2.34** | 0.0403 | mg/kg | 03.14.18 12.41 | | 20 |
| **m,p-Xylenes** | 179601-23-1 | **9.91** | 0.0806 | mg/kg | 03.14.18 12.41 | | 20 |
| **o-Xylene** | 95-47-6 | **4.83** | 0.0403 | mg/kg | 03.14.18 12.41 | | 20 |
| **Total Xylenes** | 1330-20-7 | **14.7** | 0.0403 | mg/kg | 03.14.18 12.41 | | 20 |
| **Total BTEX** | | **18.0** | 0.0403 | mg/kg | 03.14.18 12.41 | | 20 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 03.14.18 12.41 | |
| 4-Bromofluorobenzene | 460-00-4 | 161 | % | 70-130 | 03.14.18 12.41 | ** |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS2** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-002 | Date Collected: | 03.06.18 14.20 | Sample Depth: | 6 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | OJS | | | % Moisture: | |
| Analyst: | OJS | Date Prep: | 03.13.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3043636 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **36.8** | 5.00 | mg/kg | 03.14.18 01.54 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 03.13.18 16.00 | Basis: | Wet Weight |
| Seq Number: | 3043650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 03.14.18 06.50 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **301** | 15.0 | mg/kg | 03.14.18 06.50 | | 1 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **65.5** | 15.0 | mg/kg | 03.14.18 06.50 | | 1 |
| **Total TPH** | PHC635 | **367** | 15.0 | mg/kg | 03.14.18 06.50 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 95 | % | 70-135 | 03.14.18 06.50 | |
| o-Terphenyl | 84-15-1 | 100 | % | 70-135 | 03.14.18 06.50 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS2** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-002 | Date Collected: | 03.06.18 14.20 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALJ | | | % Moisture: | |
| Analyst: | ALJ | Date Prep: | 03.14.18 08.00 | Basis: | Wet Weight |
| Seq Number: | 3043702 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 03.14.18 11.00 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 03.14.18 11.00 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 105 | % | 70-130 | 03.14.18 11.00 | |
| 1,4-Difluorobenzene | 540-36-3 | 75 | % | 70-130 | 03.14.18 11.00 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS3** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-003 | Date Collected: | 03.06.18 14.30 | Sample Depth: | 6 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | OJS | | | % Moisture: | |
| Analyst: | OJS | Date Prep: | 03.13.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3043636 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.00 | 5.00 | mg/kg | 03.14.18 02.00 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 03.13.18 16.00 | Basis: | Wet Weight |
| Seq Number: | 3043650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 03.14.18 07.15 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **939** | 15.0 | mg/kg | 03.14.18 07.15 | | 1 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **85.1** | 15.0 | mg/kg | 03.14.18 07.15 | | 1 |
| **Total TPH** | PHC635 | **1020** | 15.0 | mg/kg | 03.14.18 07.15 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 03.14.18 07.15 | |
| o-Terphenyl | 84-15-1 | 121 | % | 70-135 | 03.14.18 07.15 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS3** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-003 | Date Collected: | 03.06.18 14.30 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALJ | | | % Moisture: | |
| Analyst: | ALJ | Date Prep: | 03.14.18 08.00 | Basis: | Wet Weight |
| Seq Number: | 3043702 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 03.14.18 10.41 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.41 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 109 | % | 70-130 | 03.14.18 10.41 | |
| 1,4-Difluorobenzene | 540-36-3 | 81 | % | 70-130 | 03.14.18 10.41 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS4** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-004 | Date Collected: | 03.06.18 14.35 | Sample Depth: | 6 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | OJS | | | % Moisture: | |
| Analyst: | OJS | Date Prep: | 03.13.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3043636 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.99 | 4.99 | mg/kg | 03.14.18 02.05 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 03.13.18 16.00 | Basis: | Wet Weight |
| Seq Number: | 3043650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 03.14.18 07.40 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **21.0** | 15.0 | mg/kg | 03.14.18 07.40 | | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 03.14.18 07.40 | U | 1 |
| **Total TPH** | PHC635 | **21.0** | 15.0 | mg/kg | 03.14.18 07.40 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 03.14.18 07.40 | |
| o-Terphenyl | 84-15-1 | 105 | % | 70-135 | 03.14.18 07.40 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS4** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-004 | Date Collected: | 03.06.18 14.35 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALJ | | | % Moisture: | |
| Analyst: | ALJ | Date Prep: | 03.14.18 08.00 | Basis: | Wet Weight |
| Seq Number: | 3043702 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 03.14.18 10.22 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 03.14.18 10.22 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 89 | % | 70-130 | 03.14.18 10.22 | |
| 4-Bromofluorobenzene | 460-00-4 | 111 | % | 70-130 | 03.14.18 10.22 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS5** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-005 | Date Collected: | 03.06.18 14.40 | Sample Depth: | 6 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | OJS | | | % Moisture: | |
| Analyst: | OJS | Date Prep: | 03.13.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3043636 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1220** | 4.95 | mg/kg | 03.14.18 02.10 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 03.13.18 16.00 | Basis: | Wet Weight |
| Seq Number: | 3043650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <74.9 | 74.9 | mg/kg | 03.14.18 08.07 | U | 5 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **5560** | 74.9 | mg/kg | 03.14.18 08.07 | | 5 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **602** | 74.9 | mg/kg | 03.14.18 08.07 | | 5 |
| **Total TPH** | PHC635 | **6160** | 74.9 | mg/kg | 03.14.18 08.07 | | 5 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 114 | % | 70-135 | 03.14.18 08.07 | |
| o-Terphenyl | 84-15-1 | 73 | % | 70-135 | 03.14.18 08.07 | |

# Certificate of Analytical Results 578600

## LT Environmental, Inc., Arvada, CO

PLU #261 2RP-2947

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS5** | Matrix: | Soil | Date Received: | 03.07.18 15.08 |
| Lab Sample Id: | 578600-005 | Date Collected: | 03.06.18 14.40 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALJ | | | % Moisture: | |
| Analyst: | ALJ | Date Prep: | 03.14.18 08.00 | Basis: | Wet Weight |
| Seq Number: | 3043702 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 03.14.18 10.03 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 03.14.18 10.03 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 88 | % | 70-130 | 03.14.18 10.03 | |
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 03.14.18 10.03 | |

# Flagging Criteria

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

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

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

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

**F** RPD exceeded lab control limits.

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

**U** Analyte was not detected.

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

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

**K** Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

# QC Summary 578600



## LT Environmental, Inc.

PLU #261 2RP-2947

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3043636 — Matrix: Solid — Date Prep: 03.13.18
MB Sample Id: 7640733-1-BLK — LCS Sample Id: 7640733-1-BKS — LCSD Sample Id: 7640733-1-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 | 255 | 102 | 275 | 110 | 90-110 | 8 | 20 | mg/kg | 03.13.18 23:42 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3043636 — Matrix: Soil — Date Prep: 03.13.18
Parent Sample Id: 578597-004 — MS Sample Id: 578597-004 S — MSD Sample Id: 578597-004 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 682 | 248 | 937 | 103 | 946 | 106 | 90-110 | 1 | 20 | mg/kg | 03.13.18 23:58 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3043636 — Matrix: Soil — Date Prep: 03.13.18
Parent Sample Id: 578599-004 — MS Sample Id: 578599-004 S — MSD Sample Id: 578599-004 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 | 250 | 101 | 285 | 115 | 90-110 | 13 | 20 | mg/kg | 03.14.18 01:12 | X |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3043650 — Matrix: Solid — Date Prep: 03.13.18
MB Sample Id: 7640764-1-BLK — LCS Sample Id: 7640764-1-BKS — LCSD Sample Id: 7640764-1-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 | 1050 | 105 | 978 | 98 | 70-135 | 7 | 35 | mg/kg | 03.13.18 21:19 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 1090 | 109 | 1010 | 101 | 70-135 | 8 | 35 | mg/kg | 03.13.18 21:19 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 119 | | 118 | | 110 | | 70-135 | % | 03.13.18 21:19 |
| o-Terphenyl | 124 | | 117 | | 109 | | 70-135 | % | 03.13.18 21:19 |

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 578600



## LT Environmental, Inc.

PLU #261 2RP-2947

**Analytical Method:** TPH by SW8015 Mod | Prep Method: TX1005P
Seq Number: 3043650 | Matrix: Soil | Date Prep: 03.13.18
Parent Sample Id: 578597-001 | MS Sample Id: 578597-001 S | MSD Sample Id: 578597-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <15.0 | 999 | 1030 | 103 | 1050 | 105 | 70-135 | 2 | 35 | mg/kg | 03.13.18 22:37 | |
| Diesel Range Organics (DRO) | 281 | 999 | 1290 | 101 | 1290 | 101 | 70-135 | 0 | 35 | mg/kg | 03.13.18 22:37 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 113 | | 115 | | 70-135 | % | 03.13.18 22:37 |
| o-Terphenyl | 113 | | 114 | | 70-135 | % | 03.13.18 22:37 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3043702 | Matrix: Solid | Date Prep: 03.14.18
MB Sample Id: 7640790-1-BLK | LCS Sample Id: 7640790-1-BKS | LCSD Sample Id: 7640790-1-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 | 0.104 | 104 | 0.105 | 105 | 70-130 | 1 | 35 | mg/kg | 03.14.18 07:10 | |
| Toluene | <0.00200 | 0.100 | 0.112 | 112 | 0.112 | 112 | 70-130 | 0 | 35 | mg/kg | 03.14.18 07:10 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.128 | 128 | 0.129 | 129 | 70-130 | 1 | 35 | mg/kg | 03.14.18 07:10 | |
| m,p-Xylenes | <0.00401 | 0.200 | 0.253 | 127 | 0.254 | 127 | 70-130 | 0 | 35 | mg/kg | 03.14.18 07:10 | |
| o-Xylene | <0.00200 | 0.100 | 0.124 | 124 | 0.124 | 124 | 70-130 | 0 | 35 | mg/kg | 03.14.18 07:10 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 81 | | 89 | | 93 | | 70-130 | % | 03.14.18 07:10 |
| 4-Bromofluorobenzene | 104 | | 123 | | 119 | | 70-130 | % | 03.14.18 07:10 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3043702 | Matrix: Soil | Date Prep: 03.14.18
Parent Sample Id: 578599-002 | MS Sample Id: 578599-002 S | MSD Sample Id: 578599-002 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0729 | 73 | 0.0868 | 87 | 70-130 | 17 | 35 | mg/kg | 03.14.18 13:00 | |
| Toluene | <0.00200 | 0.100 | 0.0774 | 77 | 0.0917 | 92 | 70-130 | 17 | 35 | mg/kg | 03.14.18 13:00 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.0903 | 90 | 0.104 | 104 | 70-130 | 14 | 35 | mg/kg | 03.14.18 13:00 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.179 | 90 | 0.205 | 103 | 70-130 | 14 | 35 | mg/kg | 03.14.18 13:00 | |
| o-Xylene | <0.00200 | 0.100 | 0.0945 | 95 | 0.101 | 101 | 70-130 | 7 | 35 | mg/kg | 03.14.18 13:00 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 82 | | 84 | | 70-130 | % | 03.14.18 13:00 |
| 4-Bromofluorobenzene | 112 | | 119 | | 70-130 | % | 03.14.18 13:00 |

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

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Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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# CHAIN OF CUSTODY

Page 1 Of 1

Xenco Quote #

Xenco Job # 578600

**Client / Reporting Information**

Company Name / Branch: LTE / Permian

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

Email: Abaker@ltenv.com

Phone No: 432-704-5178

Project Contact: Adrian Baker

Samplers's Name: Aaron Williamson

**Project Information**

Project Name/Number: PLU #261 2RP-2947

Project Location: NM

Invoice To: XTO Energy - Kyle Littrell

PO Number: 30-015-34877

**Analytical Information**

**Matrix Codes**

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

| No. | Field ID / Point of Collection | Collection: Sample Depth | Date | Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | NONE | Btex EPA Method 8021 | TPH EPA Method 8015 | Chloride EPA Method 300.1 | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SS1 | 6" | 3/6/18 | 1415 | S | 1 | | | | | | | | | X | X | X | |
| 2 | SS2 | | | 1420 | | | | | | | | | | | X | X | X | |
| 3 | SS3 | | | 1430 | | | | | | | | | | | X | X | X | |
| 4 | SS4 | | | 1435 | | | | | | | | | | | X | X | X | |
| 5 | SS5 | | | 1440 | | | | | | | | | | | X | X | X | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

Temp: 2.6 IR ID:R-8
CF:(0-6: -0.2°C )
(6-23: +0.2°C)
Corrected Temp: 2.4

**Turnaround Time ( Business days)**

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY
- ☒ STANDARD TAT

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

**Data Deliverable Information**

- ☐ Level II Std QC
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

FED-EX / UPS: Tracking #

**SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY**

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Aaron Williamson | 3/6/18 1530 | | | | |
| 2 | | | | | 3/6 1530 | |
| 3 | | 3/7 14:50 | | | | |
| 4 | | | | | 3-7-18 15:08 | |
| 5 | | | | Custody Seal # | Preserved where applicable | On Ice / Cooler Temp. / Thermo. Corr. Factor |

Notice: 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 loses 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 received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

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

**Work Order #:** 578600

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**

**Temperature Measuring device used : R8**

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

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Connie Hernandez Date: 03/08/2018

**Checklist reviewed by:** Jessica Kramer Date: 03/08/2018

Jessica Kramer

# Analytical Report 633950

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**PLU 261 (2RP-3747)**

**012918083**

**15-AUG-19**

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

15-AUG-19

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

Reference: XENCO Report No(s): **633950**
**PLU 261 (2RP-3747)**
Project Address:

**Dan Moir**:

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) 633950. 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. 633950 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

**Jessica Kramer**
Project Assistant

***Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.***
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# Sample Cross Reference 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS01 | S | 08-13-19 09:45 | 1 ft | 633950-001 |
| FS02 | S | 08-13-19 09:50 | 1 ft | 633950-002 |
| SW01 | S | 08-13-19 10:00 | 1 ft | 633950-003 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***
***Project Name: PLU 261 (2RP-3747)***

Project ID: *012918083*
Work Order Number(s): *633950*

Report Date: *15-AUG-19*
Date Received: *08/14/2019*

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3098657 BTEX by EPA 8021B
Lab Sample ID 633950-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene 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: 633950-001, -002, -003.
The Laboratory Control Sample for Toluene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 633950

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU 261 (2RP-3747)

**Project Id:** 012918083
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Wed Aug-14-19 10:47 am
**Report Date:** 15-AUG-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 633950-001 | | 633950-002 | | 633950-003 | | | |
| | ***Field Id:*** | FS01 | | FS02 | | SW01 | | | |
| | ***Depth:*** | 1- ft | | 1- ft | | 1- ft | | | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | | |
| | ***Sampled:*** | Aug-13-19 09:45 | | Aug-13-19 09:50 | | Aug-13-19 10:00 | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Aug-14-19 12:00 | | Aug-14-19 12:00 | | Aug-14-19 12:00 | | | |
| | ***Analyzed:*** | Aug-15-19 12:55 | | Aug-15-19 13:15 | | Aug-15-19 13:35 | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | |
| Benzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | | |
| Toluene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | | |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | | |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00401 | 0.00401 | <0.00398 | 0.00398 | | |
| o-Xylene | | <0.00200 | 0.00200 | 0.00313 | 0.00200 | <0.00199 | 0.00199 | | |
| Total Xylenes | | <0.00200 | 0.00200 | 0.00313 | 0.00200 | <0.00199 | 0.00199 | | |
| Total BTEX | | <0.00200 | 0.00200 | 0.00313 | 0.00200 | <0.00199 | 0.00199 | | |
| **Chloride by EPA 300** | ***Extracted:*** | Aug-14-19 12:00 | | Aug-14-19 12:00 | | Aug-14-19 12:00 | | | |
| | ***Analyzed:*** | Aug-14-19 14:12 | | Aug-14-19 14:31 | | Aug-14-19 14:37 | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | |
| Chloride | | 319 | 4.96 | 167 | 4.99 | 111 | 5.03 | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | Aug-14-19 15:00 | | Aug-14-19 15:00 | | Aug-14-19 15:00 | | | |
| | ***Analyzed:*** | Aug-15-19 03:55 | | Aug-15-19 04:14 | | Aug-15-19 04:34 | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | |
| Gasoline Range Hydrocarbons (GRO) | | <25.0 | 25.0 | <25.0 | 25.0 | <24.9 | 24.9 | | |
| Diesel Range Organics (DRO) | | 3460 | 25.0 | 847 | 25.0 | 999 | 24.9 | | |
| Motor Oil Range Hydrocarbons (MRO) | | 275 | 25.0 | 84.8 | 25.0 | 135 | 24.9 | | |
| Total TPH | | 3740 | 25.0 | 932 | 25.0 | 1130 | 24.9 | | |
| Total GRO-DRO | | 3460 | 25.0 | 847 | 25.0 | 999 | 24.9 | | |



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

Version: 1.%

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-001 | Date Collected: | 08.13.19 09.45 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098607 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **319** | 4.96 | mg/kg | 08.14.19 14.12 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.14.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3098650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.15.19 03.55 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **3460** | 25.0 | mg/kg | 08.15.19 03.55 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **275** | 25.0 | mg/kg | 08.15.19 03.55 | | 1 |
| **Total TPH** | PHC635 | **3740** | 25.0 | mg/kg | 08.15.19 03.55 | | 1 |
| **Total GRO-DRO** | PHC628 | **3460** | 25.0 | mg/kg | 08.15.19 03.55 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 102 | % | 70-135 | 08.15.19 03.55 | |
| o-Terphenyl | 84-15-1 | 127 | % | 70-135 | 08.15.19 03.55 | |

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-001 | Date Collected: | 08.13.19 09.45 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | AMB | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098657 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 08.15.19 12.55 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.15.19 12.55 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 93 | % | 70-130 | 08.15.19 12.55 | |
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 08.15.19 12.55 | |

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-002 | Date Collected: | 08.13.19 09.50 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098607 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **167** | 4.99 | mg/kg | 08.14.19 14.31 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.14.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3098650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.15.19 04.14 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **847** | 25.0 | mg/kg | 08.15.19 04.14 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **84.8** | 25.0 | mg/kg | 08.15.19 04.14 | | 1 |
| **Total TPH** | PHC635 | **932** | 25.0 | mg/kg | 08.15.19 04.14 | | 1 |
| **Total GRO-DRO** | PHC628 | **847** | 25.0 | mg/kg | 08.15.19 04.14 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 104 | % | 70-135 | 08.15.19 04.14 | |
| o-Terphenyl | 84-15-1 | 116 | % | 70-135 | 08.15.19 04.14 | |

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-002 | Date Collected: | 08.13.19 09.50 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | AMB | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098657 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.15.19 13.15 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.15.19 13.15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.15.19 13.15 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 08.15.19 13.15 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00313** | 0.00200 | mg/kg | 08.15.19 13.15 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00313** | 0.00200 | mg/kg | 08.15.19 13.15 | | 1 |
| **Total BTEX** | | **0.00313** | 0.00200 | mg/kg | 08.15.19 13.15 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 08.15.19 13.15 | |
| 4-Bromofluorobenzene | 460-00-4 | 121 | % | 70-130 | 08.15.19 13.15 | |

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-003 | Date Collected: | 08.13.19 10.00 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098607 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **111** | 5.03 | mg/kg | 08.14.19 14.37 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.14.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3098650 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.15.19 04.34 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **999** | 24.9 | mg/kg | 08.15.19 04.34 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **135** | 24.9 | mg/kg | 08.15.19 04.34 | | 1 |
| **Total TPH** | PHC635 | **1130** | 24.9 | mg/kg | 08.15.19 04.34 | | 1 |
| **Total GRO-DRO** | PHC628 | **999** | 24.9 | mg/kg | 08.15.19 04.34 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 94 | % | 70-135 | 08.15.19 04.34 | |
| o-Terphenyl | 84-15-1 | 97 | % | 70-135 | 08.15.19 04.34 | |

# Certificate of Analytical Results 633950

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3747)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01** | Matrix: | Soil | Date Received: | 08.14.19 10.47 |
| Lab Sample Id: | 633950-003 | Date Collected: | 08.13.19 10.00 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | AMB | Date Prep: | 08.14.19 12.00 | Basis: | Wet Weight |
| Seq Number: | 3098657 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 08.15.19 13.35 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 08.15.19 13.35 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 08.15.19 13.35 | |
| 1,4-Difluorobenzene | 540-36-3 | 114 | % | 70-130 | 08.15.19 13.35 | |

# Flagging Criteria

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

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

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

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

**F** RPD exceeded lab control limits.

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

**U** Analyte was not detected.

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

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

**K** Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

# QC Summary 633950



## LT Environmental, Inc.

PLU 261 (2RP-3747)

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098607 Matrix: Solid Date Prep: 08.14.19
MB Sample Id: 7684210-1-BLK LCS Sample Id: 7684210-1-BKS LCSD Sample Id: 7684210-1-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 | 261 | 104 | 261 | 104 | 90-110 | 0 | 20 | mg/kg | 08.14.19 13:59 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098607 Matrix: Soil Date Prep: 08.14.19
Parent Sample Id: 633950-001 MS Sample Id: 633950-001 S MSD Sample Id: 633950-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 319 | 248 | 556 | 96 | 556 | 96 | 90-110 | 0 | 20 | mg/kg | 08.14.19 14:18 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098607 Matrix: Soil Date Prep: 08.14.19
Parent Sample Id: 633961-007 MS Sample Id: 633961-007 S MSD Sample Id: 633961-007 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 6.73 | 253 | 283 | 109 | 283 | 109 | 90-110 | 0 | 20 | mg/kg | 08.14.19 15:59 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3098650 Matrix: Solid Date Prep: 08.14.19
MB Sample Id: 7684239-1-BLK LCS Sample Id: 7684239-1-BKS LCSD Sample Id: 7684239-1-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 | 1060 | 106 | 1050 | 105 | 70-135 | 1 | 20 | mg/kg | 08.14.19 21:09 | |
| Diesel Range Organics (DRO) | <25.0 | 1000 | 995 | 100 | 994 | 99 | 70-135 | 0 | 20 | mg/kg | 08.14.19 21:09 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | | 117 | | 116 | | 70-135 | % | 08.14.19 21:09 |
| o-Terphenyl | 99 | | 104 | | 103 | | 70-135 | % | 08.14.19 21:09 |

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

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

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

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

# QC Summary 633950



## LT Environmental, Inc.

PLU 261 (2RP-3747)

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3098650 Matrix: Soil Date Prep: 08.14.19
Parent Sample Id: 633957-001 MS Sample Id: 633957-001 S MSD Sample Id: 633957-001 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 | 987 | 99 | 979 | 98 | 70-135 | 1 | 20 | mg/kg | 08.14.19 22:07 | |
| Diesel Range Organics (DRO) | 36.3 | 999 | 981 | 95 | 975 | 94 | 70-135 | 1 | 20 | mg/kg | 08.14.19 22:07 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 112 | | 109 | | 70-135 | % | 08.14.19 22:07 |
| o-Terphenyl | 92 | | 93 | | 70-135 | % | 08.14.19 22:07 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3098657 Matrix: Solid Date Prep: 08.14.19
MB Sample Id: 7684207-1-BLK LCS Sample Id: 7684207-1-BKS LCSD Sample Id: 7684207-1-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 | 0.0952 | 95 | 0.0958 | 96 | 70-130 | 1 | 35 | mg/kg | 08.14.19 22:01 | |
| Toluene | 0.000550 | 0.100 | 0.0888 | 89 | 0.0893 | 89 | 70-130 | 1 | 35 | mg/kg | 08.14.19 22:01 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.0886 | 89 | 0.0895 | 90 | 70-130 | 1 | 35 | mg/kg | 08.14.19 22:01 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.175 | 88 | 0.178 | 89 | 70-130 | 2 | 35 | mg/kg | 08.14.19 22:01 | |
| o-Xylene | <0.000344 | 0.100 | 0.0925 | 93 | 0.0941 | 94 | 70-130 | 2 | 35 | mg/kg | 08.14.19 22:01 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | | 97 | | 99 | | 70-130 | % | 08.14.19 22:01 |
| 4-Bromofluorobenzene | 108 | | 103 | | 106 | | 70-130 | % | 08.14.19 22:01 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3098657 Matrix: Soil Date Prep: 08.14.19
Parent Sample Id: 633950-001 MS Sample Id: 633950-001 S MSD Sample Id: 633950-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00198 | 0.0990 | 0.0798 | 81 | 0.0859 | 86 | 70-130 | 7 | 35 | mg/kg | 08.15.19 11:35 | |
| Toluene | <0.000451 | 0.0990 | 0.0623 | 63 | 0.0683 | 68 | 70-130 | 9 | 35 | mg/kg | 08.15.19 11:35 | X |
| Ethylbenzene | <0.00198 | 0.0990 | 0.0522 | 53 | 0.0551 | 55 | 70-130 | 5 | 35 | mg/kg | 08.15.19 11:35 | X |
| m,p-Xylenes | <0.00396 | 0.198 | 0.0890 | 45 | 0.0886 | 44 | 70-130 | 0 | 35 | mg/kg | 08.15.19 11:35 | X |
| o-Xylene | <0.00198 | 0.0990 | 0.0495 | 50 | 0.0512 | 51 | 70-130 | 3 | 35 | mg/kg | 08.15.19 11:35 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 109 | | 116 | | 70-130 | % | 08.15.19 11:35 |
| 4-Bromofluorobenzene | 98 | | 116 | | 70-130 | % | 08.15.19 11:35 |

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

# Chain of Custody

Work Order No: 633950

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

Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc., Permian office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 E Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432.236.3849 | Email: | bbelill@ltenv.com |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | PLU 261 (2RP-3947) | Turn Around | |
| Project Number: | 012918083 | Routine ☐ | |
| P.O. Number: | | Rush: 24hr | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temperature (°C): | 2.3/2.1 | Temp Blank: Yes ~~No~~ | Wet Ice: ~~Yes~~ No |
| Received Intact: | Yes No | Thermometer ID: | VE |
| Cooler Custody Seals: | Yes ~~No~~ N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes ~~No~~ N/A | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| FS01 | S | 8/13/19 | 0945 | 1' | 1 | X | X | X |
| FS02 | ↓ | ↓ | 0950 | 1' | ↓ | X | X | X |
| SW01 | ↓ | ↓ | 1000 | 1' | ↓ | X | X | X |

8021B 8/13/19

**Work Order Notes**

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

**Sample Comments**

**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*Circle Method(s) and Metal(s) to be analyzed* **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg



| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | | 8/13/19 @ 1:55 | 2 | Andres Montoya | 8/14/19 09:00 |
| 3 | | | | 4 | | 8/14/19 |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 08/14/2019 10:47:00 AM

**Work Order #:** 633950

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**

**Temperature Measuring device used : R8**

| Sample Receipt Checklist | Comments |
|---|---|
| #1 *Temperature of cooler(s)? | 2.1 |
| #2 *Shipping container in good condition? | **Yes** |
| #3 *Samples received on ice? | **Yes** |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** |
| #5 Custody Seals intact on sample bottles? | **N/A** |
| #6*Custody Seals Signed and dated? | **N/A** |
| #7 *Chain of Custody present? | **Yes** |
| #8 Any missing/extra samples? | **No** |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** |
| #11 Container label(s) legible and intact? | **Yes** |
| #12 Samples in proper container/ bottle? | **Yes** |
| #13 Samples properly preserved? | **Yes** |
| #14 Sample container(s) intact? | **Yes** |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** |
| #16 All samples received within hold time? | **Yes** |
| #17 Subcontract of sample(s)? | **N/A** |
| #18 Water VOC samples have zero headspace? | **N/A** |

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Brianna Teel Date: 08/14/2019

Brianna Teel

**Checklist reviewed by:** Jessica Kramer Date: 08/14/2019

Jessica Kramer

# Analytical Report 635225

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**PLU 261 (2RP-3947)**

**012918083**

**11-SEP-19**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Tampa: Florida (E87429), North Carolina (483)

11-SEP-19

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

Reference: XENCO Report No(s): **635225**
**PLU 261 (2RP-3947)**
Project Address:

**Dan Moir**:

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) 635225. 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. 635225 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

**Jessica Kramer**
Project Assistant

***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 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS01A | S | 08-26-19 14:00 | 2 ft | 635225-001 |
| FS02A | S | 08-26-19 14:05 | 1 ft | 635225-002 |
| FS03 | S | 08-26-19 14:20 | 1 - 2 ft | 635225-003 |
| FS04 | S | 08-26-19 14:25 | 1 ft | 635225-004 |
| FS05 | S | 08-26-19 14:27 | 1 ft | 635225-005 |
| FS06 | S | 08-26-19 14:30 | 1 ft | 635225-006 |
| SW01A | S | 08-26-19 16:00 | 0 - 2 ft | 635225-007 |
| SW02 | S | 08-26-19 16:05 | 0 - 1 ft | 635225-008 |
| SW03 | S | 08-26-19 16:10 | 0 - 1 ft | 635225-009 |
| SW04 | S | 08-26-19 16:15 | 0 - 2 ft | 635225-010 |
| SW05 | S | 08-26-19 16:20 | 0 - 2 ft | 635225-011 |
| SW06 | S | 08-26-19 16:25 | 0 - 2 ft | 635225-012 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: PLU 261 (2RP-3947)***

Project ID: *012918083*
Work Order Number(s): *635225*

Report Date: *11-SEP-19*
Date Received: *08/27/2019*

**Sample receipt non conformances and comments:**

PER CLIENTS EMAIL REQUEST CORRECTED SAMPLE NAMES BELOW. NEW VERSION GENERATED 09/11/19
FS01 --> FS01A
FS02 --> FS02A
SW01 --> SW01A

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3099983 Chloride by EPA 300
Lab Sample ID 635229-005 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: 635225-005, -006, -007, -008, -009, -010, -011, -012.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3100232 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 635225

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU 261 (2RP-3947)

**Project Id:** 012918083
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Tue Aug-27-19 11:35 am
**Report Date:** 11-SEP-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 635225-001 | | 635225-002 | | 635225-003 | | 635225-004 | | 635225-005 | | 635225-006 | |
| | ***Field Id:*** | FS01A | | FS02A | | FS03 | | FS04 | | FS05 | | FS06 | |
| | ***Depth:*** | 2- ft | | 1- ft | | 1-2 ft | | 1- ft | | 1- ft | | 1- ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Aug-26-19 14:00 | | Aug-26-19 14:05 | | Aug-26-19 14:20 | | Aug-26-19 14:25 | | Aug-26-19 14:27 | | Aug-26-19 14:30 | |
| **BTEX by EPA 8021B SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | |
| | ***Analyzed:*** | Aug-29-19 15:30 | | Aug-29-19 15:51 | | Aug-29-19 16:11 | | Aug-29-19 16:31 | | Aug-29-19 16:51 | | Aug-29-19 18:09 | |
| | ***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 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| Toluene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00402 | 0.00402 | <0.00398 | 0.00398 | <0.00398 | 0.00398 | <0.00402 | 0.00402 | <0.00402 | 0.00402 | <0.00400 | 0.00400 |
| o-Xylene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 |
| **Chloride by EPA 300 SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 15:15 | | Aug-28-19 15:15 | | Aug-28-19 15:15 | | Aug-28-19 15:15 | | Aug-28-19 15:00 | | Aug-28-19 15:00 | |
| | ***Analyzed:*** | Aug-29-19 15:59 | | Aug-29-19 16:06 | | Aug-29-19 16:12 | | Aug-29-19 16:18 | | Aug-28-19 16:04 | | Aug-28-19 15:41 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 73.3 | 4.95 | 148 | 5.04 | 122 | 5.00 | 723 | 5.00 | 795 | 4.96 | 44.3 | 5.00 |
| **TPH by SW8015 Mod SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | |
| | ***Analyzed:*** | Aug-29-19 05:05 | | Aug-29-19 06:04 | | Aug-29-19 06:23 | | Aug-29-19 06:43 | | Aug-29-19 07:03 | | Aug-29-19 07:22 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <24.9 | 24.9 | <24.9 | 24.9 | <25.0 | 25.0 | <25.0 | 25.0 | <25.0 | 25.0 | <24.9 | 24.9 |
| Diesel Range Organics (DRO) | | 1200 | 24.9 | 578 | 24.9 | 92.2 | 25.0 | 1200 | 25.0 | 1510 | 25.0 | 943 | 24.9 |
| Motor Oil Range Hydrocarbons (MRO) | | 198 | 24.9 | 120 | 24.9 | <25.0 | 25.0 | 226 | 25.0 | 294 | 25.0 | 173 | 24.9 |
| Total TPH | | 1400 | 24.9 | 698 | 24.9 | 92.2 | 25.0 | 1430 | 25.0 | 1800 | 25.0 | 1120 | 24.9 |
| Total GRO-DRO | | 1200 | 24.9 | 578 | 24.9 | 92.2 | 25.0 | 1200 | 25.0 | 1510 | 25.0 | 943 | 24.9 |





Jessica Kramer
Project Assistant

# Certificate of Analysis Summary 635225

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU 261 (2RP-3947)

**Project Id:** 012918083
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Tue Aug-27-19 11:35 am
**Report Date:** 11-SEP-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 635225-007 | | 635225-008 | | 635225-009 | | 635225-010 | | 635225-011 | | 635225-012 | |
| | ***Field Id:*** | SW01A | | SW02 | | SW03 | | SW04 | | SW05 | | SW06 | |
| | ***Depth:*** | 0-2 ft | | 0-1 ft | | 0-1 ft | | 0-2 ft | | 0-2 ft | | 0-2 ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Aug-26-19 16:00 | | Aug-26-19 16:05 | | Aug-26-19 16:10 | | Aug-26-19 16:15 | | Aug-26-19 16:20 | | Aug-26-19 16:25 | |
| **BTEX by EPA 8021B SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | | Aug-28-19 16:00 | |
| | ***Analyzed:*** | Aug-29-19 18:29 | | Aug-29-19 18:50 | | Aug-29-19 19:10 | | Aug-29-19 19:30 | | Aug-29-19 19:50 | | Aug-29-19 20:10 | |
| | ***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 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Toluene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00402 | 0.00402 | <0.00400 | 0.00400 | <0.00402 | 0.00402 | <0.00399 | 0.00399 | <0.00401 | 0.00401 |
| o-Xylene | | <0.00200 | 0.00200 | 0.00364 | 0.00201 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00200 | 0.00200 | 0.00364 | 0.00201 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00200 | 0.00200 | 0.00364 | 0.00201 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| **Chloride by EPA 300 SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 15:00 | | Aug-28-19 15:00 | | Aug-28-19 15:00 | | Aug-28-19 15:00 | | Aug-28-19 15:00 | | Aug-28-19 15:00 | |
| | ***Analyzed:*** | Aug-28-19 16:11 | | Aug-28-19 16:17 | | Aug-28-19 16:23 | | Aug-28-19 16:42 | | Aug-28-19 16:48 | | Aug-28-19 16:55 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 30.4 | 5.02 | 254 | 4.99 | 154 | 4.95 | 534 | 4.95 | 235 | 4.95 | 88.5 | 4.95 |
| **TPH by SW8015 Mod SUB: T104704400-18-16** | ***Extracted:*** | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | | Aug-28-19 14:00 | |
| | ***Analyzed:*** | Aug-29-19 07:42 | | Aug-29-19 08:02 | | Aug-29-19 08:28 | | Aug-29-19 08:47 | | Aug-29-19 10:45 | | Aug-29-19 11:05 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <25.0 | 25.0 | <24.9 | 24.9 | <25.0 | 25.0 | <25.0 | 25.0 | <24.9 | 24.9 | <24.9 | 24.9 |
| Diesel Range Organics (DRO) | | 581 | 25.0 | 250 | 24.9 | 1060 | 25.0 | 2720 | 25.0 | 595 | 24.9 | 384 | 24.9 |
| Motor Oil Range Hydrocarbons (MRO) | | 151 | 25.0 | 68.1 | 24.9 | 276 | 25.0 | 377 | 25.0 | 237 | 24.9 | 117 | 24.9 |
| Total TPH | | 732 | 25.0 | 318 | 24.9 | 1340 | 25.0 | 3100 | 25.0 | 832 | 24.9 | 501 | 24.9 |
| Total GRO-DRO | | 581 | 25.0 | 250 | 24.9 | 1060 | 25.0 | 2720 | 25.0 | 595 | 24.9 | 384 | 24.9 |



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

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-001 | Date Collected: | 08.26.19 14.00 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.15 | Basis: | Wet Weight |
| Seq Number: | 3100130 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **73.3** | 4.95 | mg/kg | 08.29.19 15.59 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 05.05 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1200** | 24.9 | mg/kg | 08.29.19 05.05 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **198** | 24.9 | mg/kg | 08.29.19 05.05 | | 1 |
| **Total TPH** | PHC635 | **1400** | 24.9 | mg/kg | 08.29.19 05.05 | | 1 |
| **Total GRO-DRO** | PHC628 | **1200** | 24.9 | mg/kg | 08.29.19 05.05 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 91 | % | 70-135 | 08.29.19 05.05 | |
| o-Terphenyl | 84-15-1 | 108 | % | 70-135 | 08.29.19 05.05 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-001 | Date Collected: | 08.26.19 14.00 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 08.29.19 15.30 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 08.29.19 15.30 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 105 | % | 70-130 | 08.29.19 15.30 | |
| 4-Bromofluorobenzene | 460-00-4 | 129 | % | 70-130 | 08.29.19 15.30 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-002 | Date Collected: | 08.26.19 14.05 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.15 | Basis: | Wet Weight |
| Seq Number: | 3100130 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **148** | 5.04 | mg/kg | 08.29.19 16.06 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 06.04 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **578** | 24.9 | mg/kg | 08.29.19 06.04 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **120** | 24.9 | mg/kg | 08.29.19 06.04 | | 1 |
| **Total TPH** | PHC635 | **698** | 24.9 | mg/kg | 08.29.19 06.04 | | 1 |
| **Total GRO-DRO** | PHC628 | **578** | 24.9 | mg/kg | 08.29.19 06.04 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 08.29.19 06.04 | |
| o-Terphenyl | 84-15-1 | 93 | % | 70-135 | 08.29.19 06.04 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-002 | Date Collected: | 08.26.19 14.05 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 08.29.19 15.51 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 08.29.19 15.51 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 08.29.19 15.51 | |
| 4-Bromofluorobenzene | 460-00-4 | 114 | % | 70-130 | 08.29.19 15.51 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-003 | Date Collected: | 08.26.19 14.20 | Sample Depth: | 1 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.15 | Basis: | Wet Weight |
| Seq Number: | 3100130 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **122** | 5.00 | mg/kg | 08.29.19 16.12 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 06.23 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **92.2** | 25.0 | mg/kg | 08.29.19 06.23 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <25.0 | 25.0 | mg/kg | 08.29.19 06.23 | U | 1 |
| **Total TPH** | PHC635 | **92.2** | 25.0 | mg/kg | 08.29.19 06.23 | | 1 |
| **Total GRO-DRO** | PHC628 | **92.2** | 25.0 | mg/kg | 08.29.19 06.23 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 08.29.19 06.23 | |
| o-Terphenyl | 84-15-1 | 89 | % | 70-135 | 08.29.19 06.23 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-003 | Date Collected: | 08.26.19 14.20 | Sample Depth: | 1 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 08.29.19 16.11 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 08.29.19 16.11 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 08.29.19 16.11 | |
| 4-Bromofluorobenzene | 460-00-4 | 117 | % | 70-130 | 08.29.19 16.11 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-004 | Date Collected: | 08.26.19 14.25 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.15 | Basis: | Wet Weight |
| Seq Number: | 3100130 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **723** | 5.00 | mg/kg | 08.29.19 16.18 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 06.43 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1200** | 25.0 | mg/kg | 08.29.19 06.43 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **226** | 25.0 | mg/kg | 08.29.19 06.43 | | 1 |
| **Total TPH** | PHC635 | **1430** | 25.0 | mg/kg | 08.29.19 06.43 | | 1 |
| **Total GRO-DRO** | PHC628 | **1200** | 25.0 | mg/kg | 08.29.19 06.43 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 91 | % | 70-135 | 08.29.19 06.43 | |
| o-Terphenyl | 84-15-1 | 105 | % | 70-135 | 08.29.19 06.43 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-004 | Date Collected: | 08.26.19 14.25 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 08.29.19 16.31 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.31 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 104 | % | 70-130 | 08.29.19 16.31 | |
| 4-Bromofluorobenzene | 460-00-4 | 117 | % | 70-130 | 08.29.19 16.31 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-005 | Date Collected: | 08.26.19 14.27 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **795** | 4.96 | mg/kg | 08.28.19 16.04 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 07.03 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1510** | 25.0 | mg/kg | 08.29.19 07.03 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **294** | 25.0 | mg/kg | 08.29.19 07.03 | | 1 |
| **Total TPH** | PHC635 | **1800** | 25.0 | mg/kg | 08.29.19 07.03 | | 1 |
| **Total GRO-DRO** | PHC628 | **1510** | 25.0 | mg/kg | 08.29.19 07.03 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 91 | % | 70-135 | 08.29.19 07.03 | |
| o-Terphenyl | 84-15-1 | 98 | % | 70-135 | 08.29.19 07.03 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-005 | Date Collected: | 08.26.19 14.27 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 08.29.19 16.51 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 08.29.19 16.51 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 08.29.19 16.51 | |
| 4-Bromofluorobenzene | 460-00-4 | 111 | % | 70-130 | 08.29.19 16.51 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS06** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-006 | Date Collected: | 08.26.19 14.30 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **44.3** | 5.00 | mg/kg | 08.28.19 15.41 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 07.22 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **943** | 24.9 | mg/kg | 08.29.19 07.22 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **173** | 24.9 | mg/kg | 08.29.19 07.22 | | 1 |
| **Total TPH** | PHC635 | **1120** | 24.9 | mg/kg | 08.29.19 07.22 | | 1 |
| **Total GRO-DRO** | PHC628 | **943** | 24.9 | mg/kg | 08.29.19 07.22 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 91 | % | 70-135 | 08.29.19 07.22 | |
| o-Terphenyl | 84-15-1 | 99 | % | 70-135 | 08.29.19 07.22 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS06** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-006 | Date Collected: | 08.26.19 14.30 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 08.29.19 18.09 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.09 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 117 | % | 70-130 | 08.29.19 18.09 | |
| 1,4-Difluorobenzene | 540-36-3 | 102 | % | 70-130 | 08.29.19 18.09 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-007 | Date Collected: | 08.26.19 16.00 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **30.4** | 5.02 | mg/kg | 08.28.19 16.11 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 07.42 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **581** | 25.0 | mg/kg | 08.29.19 07.42 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **151** | 25.0 | mg/kg | 08.29.19 07.42 | | 1 |
| **Total TPH** | PHC635 | **732** | 25.0 | mg/kg | 08.29.19 07.42 | | 1 |
| **Total GRO-DRO** | PHC628 | **581** | 25.0 | mg/kg | 08.29.19 07.42 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 89 | % | 70-135 | 08.29.19 07.42 | |
| o-Terphenyl | 84-15-1 | 91 | % | 70-135 | 08.29.19 07.42 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01A** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-007 | Date Collected: | 08.26.19 16.00 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 08.29.19 18.29 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.29.19 18.29 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 08.29.19 18.29 | |
| 4-Bromofluorobenzene | 460-00-4 | 103 | % | 70-130 | 08.29.19 18.29 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW02** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-008 | Date Collected: | 08.26.19 16.05 | Sample Depth: | 0 - 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **254** | 4.99 | mg/kg | 08.28.19 16.17 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 08.02 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **250** | 24.9 | mg/kg | 08.29.19 08.02 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **68.1** | 24.9 | mg/kg | 08.29.19 08.02 | | 1 |
| **Total TPH** | PHC635 | **318** | 24.9 | mg/kg | 08.29.19 08.02 | | 1 |
| **Total GRO-DRO** | PHC628 | **250** | 24.9 | mg/kg | 08.29.19 08.02 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 91 | % | 70-135 | 08.29.19 08.02 | |
| o-Terphenyl | 84-15-1 | 93 | % | 70-135 | 08.29.19 08.02 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW02** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-008 | Date Collected: | 08.26.19 16.05 | Sample Depth: | 0 - 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 08.29.19 18.50 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 08.29.19 18.50 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 08.29.19 18.50 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 08.29.19 18.50 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00364** | 0.00201 | mg/kg | 08.29.19 18.50 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00364** | 0.00201 | mg/kg | 08.29.19 18.50 | | 1 |
| **Total BTEX** | | **0.00364** | 0.00201 | mg/kg | 08.29.19 18.50 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 08.29.19 18.50 | |
| 1,4-Difluorobenzene | 540-36-3 | 101 | % | 70-130 | 08.29.19 18.50 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW03** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-009 | Date Collected: | 08.26.19 16.10 | Sample Depth: | 0 - 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **154** | 4.95 | mg/kg | 08.28.19 16.23 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 08.28 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1060** | 25.0 | mg/kg | 08.29.19 08.28 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **276** | 25.0 | mg/kg | 08.29.19 08.28 | | 1 |
| **Total TPH** | PHC635 | **1340** | 25.0 | mg/kg | 08.29.19 08.28 | | 1 |
| **Total GRO-DRO** | PHC628 | **1060** | 25.0 | mg/kg | 08.29.19 08.28 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 99 | % | 70-135 | 08.29.19 08.28 | |
| o-Terphenyl | 84-15-1 | 108 | % | 70-135 | 08.29.19 08.28 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW03** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-009 | Date Collected: | 08.26.19 16.10 | Sample Depth: | 0 - 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 08.29.19 19.10 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.10 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 08.29.19 19.10 | |
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 08.29.19 19.10 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW04** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-010 | Date Collected: | 08.26.19 16.15 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **534** | 4.95 | mg/kg | 08.28.19 16.42 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <25.0 | 25.0 | mg/kg | 08.29.19 08.47 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **2720** | 25.0 | mg/kg | 08.29.19 08.47 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **377** | 25.0 | mg/kg | 08.29.19 08.47 | | 1 |
| **Total TPH** | PHC635 | **3100** | 25.0 | mg/kg | 08.29.19 08.47 | | 1 |
| **Total GRO-DRO** | PHC628 | **2720** | 25.0 | mg/kg | 08.29.19 08.47 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 81 | % | 70-135 | 08.29.19 08.47 | |
| o-Terphenyl | 84-15-1 | 111 | % | 70-135 | 08.29.19 08.47 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW04** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-010 | Date Collected: | 08.26.19 16.15 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 08.29.19 19.30 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 08.29.19 19.30 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 128 | % | 70-130 | 08.29.19 19.30 | |
| 1,4-Difluorobenzene | 540-36-3 | 104 | % | 70-130 | 08.29.19 19.30 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-011 | Date Collected: | 08.26.19 16.20 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **235** | 4.95 | mg/kg | 08.28.19 16.48 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 10.45 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **595** | 24.9 | mg/kg | 08.29.19 10.45 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **237** | 24.9 | mg/kg | 08.29.19 10.45 | | 1 |
| **Total TPH** | PHC635 | **832** | 24.9 | mg/kg | 08.29.19 10.45 | | 1 |
| **Total GRO-DRO** | PHC628 | **595** | 24.9 | mg/kg | 08.29.19 10.45 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 08.29.19 10.45 | |
| o-Terphenyl | 84-15-1 | 90 | % | 70-135 | 08.29.19 10.45 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-011 | Date Collected: | 08.26.19 16.20 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 08.29.19 19.50 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.29.19 19.50 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 123 | % | 70-130 | 08.29.19 19.50 | |
| 1,4-Difluorobenzene | 540-36-3 | 101 | % | 70-130 | 08.29.19 19.50 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-012 | Date Collected: | 08.26.19 16.25 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 08.28.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3099983 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **88.5** | 4.95 | mg/kg | 08.28.19 16.55 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 08.28.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3100068 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <24.9 | 24.9 | mg/kg | 08.29.19 11.05 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **384** | 24.9 | mg/kg | 08.29.19 11.05 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **117** | 24.9 | mg/kg | 08.29.19 11.05 | | 1 |
| **Total TPH** | PHC635 | **501** | 24.9 | mg/kg | 08.29.19 11.05 | | 1 |
| **Total GRO-DRO** | PHC628 | **384** | 24.9 | mg/kg | 08.29.19 11.05 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 89 | % | 70-135 | 08.29.19 11.05 | |
| o-Terphenyl | 84-15-1 | 95 | % | 70-135 | 08.29.19 11.05 | |

# Certificate of Analytical Results 635225

## LT Environmental, Inc., Arvada, CO

PLU 261 (2RP-3947)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 08.27.19 11.35 |
| Lab Sample Id: | 635225-012 | Date Collected: | 08.26.19 16.25 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 08.28.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3100232 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 08.29.19 20.10 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 08.29.19 20.10 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 120 | % | 70-130 | 08.29.19 20.10 | |
| 1,4-Difluorobenzene | 540-36-3 | 101 | % | 70-130 | 08.29.19 20.10 | |

# Flagging Criteria

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

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

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

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

**F** RPD exceeded lab control limits.

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

**U** Analyte was not detected.

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

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

**K** Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

# QC Summary 635225



## LT Environmental, Inc.

PLU 261 (2RP-3947)

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3099983 — Matrix: Solid — Date Prep: 08.28.19
MB Sample Id: 7685187-1-BLK — LCS Sample Id: 7685187-1-BKS — LCSD Sample Id: 7685187-1-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 | 242 | 97 | 242 | 97 | 90-110 | 0 | 20 | mg/kg | 08.28.19 15:29 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3100130 — Matrix: Solid — Date Prep: 08.28.19
MB Sample Id: 7685188-1-BLK — LCS Sample Id: 7685188-1-BKS — LCSD Sample Id: 7685188-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 251 | 100 | 250 | 100 | 90-110 | 0 | 20 | mg/kg | 08.29.19 12:58 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3099983 — Matrix: Soil — Date Prep: 08.28.19
Parent Sample Id: 635225-006 — MS Sample Id: 635225-006 S — MSD Sample Id: 635225-006 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 44.3 | 250 | 257 | 85 | 258 | 85 | 90-110 | 0 | 20 | mg/kg | 08.28.19 15:48 | X |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3099983 — Matrix: Soil — Date Prep: 08.28.19
Parent Sample Id: 635229-005 — MS Sample Id: 635229-005 S — MSD Sample Id: 635229-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14.1 | 249 | 226 | 85 | 226 | 85 | 90-110 | 0 | 20 | mg/kg | 08.28.19 17:20 | X |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3100130 — Matrix: Soil — Date Prep: 08.28.19
Parent Sample Id: 635221-001 — MS Sample Id: 635221-001 S — MSD Sample Id: 635221-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 307 | 251 | 557 | 100 | 558 | 100 | 90-110 | 0 | 20 | mg/kg | 08.29.19 14:59 | |

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

# QC Summary 635225



## LT Environmental, Inc.

PLU 261 (2RP-3947)

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3100130 Matrix: Soil Date Prep: 08.28.19
Parent Sample Id: 635232-002 MS Sample Id: 635232-002 S MSD Sample Id: 635232-002 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 20.9 | 251 | 272 | 100 | 272 | 100 | 90-110 | 0 | 20 | mg/kg | 08.29.19 13:19 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3100068 Matrix: Solid Date Prep: 08.28.19
MB Sample Id: 7685193-1-BLK LCS Sample Id: 7685193-1-BKS LCSD Sample Id: 7685193-1-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 | 1030 | 103 | 988 | 99 | 70-135 | 4 | 20 | mg/kg | 08.29.19 04:25 | |
| Diesel Range Organics (DRO) | <25.0 | 1000 | 938 | 94 | 917 | 92 | 70-135 | 2 | 20 | mg/kg | 08.29.19 04:25 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 86 | | 119 | | 118 | | 70-135 | % | 08.29.19 04:25 |
| o-Terphenyl | 83 | | 108 | | 101 | | 70-135 | % | 08.29.19 04:25 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3100068 Matrix: Soil Date Prep: 08.28.19
Parent Sample Id: 635225-001 MS Sample Id: 635225-001 S MSD Sample Id: 635225-001 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 | 972 | 97 | 970 | 97 | 70-135 | 0 | 20 | mg/kg | 08.29.19 05:24 | |
| Diesel Range Organics (DRO) | 1200 | 999 | 2000 | 80 | 2010 | 81 | 70-135 | 0 | 20 | mg/kg | 08.29.19 05:24 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 120 | | 113 | | 70-135 | % | 08.29.19 05:24 |
| o-Terphenyl | 116 | | 111 | | 70-135 | % | 08.29.19 05:24 |

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

# QC Summary 635225



## LT Environmental, Inc.

PLU 261 (2RP-3947)

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3100232 Matrix: Solid Date Prep: 08.28.19
MB Sample Id: 7685217-1-BLK LCS Sample Id: 7685217-1-BKS LCSD Sample Id: 7685217-1-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 | 0.0873 | 87 | 0.0969 | 97 | 70-130 | 10 | 35 | mg/kg | 08.29.19 11:50 | |
| Toluene | <0.000456 | 0.100 | 0.0886 | 89 | 0.0992 | 99 | 70-130 | 11 | 35 | mg/kg | 08.29.19 11:50 | |
| Ethylbenzene | <0.000565 | 0.100 | 0.0955 | 96 | 0.108 | 108 | 70-130 | 12 | 35 | mg/kg | 08.29.19 11:50 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.186 | 93 | 0.210 | 105 | 70-130 | 12 | 35 | mg/kg | 08.29.19 11:50 | |
| o-Xylene | <0.000344 | 0.100 | 0.0962 | 96 | 0.109 | 109 | 70-130 | 12 | 35 | mg/kg | 08.29.19 11:50 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | | 97 | | 101 | | 70-130 | % | 08.29.19 11:50 |
| 4-Bromofluorobenzene | 95 | | 109 | | 111 | | 70-130 | % | 08.29.19 11:50 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3100232 Matrix: Soil Date Prep: 08.28.19
Parent Sample Id: 635221-001 MS Sample Id: 635221-001 S MSD Sample Id: 635221-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.0998 | 0.0673 | 67 | 0.0471 | 48 | 70-130 | 35 | 35 | mg/kg | 08.29.19 12:30 | X |
| Toluene | 0.00123 | 0.0998 | 0.0724 | 71 | 0.0514 | 51 | 70-130 | 34 | 35 | mg/kg | 08.29.19 12:30 | X |
| Ethylbenzene | 0.000656 | 0.0998 | 0.0774 | 77 | 0.0532 | 53 | 70-130 | 37 | 35 | mg/kg | 08.29.19 12:30 | XF |
| m,p-Xylenes | 0.00174 | 0.200 | 0.151 | 75 | 0.102 | 51 | 70-130 | 39 | 35 | mg/kg | 08.29.19 12:30 | XF |
| o-Xylene | 0.000825 | 0.0998 | 0.0804 | 80 | 0.0536 | 53 | 70-130 | 40 | 35 | mg/kg | 08.29.19 12:30 | XF |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | | 102 | | 70-130 | % | 08.29.19 12:30 |
| 4-Bromofluorobenzene | 118 | | 114 | | 70-130 | % | 08.29.19 12:30 |

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

# Chain of Custody

Work Order No: 635225

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
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Page 1 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc., Permian office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 E Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432.236.3849 Email: | | bbelill@ltenv.com |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | PLU 261 (2RP-3447) | Turn Around | |
| Project Number: | 0129180833 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No | |
| Temperature (°C): | 1.3 | Thermometer ID | | |
| Received Intact: | (Yes) No | TNM007 | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 | |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | 12 | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| FS01 | S | 8/26/19 | 1400 | 3' | 1 | X | X | X |
| FS02 | | | 1405 | 1' | | X | X | X |
| FS03 | | | 1420 | 1-2' | | X | X | X |
| FS04 | | | 1425 | 1' | | X | X | X |
| FS05 | | | 1427 | 1' | | X | X | X |
| FS06 | | | 1430 | 1' | | X | X | X |
| SW01 | | | 1600 | 0-2' | | X | X | X |
| SW02 | | | 1605 | 0-1' | | X | X | X |
| SW03 | | | 1610 | 0-1' | | X | X | X |
| SW04 | | | 1615 | 0-1' | | X | X | X |

**ANALYSIS REQUEST**

**Work Order Notes**

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

**Sample Comments**

**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*Circle Method(s) and Metal(s) to be analyzed* **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg



| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| | | 08/27/2019 9:00 | 2 | | 08/27/2019 11:35 |
| | | | 4 | | |
| | | | 6 | | |

Revised Date 051418 Rev. 2018.1





1.001

# Chain of Custody

Work Order No: 635225

XENCO LABORATORIES

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

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| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc., Permian office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 E Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432.236.3849 Email: | bbelill@ltenv.com | |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | PW 26 (2RP-3947) | Turn Around | |
| Project Number: | 01291808 3 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

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

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| SW05 | S | 8/26/19 | 1620 | 0-2' | 1 | X | X | X |
| SW06 | S | 8/26/19 | 1625 | 0-2' | 1 | X | X | X |

**ANALYSIS REQUEST**

**Work Order Notes**

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

**Sample Comments**

8/26/19

**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*Circle Method(s) and Metal(s) to be analyzed* **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg



| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| | | 08/27/2019 9:00 | 2 | | 08/27/2019 11:35 |
| | | | 4 | | |
| | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# Inter-Office Shipment





**IOS Number** **46974**

Date/Time: 08/27/19 14:16
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 776092467348

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 635225-001 | S | FS01 | 08/26/19 14:00 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-001 | S | FS01 | 08/26/19 14:00 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-001 | S | FS01 | 08/26/19 14:00 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-002 | S | FS02 | 08/26/19 14:05 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-002 | S | FS02 | 08/26/19 14:05 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-002 | S | FS02 | 08/26/19 14:05 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-003 | S | FS03 | 08/26/19 14:20 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-003 | S | FS03 | 08/26/19 14:20 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-003 | S | FS03 | 08/26/19 14:20 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-004 | S | FS04 | 08/26/19 14:25 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-004 | S | FS04 | 08/26/19 14:25 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-004 | S | FS04 | 08/26/19 14:25 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-005 | S | FS05 | 08/26/19 14:27 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-005 | S | FS05 | 08/26/19 14:27 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-005 | S | FS05 | 08/26/19 14:27 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-006 | S | FS06 | 08/26/19 14:30 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-006 | S | FS06 | 08/26/19 14:30 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-006 | S | FS06 | 08/26/19 14:30 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-007 | S | SW01 | 08/26/19 16:00 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-007 | S | SW01 | 08/26/19 16:00 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-007 | S | SW01 | 08/26/19 16:00 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-008 | S | SW02 | 08/26/19 16:05 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-008 | S | SW02 | 08/26/19 16:05 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-008 | S | SW02 | 08/26/19 16:05 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-009 | S | SW03 | 08/26/19 16:10 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |

# Inter-Office Shipment





**IOS Number** **46974**

Date/Time: 08/27/19 14:16
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 776092467348

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 635225-009 | S | SW03 | 08/26/19 16:10 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-009 | S | SW03 | 08/26/19 16:10 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-010 | S | SW04 | 08/26/19 16:15 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-010 | S | SW04 | 08/26/19 16:15 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-010 | S | SW04 | 08/26/19 16:15 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-011 | S | SW05 | 08/26/19 16:20 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 635225-011 | S | SW05 | 08/26/19 16:20 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-011 | S | SW05 | 08/26/19 16:20 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-012 | S | SW06 | 08/26/19 16:25 | SW8015MOD_NM | TPH by SW8015 Mod | 09/03/19 | 09/09/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 635225-012 | S | SW06 | 08/26/19 16:25 | E300_CL | Chloride by EPA 300 | 09/03/19 | 02/22/20 | JKR | CL | |
| 635225-012 | S | SW06 | 08/26/19 16:25 | SW8021B | BTEX by EPA 8021B | 09/03/19 | 09/09/19 | JKR | BR4FBZ BZ BZME EBZ X | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan
Date Relinquished: 08/27/2019

Received By: Brianna Teel
Date Received: 08/28/2019 11:29
Cooler Temperature: 2.3

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 46974

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : R8**

**Sent By:** Elizabeth McClellan **Date Sent:** 08/27/2019 02:16 PM

**Received By:** Brianna Teel **Date Received:** 08/28/2019 11:29 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 2.3 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Brianna Teel Date: 08/28/2019

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 08/27/2019 11:35:00 AM

**Work Order #:** 635225

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**

**Temperature Measuring device used : T-NM-007**

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 1.3 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **No** | |
| #5 Custody Seals intact on sample bottles? | **No** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **Yes** | |
| #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)? | **Yes** | Subbed to Xenco Midland. |
| #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:** Elizabeth McClellan Date: 08/27/2019

**Checklist reviewed by:** Jessica Kramer Date: 08/28/2019

Jessica Kramer

# Analytical Report 637438

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**PLU 261**

**012918083**

**02-OCT-19**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

02-OCT-19

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

Reference: XENCO Report No(s): **637438**
**PLU 261**
Project Address:

**Dan Moir**:

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) 637438. 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. 637438 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

**Jessica Kramer**
Project Assistant

***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 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS01A | S | 09-18-19 10:00 | 2.5 ft | 637438-001 |
| FS05A | S | 09-18-19 10:15 | 2 ft | 637438-002 |
| SW07 | S | 09-18-19 11:00 | 0 - 2 ft | 637438-003 |
| SW08 | S | 09-18-19 11:30 | 0 - 2 ft | 637438-004 |
| FS04A | S | 09-18-19 14:30 | 1 - 2 ft | 637438-005 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: PLU 261***

Project ID: *012918083*
Work Order Number(s): *637438*

Report Date: *02-OCT-19*
Date Received: *09/19/2019*

**Sample receipt non conformances and comments:**

Revision due to re run of samples 001 & 004. New data imported. New Version generated. JK 10/02/19

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3102203 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3102246 TPH by SW8015 Mod
Surrogate 1-Chlorooctane, Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected;
Samples affected are: 637438-001.

# Certificate of Analysis Summary 637438

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU 261

**Project Id:** 012918083
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Thu Sep-19-19 10:50 am
**Report Date:** 02-OCT-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 637438-001 | | 637438-002 | | 637438-003 | | 637438-004 | | 637438-005 | |
| | ***Field Id:*** | FS01A | | FS05A | | SW07 | | SW08 | | FS04A | |
| | ***Depth:*** | 2.5- ft | | 2- ft | | 0-2 ft | | 0-2 ft | | 1-2 ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Sep-18-19 10:00 | | Sep-18-19 10:15 | | Sep-18-19 11:00 | | Sep-18-19 11:30 | | Sep-18-19 14:30 | |
| **BTEX by EPA 8021B SUB: T104704400-19-19** | ***Extracted:*** | Sep-20-19 11:30 | | Sep-20-19 11:30 | | Sep-20-19 11:30 | | Sep-20-19 11:30 | | Sep-20-19 11:30 | |
| | ***Analyzed:*** | Sep-21-19 11:49 | | Sep-21-19 12:09 | | Sep-21-19 12:29 | | Sep-21-19 12:49 | | Sep-21-19 13:09 | |
| | ***Units/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 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| Toluene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| m,p-Xylenes | | <0.00399 | 0.00399 | <0.00398 | 0.00398 | <0.00398 | 0.00398 | <0.00402 | 0.00402 | <0.00397 | 0.00397 |
| o-Xylene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| Total BTEX | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00198 | 0.00198 |
| **Chloride by EPA 300 SUB: T104704400-19-19** | ***Extracted:*** | Sep-20-19 13:20 | | Sep-20-19 13:20 | | Sep-20-19 13:20 | | Sep-20-19 13:20 | | Sep-20-19 13:30 | |
| | ***Analyzed:*** | Sep-20-19 16:09 | | Sep-20-19 17:16 | | Sep-20-19 17:24 | | Sep-20-19 17:31 | | Sep-20-19 16:57 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 35.3 | 5.00 | 254 | 4.95 | 224 | 5.04 | 768 | 5.05 | 387 | 5.00 |
| **TPH by SW8015 Mod SUB: T104704400-19-19** | ***Extracted:*** | Sep-20-19 13:00 | | Sep-20-19 13:00 | | Sep-20-19 13:00 | | Sep-20-19 13:00 | | Sep-20-19 13:00 | |
| | ***Analyzed:*** | Sep-27-19 23:29 | | Sep-21-19 02:14 | | Sep-21-19 02:35 | | Sep-27-19 23:50 | | Sep-21-19 03:17 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Diesel Range Organics (DRO) | | 227 | 49.9 | 65.3 | 50.0 | 199 | 50.0 | 788 | 50.0 | 67.9 | 49.9 |
| Motor Oil Range Hydrocarbons (MRO) | | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | 106 | 50.0 | <49.9 | 49.9 |
| Total GRO-DRO | | 227 | 49.9 | 65.3 | 50.0 | 199 | 50.0 | 788 | 50.0 | 67.9 | 49.9 |
| Total TPH | | 227 | 49.9 | 65.3 | 50.0 | 199 | 50.0 | 894 | 50.0 | 67.9 | 49.9 |



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Version: 1.%

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-001 | Date Collected: | 09.18.19 10.00 | Sample Depth: | 2.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 09.20.19 13.20 | Basis: | Wet Weight |
| Seq Number: | 3102109 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **35.3** | 5.00 | mg/kg | 09.20.19 16.09 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 09.20.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3102246 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 09.27.19 23.29 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **227** | 49.9 | mg/kg | 09.27.19 23.29 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 09.27.19 23.29 | U | 1 |
| **Total GRO-DRO** | PHC628 | **227** | 49.9 | mg/kg | 09.27.19 23.29 | | 1 |
| **Total TPH** | PHC635 | **227** | 49.9 | mg/kg | 09.27.19 23.29 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 129 | % | 70-135 | 09.27.19 23.29 | |
| o-Terphenyl | 84-15-1 | 128 | % | 70-135 | 09.27.19 23.29 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-001 | Date Collected: | 09.18.19 10.00 | Sample Depth: | 2.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 09.20.19 11.30 | Basis: | Wet Weight |
| Seq Number: | 3102203 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 09.21.19 11.49 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 09.21.19 11.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 95 | % | 70-130 | 09.21.19 11.49 | |
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 09.21.19 11.49 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-002 | Date Collected: | 09.18.19 10.15 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 09.20.19 13.20 | Basis: | Wet Weight |
| Seq Number: | 3102109 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **254** | 4.95 | mg/kg | 09.20.19 17.16 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 09.20.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3102246 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 09.21.19 02.14 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **65.3** | 50.0 | mg/kg | 09.21.19 02.14 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 09.21.19 02.14 | U | 1 |
| **Total GRO-DRO** | PHC628 | **65.3** | 50.0 | mg/kg | 09.21.19 02.14 | | 1 |
| **Total TPH** | PHC635 | **65.3** | 50.0 | mg/kg | 09.21.19 02.14 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 128 | % | 70-135 | 09.21.19 02.14 | |
| o-Terphenyl | 84-15-1 | 125 | % | 70-135 | 09.21.19 02.14 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-002 | Date Collected: | 09.18.19 10.15 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 09.20.19 11.30 | Basis: | Wet Weight |
| Seq Number: | 3102203 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 09.21.19 12.09 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.09 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 108 | % | 70-130 | 09.21.19 12.09 | |
| 1,4-Difluorobenzene | 540-36-3 | 101 | % | 70-130 | 09.21.19 12.09 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-003 | Date Collected: | 09.18.19 11.00 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 09.20.19 13.20 | Basis: | Wet Weight |
| Seq Number: | 3102109 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **224** | 5.04 | mg/kg | 09.20.19 17.24 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 09.20.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3102246 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 09.21.19 02.35 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **199** | 50.0 | mg/kg | 09.21.19 02.35 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 09.21.19 02.35 | U | 1 |
| **Total GRO-DRO** | PHC628 | **199** | 50.0 | mg/kg | 09.21.19 02.35 | | 1 |
| **Total TPH** | PHC635 | **199** | 50.0 | mg/kg | 09.21.19 02.35 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 131 | % | 70-135 | 09.21.19 02.35 | |
| o-Terphenyl | 84-15-1 | 129 | % | 70-135 | 09.21.19 02.35 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-003 | Date Collected: | 09.18.19 11.00 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 09.20.19 11.30 | Basis: | Wet Weight |
| Seq Number: | 3102203 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 09.21.19 12.29 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 09.21.19 12.29 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 09.21.19 12.29 | |
| 4-Bromofluorobenzene | 460-00-4 | 104 | % | 70-130 | 09.21.19 12.29 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-004 | Date Collected: | 09.18.19 11.30 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 09.20.19 13.20 | Basis: | Wet Weight |
| Seq Number: | 3102109 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **768** | 5.05 | mg/kg | 09.20.19 17.31 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 09.20.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3102246 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 09.27.19 23.50 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **788** | 50.0 | mg/kg | 09.27.19 23.50 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **106** | 50.0 | mg/kg | 09.27.19 23.50 | | 1 |
| **Total GRO-DRO** | PHC628 | **788** | 50.0 | mg/kg | 09.27.19 23.50 | | 1 |
| **Total TPH** | PHC635 | **894** | 50.0 | mg/kg | 09.27.19 23.50 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 127 | % | 70-135 | 09.27.19 23.50 | |
| o-Terphenyl | 84-15-1 | 126 | % | 70-135 | 09.27.19 23.50 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-004 | Date Collected: | 09.18.19 11.30 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 09.20.19 11.30 | Basis: | Wet Weight |
| Seq Number: | 3102203 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 09.21.19 12.49 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 09.21.19 12.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 108 | % | 70-130 | 09.21.19 12.49 | |
| 1,4-Difluorobenzene | 540-36-3 | 101 | % | 70-130 | 09.21.19 12.49 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-005 | Date Collected: | 09.18.19 14.30 | Sample Depth: | 1 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 09.20.19 13.30 | Basis: | Wet Weight |
| Seq Number: | 3102110 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **387** | 5.00 | mg/kg | 09.20.19 16.57 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 09.20.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3102246 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 09.21.19 03.17 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **67.9** | 49.9 | mg/kg | 09.21.19 03.17 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 09.21.19 03.17 | U | 1 |
| **Total GRO-DRO** | PHC628 | **67.9** | 49.9 | mg/kg | 09.21.19 03.17 | | 1 |
| **Total TPH** | PHC635 | **67.9** | 49.9 | mg/kg | 09.21.19 03.17 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 124 | % | 70-135 | 09.21.19 03.17 | |
| o-Terphenyl | 84-15-1 | 127 | % | 70-135 | 09.21.19 03.17 | |

# Certificate of Analytical Results 637438

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04A** | Matrix: | Soil | Date Received: | 09.19.19 10.50 |
| Lab Sample Id: | 637438-005 | Date Collected: | 09.18.19 14.30 | Sample Depth: | 1 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 09.20.19 11.30 | Basis: | Wet Weight |
| Seq Number: | 3102203 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00397 | 0.00397 | mg/kg | 09.21.19 13.09 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 09.21.19 13.09 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 09.21.19 13.09 | |
| 4-Bromofluorobenzene | 460-00-4 | 102 | % | 70-130 | 09.21.19 13.09 | |

# Flagging Criteria

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

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

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

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

**F** RPD exceeded lab control limits.

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

**U** Analyte was not detected.

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

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

**K** Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

# QC Summary 637438



## LT Environmental, Inc.

PLU 261

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3102109 — Matrix: Solid — Date Prep: 09.20.19
MB Sample Id: 7686607-1-BLK — LCS Sample Id: 7686607-1-BKS — LCSD Sample Id: 7686607-1-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 | 242 | 97 | 242 | 97 | 90-110 | 0 | 20 | mg/kg | 09.20.19 14:09 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3102110 — Matrix: Solid — Date Prep: 09.20.19
MB Sample Id: 7686622-1-BLK — LCS Sample Id: 7686622-1-BKS — LCSD Sample Id: 7686622-1-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 | 259 | 104 | 260 | 104 | 90-110 | 0 | 20 | mg/kg | 09.20.19 16:44 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3102109 — Matrix: Soil — Date Prep: 09.20.19
Parent Sample Id: 637438-001 — MS Sample Id: 637438-001 S — MSD Sample Id: 637438-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 35.3 | 250 | 275 | 96 | 275 | 96 | 90-110 | 0 | 20 | mg/kg | 09.20.19 16:16 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3102109 — Matrix: Soil — Date Prep: 09.20.19
Parent Sample Id: 637510-001 — MS Sample Id: 637510-001 S — MSD Sample Id: 637510-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 192 | 252 | 415 | 88 | 415 | 88 | 90-110 | 0 | 20 | mg/kg | 09.20.19 14:32 | X |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3102110 — Matrix: Soil — Date Prep: 09.20.19
Parent Sample Id: 637438-005 — MS Sample Id: 637438-005 S — MSD Sample Id: 637438-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 387 | 250 | 629 | 97 | 616 | 92 | 90-110 | 2 | 20 | mg/kg | 09.20.19 17:03 | |

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

# QC Summary 637438



## LT Environmental, Inc.

PLU 261

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3102110 Matrix: Soil Date Prep: 09.20.19
Parent Sample Id: 637482-003 MS Sample Id: 637482-003 S MSD Sample Id: 637482-003 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 95.7 | 252 | 353 | 102 | 348 | 100 | 90-110 | 1 | 20 | mg/kg | 09.20.19 18:34 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3102246 Matrix: Solid Date Prep: 09.20.19
MB Sample Id: 7686628-1-BLK LCS Sample Id: 7686628-1-BKS LCSD Sample Id: 7686628-1-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 | 1070 | 107 | 1060 | 106 | 70-135 | 1 | 20 | mg/kg | 09.20.19 19:35 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 1050 | 105 | 1050 | 105 | 70-135 | 0 | 20 | mg/kg | 09.20.19 19:35 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 116 | | 125 | | 131 | | 70-135 | % | 09.20.19 19:35 |
| o-Terphenyl | 120 | | 126 | | 125 | | 70-135 | % | 09.20.19 19:35 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3102246 Matrix: Soil Date Prep: 09.20.19
Parent Sample Id: 637427-006 MS Sample Id: 637427-006 S MSD Sample Id: 637427-006 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 | 1080 | 108 | 1080 | 108 | 70-135 | 0 | 20 | mg/kg | 09.20.19 20:38 | |
| Diesel Range Organics (DRO) | 89.8 | 999 | 1140 | 105 | 1130 | 104 | 70-135 | 1 | 20 | mg/kg | 09.20.19 20:38 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 128 | | 128 | | 70-135 | % | 09.20.19 20:38 |
| o-Terphenyl | 128 | | 126 | | 70-135 | % | 09.20.19 20:38 |

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

# QC Summary 637438



## LT Environmental, Inc.

PLU 261

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

Seq Number: 3102203 Matrix: Solid Date Prep: 09.20.19

MB Sample Id: 7686580-1-BLK LCS Sample Id: 7686580-1-BKS LCSD Sample Id: 7686580-1-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 | 0.0962 | 96 | 0.0917 | 92 | 70-130 | 5 | 35 | mg/kg | 09.21.19 04:29 | |
| Toluene | <0.00200 | 0.100 | 0.0982 | 98 | 0.0938 | 94 | 70-130 | 5 | 35 | mg/kg | 09.21.19 04:29 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.109 | 109 | 0.103 | 103 | 70-130 | 6 | 35 | mg/kg | 09.21.19 04:29 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.220 | 110 | 0.206 | 103 | 70-130 | 7 | 35 | mg/kg | 09.21.19 04:29 | |
| o-Xylene | <0.00200 | 0.100 | 0.114 | 114 | 0.108 | 108 | 70-130 | 5 | 35 | mg/kg | 09.21.19 04:29 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | | 96 | | 95 | | 70-130 | % | 09.21.19 04:29 |
| 4-Bromofluorobenzene | 105 | | 120 | | 115 | | 70-130 | % | 09.21.19 04:29 |

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

Seq Number: 3102203 Matrix: Soil Date Prep: 09.20.19

Parent Sample Id: 637427-001 MS Sample Id: 637427-001 S MSD Sample Id: 637427-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.0998 | 0.0806 | 81 | 0.0858 | 86 | 70-130 | 6 | 35 | mg/kg | 09.21.19 05:10 | |
| Toluene | <0.00200 | 0.0998 | 0.0785 | 79 | 0.0822 | 83 | 70-130 | 5 | 35 | mg/kg | 09.21.19 05:10 | |
| Ethylbenzene | <0.00200 | 0.0998 | 0.0808 | 81 | 0.0834 | 84 | 70-130 | 3 | 35 | mg/kg | 09.21.19 05:10 | |
| m,p-Xylenes | <0.00399 | 0.200 | 0.158 | 79 | 0.162 | 81 | 70-130 | 3 | 35 | mg/kg | 09.21.19 05:10 | |
| o-Xylene | <0.00200 | 0.0998 | 0.0796 | 80 | 0.0819 | 82 | 70-130 | 3 | 35 | mg/kg | 09.21.19 05:10 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 102 | | 102 | | 70-130 | % | 09.21.19 05:10 |
| 4-Bromofluorobenzene | 108 | | 110 | | 70-130 | % | 09.21.19 05:10 |

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

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

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

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

# Chain of Custody

XENCO LABORATORIES

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

www.xenco.com

**Work Order No:** 637438

Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc., Permian office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 E Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432.236.3849 | Email: | bbelill@ltenv.com |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | PLU 261 (2RP-3947) | Turn Around | |
| Project Number: | 01291808 3 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No |
| Temperature (°C): | 2.3 | Thermometer ID | |
| Received Intact: | (Yes) No | T-NM-007 | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | 5 |

**ANALYSIS REQUEST**

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| FS01A | S | 9/18/19 | 1000 | 2.5' | 1 | X | X | X |
| FS05A | | | 1015 | 2' | | X | X | X |
| SW07 | | | 1100 | 0-2' | | X | X | X |
| SW08 | | | 1130 | 0-2' | | X | X | X |
| FS04A | | | 1430 | 1-2' | | X | X | X |
| | | | | BCB | 9/18/19 | | | |

**Work Order Notes**

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

**Sample Comments**

**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*Circle Method(s) and Metal(s) to be analyzed* **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg



| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| BCB | | 9/19/19 10:50 | 2 | | |
| | | | 4 | | |



Final 1.001

# Inter-Office Shipment





**IOS Number** **48409**

Date/Time: 09/19/19 14:13
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 776288782636

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 637438-001 | S | FS01A | 09/18/19 10:00 | SW8015MOD_NM | TPH by SW8015 Mod | 09/25/19 | 10/02/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 637438-001 | S | FS01A | 09/18/19 10:00 | E300_CL | Chloride by EPA 300 | 09/25/19 | 03/16/20 | JKR | CL | |
| 637438-001 | S | FS01A | 09/18/19 10:00 | SW8021B | BTEX by EPA 8021B | 09/25/19 | 10/02/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 637438-002 | S | FS05A | 09/18/19 10:15 | SW8021B | BTEX by EPA 8021B | 09/25/19 | 10/02/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 637438-002 | S | FS05A | 09/18/19 10:15 | SW8015MOD_NM | TPH by SW8015 Mod | 09/25/19 | 10/02/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 637438-002 | S | FS05A | 09/18/19 10:15 | E300_CL | Chloride by EPA 300 | 09/25/19 | 03/16/20 | JKR | CL | |
| 637438-003 | S | SW07 | 09/18/19 11:00 | SW8015MOD_NM | TPH by SW8015 Mod | 09/25/19 | 10/02/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 637438-003 | S | SW07 | 09/18/19 11:00 | SW8021B | BTEX by EPA 8021B | 09/25/19 | 10/02/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 637438-003 | S | SW07 | 09/18/19 11:00 | E300_CL | Chloride by EPA 300 | 09/25/19 | 03/16/20 | JKR | CL | |
| 637438-004 | S | SW08 | 09/18/19 11:30 | SW8015MOD_NM | TPH by SW8015 Mod | 09/25/19 | 10/02/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 637438-004 | S | SW08 | 09/18/19 11:30 | E300_CL | Chloride by EPA 300 | 09/25/19 | 03/16/20 | JKR | CL | |
| 637438-004 | S | SW08 | 09/18/19 11:30 | SW8021B | BTEX by EPA 8021B | 09/25/19 | 10/02/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 637438-005 | S | FS04A | 09/18/19 14:30 | SW8021B | BTEX by EPA 8021B | 09/25/19 | 10/02/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 637438-005 | S | FS04A | 09/18/19 14:30 | SW8015MOD_NM | TPH by SW8015 Mod | 09/25/19 | 10/02/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 637438-005 | S | FS04A | 09/18/19 14:30 | E300_CL | Chloride by EPA 300 | 09/25/19 | 03/16/20 | JKR | CL | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 09/19/2019

Received By: Brianna Teel

Date Received: 09/20/2019 11:34

Cooler Temperature: 0.4

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 48409

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : R8**

**Sent By:** Elizabeth McClellan **Date Sent:** 09/19/2019 02:13 PM

**Received By:** Brianna Teel **Date Received:** 09/20/2019 11:34 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .4 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Brianna Teel Date: 09/20/2019

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 09/19/2019 10:50:00 AM

**Work Order #:** 637438

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**

**Temperature Measuring device used : T-NM-007**

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 2.2 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 Custody Seals intact on sample bottles? | **Yes** | |
| #6*Custody Seals Signed and dated? | **Yes** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **Yes** | |
| #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)? | **Yes** | Subbed to Midland |
| #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:** Elizabeth McClellan Date: 09/19/2019

**Checklist reviewed by:** Jessica Kramer Date: 09/20/2019

# Analytical Report 642448

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**PLU 261**

**012918083**

**12-NOV-19**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

12-NOV-19

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

Reference: XENCO Report No(s): **642448**
**PLU 261**
Project Address:

**Dan Moir**:

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) 642448. 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. 642448 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

**Jessica Kramer**
Project Assistant

***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 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| BH01 | S | 11-06-19 12:30 | 1 ft | 642448-001 |
| BH01A | S | 11-06-19 12:40 | 2.5 ft | 642448-002 |
| BH02 | S | 11-06-19 12:45 | 1 ft | 642448-003 |
| BH02A | S | 11-06-19 12:50 | 2.5 ft | 642448-004 |
| BH03 | S | 11-06-19 12:55 | 1 ft | 642448-005 |
| BH03A | S | 11-06-19 13:00 | 2.5 ft | 642448-006 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: PLU 261***

Project ID: *012918083*
Work Order Number(s): *642448*

Report Date: *12-NOV-19*
Date Received: *11/07/2019*

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3107088 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 642448

## LT Environmental, Inc., Arvada, CO

## Project Name: PLU 261

**Project Id:** 012918083
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Thu Nov-07-19 08:20 am
**Report Date:** 12-NOV-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 642448-001 | | 642448-002 | | 642448-003 | | 642448-004 | | 642448-005 | | 642448-006 | |
| | ***Field Id:*** | BH01 | | BH01A | | BH02 | | BH02A | | BH03 | | BH03A | |
| | ***Depth:*** | 1- ft | | 2.5- ft | | 1- ft | | 2.5- ft | | 1- ft | | 2.5- ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Nov-06-19 12:30 | | Nov-06-19 12:40 | | Nov-06-19 12:45 | | Nov-06-19 12:50 | | Nov-06-19 12:55 | | Nov-06-19 13:00 | |
| **BTEX by EPA 8021B SUB: T104704400-19-19** | ***Extracted:*** | Nov-08-19 15:00 | | Nov-08-19 15:00 | | Nov-08-19 15:00 | | Nov-08-19 15:00 | | Nov-08-19 15:00 | | Nov-08-19 15:00 | |
| | ***Analyzed:*** | Nov-11-19 23:41 | | Nov-12-19 00:01 | | Nov-12-19 00:21 | | Nov-12-19 00:41 | | Nov-12-19 01:01 | | Nov-12-19 01:22 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Toluene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00398 | 0.00398 | <0.00398 | 0.00398 | <0.00399 | 0.00399 | <0.00403 | 0.00403 | <0.00401 | 0.00401 | <0.00399 | 0.00399 |
| o-Xylene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| **Chloride by EPA 300 SUB: T104704400-19-19** | ***Extracted:*** | Nov-11-19 10:00 | | Nov-11-19 10:00 | | Nov-11-19 10:00 | | Nov-11-19 10:00 | | Nov-11-19 10:00 | | Nov-11-19 10:00 | |
| | ***Analyzed:*** | Nov-11-19 10:32 | | Nov-11-19 12:05 | | Nov-11-19 11:05 | | Nov-11-19 11:12 | | Nov-11-19 11:32 | | Nov-11-19 11:38 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 110 | 4.96 | 121 | 5.00 | <4.97 | 4.97 | <5.01 | 5.01 | 9.47 | 5.04 | <4.98 | 4.98 |
| **TPH by SW8015 Mod SUB: T104704400-19-19** | ***Extracted:*** | Nov-08-19 11:00 | | Nov-08-19 11:00 | | Nov-08-19 11:00 | | Nov-08-19 11:00 | | Nov-08-19 11:00 | | Nov-08-19 11:00 | |
| | ***Analyzed:*** | Nov-08-19 17:02 | | Nov-08-19 17:21 | | Nov-08-19 17:59 | | Nov-08-19 18:17 | | Nov-08-19 18:36 | | Nov-08-19 18:55 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <50.0 | 50.0 | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Diesel Range Organics (DRO) | | <50.0 | 50.0 | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Motor Oil Range Hydrocarbons (MRO) | | <50.0 | 50.0 | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Total GRO-DRO | | <50.0 | 50.0 | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Total TPH | | <50.0 | 50.0 | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |



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

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-001 | Date Collected: | 11.06.19 12.30 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **110** | 4.96 | mg/kg | 11.11.19 10.32 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 11.08.19 17.02 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 11.08.19 17.02 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 11.08.19 17.02 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 11.08.19 17.02 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 11.08.19 17.02 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 93 | % | 70-135 | 11.08.19 17.02 | |
| o-Terphenyl | 84-15-1 | 89 | % | 70-135 | 11.08.19 17.02 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-001 | Date Collected: | 11.06.19 12.30 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 11.11.19 23.41 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 11.11.19 23.41 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 11.11.19 23.41 | |
| 4-Bromofluorobenzene | 460-00-4 | 103 | % | 70-130 | 11.11.19 23.41 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-002 | Date Collected: | 11.06.19 12.40 | Sample Depth: | 2.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **121** | 5.00 | mg/kg | 11.11.19 12.05 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 11.08.19 17.21 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 11.08.19 17.21 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 11.08.19 17.21 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 11.08.19 17.21 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 11.08.19 17.21 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 93 | % | 70-135 | 11.08.19 17.21 | |
| o-Terphenyl | 84-15-1 | 89 | % | 70-135 | 11.08.19 17.21 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-002 | Date Collected: | 11.06.19 12.40 | Sample Depth: | 2.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 11.12.19 00.01 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 11.12.19 00.01 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 96 | % | 70-130 | 11.12.19 00.01 | |
| 1,4-Difluorobenzene | 540-36-3 | 108 | % | 70-130 | 11.12.19 00.01 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-003 | Date Collected: | 11.06.19 12.45 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.97 | 4.97 | mg/kg | 11.11.19 11.05 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 11.08.19 17.59 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 11.08.19 17.59 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 11.08.19 17.59 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 11.08.19 17.59 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 11.08.19 17.59 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 94 | % | 70-135 | 11.08.19 17.59 | |
| o-Terphenyl | 84-15-1 | 90 | % | 70-135 | 11.08.19 17.59 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-003 | Date Collected: | 11.06.19 12.45 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 11.12.19 00.21 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 11.12.19 00.21 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 11.12.19 00.21 | |
| 4-Bromofluorobenzene | 460-00-4 | 100 | % | 70-130 | 11.12.19 00.21 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-004 | Date Collected: | 11.06.19 12.50 | Sample Depth: | 2.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.01 | 5.01 | mg/kg | 11.11.19 11.12 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 11.08.19 18.17 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 11.08.19 18.17 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 11.08.19 18.17 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 11.08.19 18.17 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 11.08.19 18.17 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 96 | % | 70-135 | 11.08.19 18.17 | |
| o-Terphenyl | 84-15-1 | 92 | % | 70-135 | 11.08.19 18.17 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-004 | Date Collected: | 11.06.19 12.50 | Sample Depth: | 2.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 11.12.19 00.41 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 11.12.19 00.41 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 99 | % | 70-130 | 11.12.19 00.41 | |
| 1,4-Difluorobenzene | 540-36-3 | 107 | % | 70-130 | 11.12.19 00.41 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-005 | Date Collected: | 11.06.19 12.55 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **9.47** | 5.04 | mg/kg | 11.11.19 11.32 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 11.08.19 18.36 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 11.08.19 18.36 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 11.08.19 18.36 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 11.08.19 18.36 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 11.08.19 18.36 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 96 | % | 70-135 | 11.08.19 18.36 | |
| o-Terphenyl | 84-15-1 | 93 | % | 70-135 | 11.08.19 18.36 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-005 | Date Collected: | 11.06.19 12.55 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 11.12.19 01.01 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.01 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 105 | % | 70-130 | 11.12.19 01.01 | |
| 1,4-Difluorobenzene | 540-36-3 | 108 | % | 70-130 | 11.12.19 01.01 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-006 | Date Collected: | 11.06.19 13.00 | Sample Depth: | 2.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 11.11.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3107080 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.98 | 4.98 | mg/kg | 11.11.19 11.38 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 11.08.19 11.00 | Basis: | Wet Weight |
| Seq Number: | 3106961 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 11.08.19 18.55 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 11.08.19 18.55 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 11.08.19 18.55 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 11.08.19 18.55 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 11.08.19 18.55 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 94 | % | 70-135 | 11.08.19 18.55 | |
| o-Terphenyl | 84-15-1 | 89 | % | 70-135 | 11.08.19 18.55 | |

# Certificate of Analytical Results 642448

## LT Environmental, Inc., Arvada, CO

PLU 261

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03A** | Matrix: | Soil | Date Received: | 11.07.19 08.20 |
| Lab Sample Id: | 642448-006 | Date Collected: | 11.06.19 13.00 | Sample Depth: | 2.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 11.08.19 15.00 | Basis: | Wet Weight |
| Seq Number: | 3107088 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 11.12.19 01.22 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 11.12.19 01.22 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 105 | % | 70-130 | 11.12.19 01.22 | |
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 11.12.19 01.22 | |

# Flagging Criteria

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

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

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

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

**F** RPD exceeded lab control limits.

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

**U** Analyte was not detected.

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

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

**K** Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

# QC Summary 642448



## LT Environmental, Inc.

PLU 261

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3107080 — Matrix: Solid — Date Prep: 11.11.19
MB Sample Id: 7690014-1-BLK — LCS Sample Id: 7690014-1-BKS — LCSD Sample Id: 7690014-1-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 | 261 | 104 | 261 | 104 | 90-110 | 0 | 20 | mg/kg | 11.11.19 10:18 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3107080 — Matrix: Soil — Date Prep: 11.11.19
Parent Sample Id: 642448-001 — MS Sample Id: 642448-001 S — MSD Sample Id: 642448-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 110 | 248 | 366 | 103 | 365 | 103 | 90-110 | 0 | 20 | mg/kg | 11.11.19 10:38 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3107080 — Matrix: Soil — Date Prep: 11.11.19
Parent Sample Id: 642448-002 — MS Sample Id: 642448-002 S — MSD Sample Id: 642448-002 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 121 | 250 | 380 | 104 | 379 | 103 | 90-110 | 0 | 20 | mg/kg | 11.11.19 12:11 | |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3106961 — Matrix: Solid — Date Prep: 11.08.19
MB Sample Id: 7689935-1-BLK — LCS Sample Id: 7689935-1-BKS — LCSD Sample Id: 7689935-1-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 | 970 | 97 | 972 | 97 | 70-135 | 0 | 20 | mg/kg | 11.08.19 13:15 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 946 | 95 | 945 | 95 | 70-135 | 0 | 20 | mg/kg | 11.08.19 13:15 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | | 114 | | 116 | | 70-135 | % | 11.08.19 13:15 |
| o-Terphenyl | 90 | | 98 | | 103 | | 70-135 | % | 11.08.19 13:15 |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3106961 — Matrix: Solid — Date Prep: 11.08.19
MB Sample Id: 7689935-1-BLK

| Parameter | MB Result | Units | Analysis Date | Flag |
|---|---|---|---|---|
| Motor Oil Range Hydrocarbons (MRO) | <50.0 | mg/kg | 11.08.19 12:56 | |

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

# QC Summary 642448



## LT Environmental, Inc.

PLU 261

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3106961 — Matrix: Soil — Date Prep: 11.08.19
Parent Sample Id: 642582-001 — MS Sample Id: 642582-001 S — MSD Sample Id: 642582-001 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 | 1030 | 103 | 1030 | 103 | 70-135 | 0 | 20 | mg/kg | 11.08.19 14:11 | |
| Diesel Range Organics (DRO) | 103 | 998 | 1130 | 103 | 1120 | 102 | 70-135 | 1 | 20 | mg/kg | 11.08.19 14:11 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 123 | | 126 | | 70-135 | % | 11.08.19 14:11 |
| o-Terphenyl | 111 | | 112 | | 70-135 | % | 11.08.19 14:11 |

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3107088 — Matrix: Solid — Date Prep: 11.07.19
MB Sample Id: 7689855-1-BLK — LCS Sample Id: 7689855-1-BKS — LCSD Sample Id: 7689855-1-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 | 0.114 | 114 | 0.112 | 112 | 70-130 | 2 | 35 | mg/kg | 11.11.19 16:01 | |
| Toluene | <0.00200 | 0.100 | 0.104 | 104 | 0.102 | 102 | 70-130 | 2 | 35 | mg/kg | 11.11.19 16:01 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.105 | 105 | 0.103 | 103 | 70-130 | 2 | 35 | mg/kg | 11.11.19 16:01 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.214 | 107 | 0.210 | 105 | 70-130 | 2 | 35 | mg/kg | 11.11.19 16:01 | |
| o-Xylene | <0.00200 | 0.100 | 0.105 | 105 | 0.104 | 104 | 70-130 | 1 | 35 | mg/kg | 11.11.19 16:01 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 112 | | 111 | | 114 | | 70-130 | % | 11.11.19 16:01 |
| 4-Bromofluorobenzene | 93 | | 97 | | 104 | | 70-130 | % | 11.11.19 16:01 |

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3107088 — Matrix: Soil — Date Prep: 11.07.19
Parent Sample Id: 642228-001 — MS Sample Id: 642228-001 S — MSD Sample Id: 642228-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00202 | 0.101 | 0.102 | 101 | 0.0878 | 88 | 70-130 | 15 | 35 | mg/kg | 11.11.19 16:41 | |
| Toluene | <0.00202 | 0.101 | 0.0730 | 72 | 0.0608 | 61 | 70-130 | 18 | 35 | mg/kg | 11.11.19 16:41 | X |
| Ethylbenzene | <0.00202 | 0.101 | 0.0627 | 62 | 0.0495 | 50 | 70-130 | 24 | 35 | mg/kg | 11.11.19 16:41 | X |
| m,p-Xylenes | <0.00403 | 0.202 | 0.126 | 62 | 0.0999 | 50 | 70-130 | 23 | 35 | mg/kg | 11.11.19 16:41 | X |
| o-Xylene | <0.00202 | 0.101 | 0.0659 | 65 | 0.0547 | 55 | 70-130 | 19 | 35 | mg/kg | 11.11.19 16:41 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 116 | | 115 | | 70-130 | % | 11.11.19 16:41 |
| 4-Bromofluorobenzene | 108 | | 108 | | 70-130 | % | 11.11.19 16:41 |

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

# Chain of Custody

XENCO LABORATORIES

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

**Work Order No:** 642448

www.xenco.com Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc., Permian office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 E Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432.236.3849 | Email: | bbelill@ltenv.com |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | PLU 261 (2RP-3547) | Turn Around | |
| Project Number: | 01291808 3 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes / No | Wet Ice: | Yes / No | |
| Temperature (°C): | 2.5 | Thermometer ID | T-NM-007 | |
| Received Intact: | Yes / No | | | |
| Cooler Custody Seals: | Yes / No / N/A | Correction Factor: | -0.2 | |
| Sample Custody Seals: | Yes / No / N/A | Total Containers: | 6 | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| BH01 | S | 11/6/19 | 12:30 | 1' | 1 | X | X | X |
| BH01A | | | 12:40 | 2.5' | | X | X | X |
| BH02 | | | 12:45 | 1' | | X | X | X |
| BH02A | | | 12:50 | 2.5' | | X | X | X |
| BH03 | | | 12:55 | 1' | | X | X | X |
| BH03A | ↓ | ↓ | 13:00 | 2.5' | ↓ | X | X | X |

**ANALYSIS REQUEST**

**Work Order Notes**

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

**Sample Comments**

Discrete Type

**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*Circle Method(s) and Metal(s) to be analyzed*

**TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

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 | | Cortez D | 11/7/19 08:20 | 2 | | |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# Inter-Office Shipment





**IOS Number** **51759**

Date/Time: 11/07/19 12:24
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 776930439263

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 642448-001 | S | BH01 | 11/06/19 12:30 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-001 | S | BH01 | 11/06/19 12:30 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |
| 642448-001 | S | BH01 | 11/06/19 12:30 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-002 | S | BH01A | 11/06/19 12:40 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-002 | S | BH01A | 11/06/19 12:40 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-002 | S | BH01A | 11/06/19 12:40 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |
| 642448-003 | S | BH02 | 11/06/19 12:45 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |
| 642448-003 | S | BH02 | 11/06/19 12:45 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-003 | S | BH02 | 11/06/19 12:45 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-004 | S | BH02A | 11/06/19 12:50 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |
| 642448-004 | S | BH02A | 11/06/19 12:50 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-004 | S | BH02A | 11/06/19 12:50 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-005 | S | BH03 | 11/06/19 12:55 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-005 | S | BH03 | 11/06/19 12:55 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-005 | S | BH03 | 11/06/19 12:55 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |
| 642448-006 | S | BH03A | 11/06/19 13:00 | SW8015MOD_NM | TPH by SW8015 Mod | 11/13/19 | 11/20/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 642448-006 | S | BH03A | 11/06/19 13:00 | E300_CL | Chloride by EPA 300 | 11/13/19 | 05/04/20 | JKR | CL | |
| 642448-006 | S | BH03A | 11/06/19 13:00 | SW8021B | BTEX by EPA 8021B | 11/13/19 | 11/20/19 | JKR | BZ BZME EBZ XYLENES | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 11/07/2019

Received By: Brianna Teel

Date Received: 11/08/2019 11:06

Cooler Temperature: 2.3

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 51759

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : R8**

**Sent By:** Elizabeth McClellan **Date Sent:** 11/07/2019 12:24 PM

**Received By:** Brianna Teel **Date Received:** 11/08/2019 11:06 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 2.3 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Brianna Teel Date: 11/08/2019

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 11/07/2019 08:20:00 AM

**Work Order #:** 642448

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**

**Temperature Measuring device used : T-NM-007**

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 2.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 Custody Seals intact on sample bottles? | **Yes** | |
| #6*Custody Seals Signed and dated? | **Yes** | |
| #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)? | **Yes** | Subbed to Midland. |
| #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:** Elizabeth McClellan Date: 11/07/2019

**Checklist reviewed by:** Jessica Kramer Date: 11/08/2019

Jessica Kramer