NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 01 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

nAB1618836105 260737

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. | Contact: Amy Ruth |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: JRU #55 Battery | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: Federal | Mineral Owner: Federal | API No. 30-015-27589 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| F | 17 | 23S | 31E | 2060 | North | 1850 | West | Eddy |

Latitude 32.306040° Longitude -103.802369°

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water and Crude Oil | Volume of Release: 7 bbls PW, 3 bbls oil | Volume Recovered: 2 bbls PW, 1 bbl oil |
| Source of Release: Oil circulating line | Date and Hour of Occurrence: 6/22/2016 time unknown | Date and Hour of Discovery: 6/22/2016 1 pm |
| Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required | If YES, To Whom? N/A | |
| By Whom? N/A | Date and Hour N/A | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. N/A | |

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

Describe Cause of Problem and Remedial Action Taken.*
Leak occurred on the oil circulating steel line in the portion buried in the tank earthen berm. Leak was due to a hole developing in the line due to external corrosion. Line was clamped until section can be repaired.

Describe Area Affected and Cleanup Action Taken.*
Leak affected 347 ft² of caliche within the tank earthen berm. Standing fluids were recovered.

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:
Printed Name: Amy C. Ruth
Title: EHS Remediation Specialist
E-mail Address: ACRuth@basspet.com
Date: 7/1/2016 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:
Approval Date: 7/6/16 Expiration Date: N/A
Conditions of Approval: Attached ☐
Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 8/7/16

2RP-3701

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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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 | NAB1618836105 |
| District RP | 2RP-3761 |
| 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 # *(assigned by OCD)* |
| Contact mailing address 522 W. Mermod St Suite 704 Carlsbad, NM 8820 | |

## Location of Release Source

Latitude 32.306040 Longitude -103.802369
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name JRU #55 Battery | Site Type Exploration and Production |
| Date Release Discovered 6/22/2016 | API# *(if applicable)* 30-015-27589 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| F | 17 | 23S | 31E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☒ Crude Oil | Volume Released (bbls) 3 | Volume Recovered (bbls) 1 |
| ☒ Produced Water | Volume Released (bbls) 7 | Volume Recovered (bbls) 2 |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☐ Other (describe) | Volume/Weight Released (provide units) | Volume/Weight Recovered (provide units) |

Cause of Release

A leak occurred on the oil circulating steel line in the portion buried in the tank earthen berm. Leak was due to a hole developing in the line due to external corrosion. Line was clamped until section can be repaired. The leak affected 347 sq. ft. of caliche within the tank earthen berm. Standing fluids were recovered.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1618856403 |
| District RP | 2RP-3761 |
| 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? |
| If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? | |

## Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 2/11/2019

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

**OCD Only**

Received by: Date:

| | |
|---|---|
| Incident ID | NAB1618836105 |
| District RP | 2RP-3761 |
| 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 | NAB1618836105 |
| District RP | 2RP-3761 |
| 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: Garrett Green Title: SSHE Coordinator

Signature: Date: 06/28/2023

email: garrett.green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Shelly Wells Date: 6/28/2023

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1618836105 |
| District RP | 2RP-3761 |
| Facility ID | |
| Application ID | |

# Remediation Plan

**Remediation Plan Checklist**: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only**: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☒ Extents of contamination must be fully delineated.
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Garrett Green
Title: SSHE Coordinator
Signature: Garrett Green
Date: 6-28-2023
email: garrett.green@exxonmobil.com
Telephone: 575-200-0729

**OCD Only**

Received by: Shelly Wells
Date: 6/28/2023

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☑ Deferral Approved

Signature: Ashley Maxwell
Date: 07/03/2023

The Deferral Request and C-141 will be accepted for record and marked accordingly. The release will remain open in OCD database files and reflect an open environmental issue.

ENSOLUM

June 28, 2023

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

**Re: Deferral Request Addendum**
**JRU #55 Battery**
**Incident Number NAB1618836105**
**Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following addendum to the original *Deferral Request* dated February 11, 2019. This addendum provides an update to the depth to groundwater determination activities completed at the JRU #55 Battery (Site) in response to the New Mexico Oil Conservation Division (NMOCD) denial of the February 11, 2019, *Deferral Request*. In the denial, NMOCD indicated that the depth to groundwater assessment was not sufficient. Based on the additional depth to groundwater determination activities described below, XTO is submitting this *Deferral Request Addendum* and requesting deferral of final remediation for Incident Number NAB1618836105.

## SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit Letter F, Section 17, Township 23 South, Range 31 East, in Eddy County, New Mexico (32.306040°, -103.802369°) and is associated with oil and gas exploration and production operations on Federal land managed by the Bureau of Land Management (BLM).

On June 22, 2016, a release occurred due to external corrosion of the steel flowline that was buried in the earthen storage tank containment. Approximately 7 barrels (bbls) of produced water and 3 bbls of crude oil were released within the containment berm. A vacuum truck was dispatched to the Site and recovered approximately 2 bbls of produced water and 1 bbl of crude oil. The former operator reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 (Form C-141) on July 1, 2016. The release was assigned Remediation Permit (RP) Number 2RP-3761 and Incident Number NAB1618836105.

The release was included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the NMOCD effective November 13, 2018. The purpose of the Compliance Agreement was to ensure that reportable releases that occurred prior to August 14, 2018, where XTO is responsible for the corrective action, comply with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) as amended on August 14, 2018.

## BACKGROUND

The February 11, 2019, *Deferral Request* detailed site characterization according to Table I, Closure Criteria for Soils Impacted by a Release, of 19.15.29 NMAC. Results from the site characterization are presented on page 3 of the Form C-141, Site Assessment/Characterization.

Based on the results of the Site Characterization, the following NMOCD Table I Closure Criteria (Closure Criteria) were applied:

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

Between May 2018 and February 2019, delineation and excavation activities were conducted at the Site to address the impacted soil resulting from the June 22, 2016, crude oil and produced water release. Impacted soil was excavated to the extent possible; however, an estimated 10 cubic yards of impacted soil were left in place within the earthern containment berm to comply with XTO safety policies regarding earth-moving activities within 2-feet of tanks and processing equipment. The impacted soil left in-place was laterally and vertically delineated to below the Site Closure Criteria. Additional details regarding the delineation and excavation activities can be referenced in the original *Deferral Request,* submitted to NMOCD on February 11, 2019.

On March 24, 2023, NMOCD denied the *Deferral Request* for Incident Number NAB1618836105 for the following reason:

- *The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.*

The NMOCD *preference* for wells used for depth to groundwater determination to be no further than 0.5 miles away from the site with data less than 25 years old was not in place at the time of the original soil sampling and reporting activities. The original *Deferral Request* was submitted on February 11, 2019, prior to the September 6, 2019, publication of the Procedures for Implementation of the Spill Rule guidance document that clarified the depth to groundwater determination preferences (Section IX.a.).

## ADDITIONAL DEPTH TO GROUNDWATER DETERMINATION

Upon review of the NMOCD denial and available water well records, depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs). The closest permitted groundwater well with recent depth to groundwater data is United States Geological Survey (USGS) well 321809103481801, located approximately 0.31 miles southwest of the Site. The well was drilled to a depth of 354 feet bgs. Groundwater was most recently measured during January 2013 with a recorded depth to groundwater of 128.64 feet. All wells used for depth to groundwater determination are depicted on Figure 1 and the referenced well records are included in Appendix A.

Based on confirmed depth to groundwater greater than 100 feet bgs within 0.5 miles of the Site, the Table 1 Closure Criteria identified in the original *Deferral Request* are applicable and appropriate for protection of groundwater at this Site.

## DEFFERAL REQUEST

A total of approximately 29 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place within the earthen containment berm to comply with XTO safety policy regarding earth-moving activities within 2-feet of tanks and processing equipment. The impacted soil remaining in-place is delineated vertically and laterally to below the confirmed Site Closure Criteria. The release occurred within the containment berm, free-standing fluids were recovered during initial response activities, depth to groundwater is greater than 100 feet, and no other sensitive receptors were identified near the release extent. XTO does not believe deferment will result in imminent risk to human health, the environment, or groundwater.

Based on confirmed depth to groundwater greater than 100 feet bgs within 0.5 miles of the Site as presented in this addendum and the excavation and delineation data presented in the original February 11, 2019, *Deferral Request*, included as Appendix B, XTO respectfully requests deferral of final remediation for Incident Number NAB1618836105 until major well pad construction/alteration or final plugging and abandonment, whichever occurs first.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
**Ensolum, LLC**

Aimee Cole
Senior Managing Scientist

Ashley Ager, P.G.
Program Director

cc: Garrett Green, XTO
Shelby Pennington, XTO
Bureau of Land Management

Appendices:

| | |
|---|---|
| Figure 1 | Site Receptor Map |
| Appendix A | Referenced Well Records |
| Appendix B | February 11, 2019 Deferral Request |

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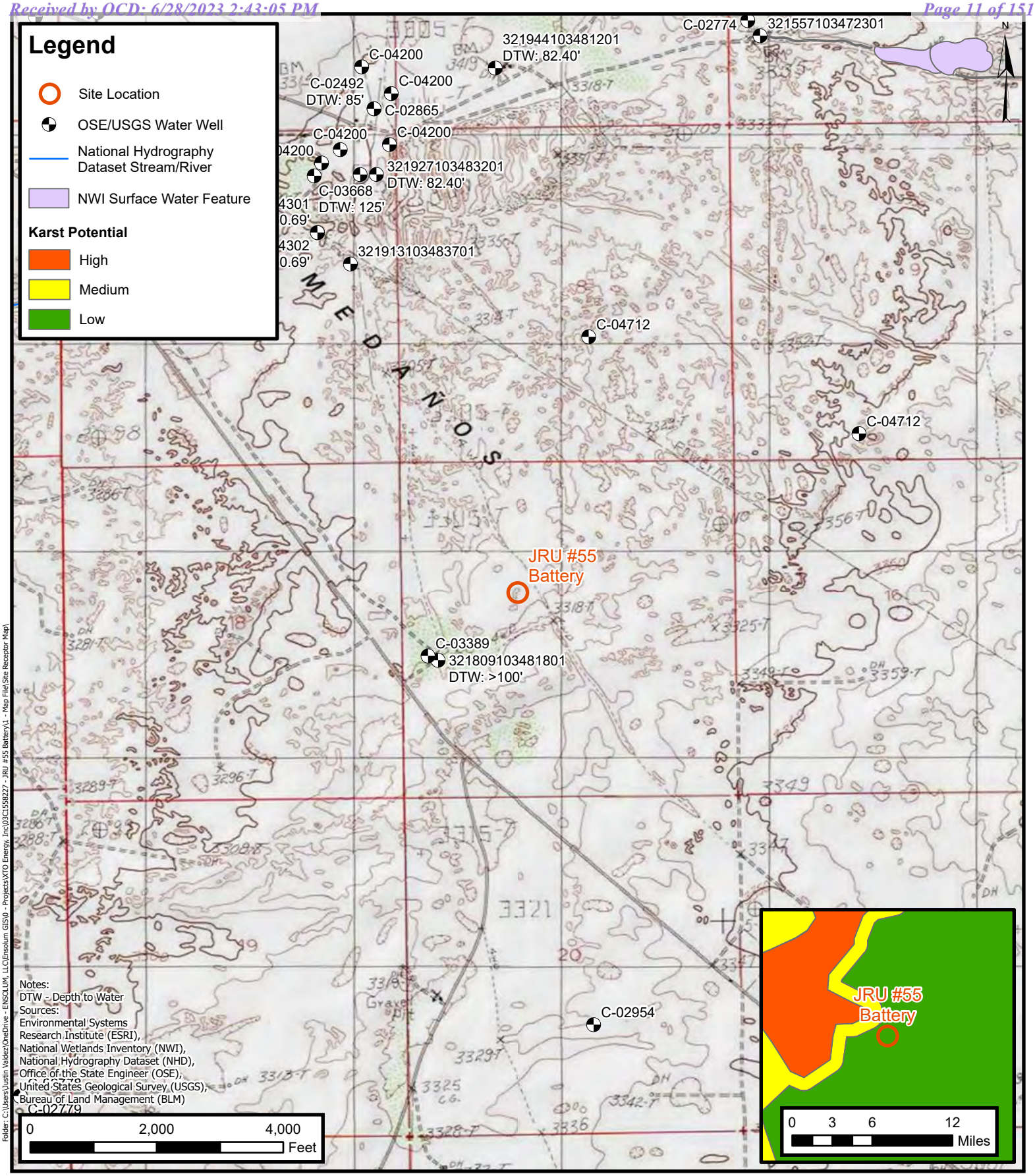
# FIGURES




Folder: C:\Users\Justin Valdez\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\XTO Energy, Inc\03C1558227 - JRU #55 Battery\1 - Map File\Site Receptor Map\

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

# Site Receptor Map

XTO Energy, Inc
JRU #55 Battery
Incident Number: NAB1618836105
Unit F, Sec 17, T23S, R31E
Eddy County, New Mexico

**FIGURE 1**

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# APPENDIX A

## Referenced Well Records

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

# USGS 321809103481801 23S.31E.17.31141

Available data for this site SUMMARY OF ALL AVAILABLE DATA | GO

## Well Site

DESCRIPTION:

Latitude 32°18'11.3", Longitude 103°48'23.4" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 354 feet
Land surface altitude: 3,326.00 feet above NGVD29.
Well completed in "Other aquifers" (N9999OTHER) national aquifer.
Well completed in "Rustler Formation" (312RSLR) local aquifer

AVAILABLE DATA:

| Data Type | Begin Date | End Date | Count |
|---|---|---|---|
| Field groundwater-level measurements | 1959-02-04 | 2013-01-16 | 4 |
| Field/Lab water-quality samples | 1972-09-20 | 1972-09-20 | 1 |
| Revisions | Unavailable (site:0) (timeseries:0) | | |

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms

Subscribe for system changes
News



**Title: NWIS Site Information for USA: Site Inventory**
**URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321809103481801**

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2023-05-15 19:43:02 EDT
0.31 0.29 sdww01

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- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

## Search Results -- 1 sites found

**Agency code =** usgs
**site_no list =**
- 321809103481801

**Minimum number of levels =** 1
Save file of selected sites to local disk for future upload

## USGS 321809103481801 23S.31E.17.31141

Eddy County, New Mexico
Latitude 32°18'11.3", Longitude 103°48'23.4" NAD83
Land-surface elevation 3,326.00 feet above NGVD29
The depth of the well is 354 feet below land surface.
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

**Output formats**

| |
|---|
| Table of data |
| Tab-separated data |
| Graph of data |
| Reselect period |

| Date | Time | ? Water-level date-time accuracy | ? Parameter code | Water level, feet below land surface | Water level, feet above specific vertical datum | Referenced vertical datum | ? Status | ? Method of measurement | ? Measuring agency | ? Source measur |
|---|---|---|---|---|---|---|---|---|---|---|
| 1959-02-04 | | D | 62610 | | 3215.16 | NGVD29 | P | Z | | |
| 1959-02-04 | | D | 62611 | | 3216.80 | NAVD88 | P | Z | | |
| 1959-02-04 | | D | 72019 | 110.84 | | | P | Z | | |
| 1987-10-15 | | D | 62610 | | 3214.80 | NGVD29 | 1 | Z | | |
| 1987-10-15 | | D | 62611 | | 3216.44 | NAVD88 | 1 | Z | | |
| 1987-10-15 | | D | 72019 | 111.20 | | | 1 | Z | | |
| 1992-11-04 | | D | 62610 | | 3216.32 | NGVD29 | 1 | S | | |
| 1992-11-04 | | D | 62611 | | 3217.96 | NAVD88 | 1 | S | | |
| 1992-11-04 | | D | 72019 | 109.68 | | | 1 | S | | |
| 2013-01-16 | 23:30 UTC | m | 62610 | | 3197.36 | NGVD29 | P | S | USGS | |
| 2013-01-16 | 23:30 UTC | m | 62611 | | 3199.00 | NAVD88 | P | S | USGS | |
| 2013-01-16 | 23:30 UTC | m | 72019 | 128.64 | | | P | S | USGS | |

**Explanation**

| Section | Code | Description |
|---|---|---|

| Section | Code | Description |
|---|---|---|
| Water-level date-time accuracy | D | Date is accurate to the Day |
| Water-level date-time accuracy | m | Date is accurate to the Minute |
| Parameter code | 62610 | Groundwater level above NGVD 1929, feet |
| Parameter code | 62611 | Groundwater level above NAVD 1988, feet |
| Parameter code | 72019 | Depth to water level, feet below land surface |
| Referenced vertical datum | NAVD88 | North American Vertical Datum of 1988 |
| Referenced vertical datum | NGVD29 | National Geodetic Vertical Datum of 1929 |
| Status | 1 | Static |
| Status | P | Pumping |
| Method of measurement | S | Steel-tape measurement. |
| Method of measurement | Z | Other. |
| Measuring agency | | Not determined |
| Measuring agency | USGS | U.S. Geological Survey |
| Source of measurement | | Not determined |
| Source of measurement | S | Measured by personnel of reporting agency. |
| Water-level approval status | A | Approved for publication -- Processing and review completed. |

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# APPENDIX B

## February 11, 2019 Deferral Request

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

February 11, 2019

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

**RE: Deferral Request**
**JRU #55 Battery**
**Remediation Permit Number 2RP-3761**
**Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing the excavation of impacted soil and confirmation soil sampling activities at the JRU #55 Battery (Site) in Unit Letter F, Section 17, Township 23 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The purpose of the soil sampling and excavation activities was to address impacts to soil after a release occurred within the tank battery earthen berm on the western edge of the well pad.

On June 22, 2016, a leak occurred from the oil circulating steel flowline that was buried in the earthen containment for the storage tanks, due to external corrosion. The leak caused a release of approximately 7 barrels (bbls) of produced water and 3 bbls of crude oil. Approximately 347 square feet of caliche well pad within the earthen berm was affected by the release. A vacuum truck was dispatched to the Site and approximately 2 bbls of produced water and 1 bbl of crude oil was recovered. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on July 1, 2016, and was assigned Remediation Permit (RP) Number 2RP-3761 (Attachment 1).

This release is included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the NMOCD effective November 13, 2018. The purpose of the Compliance Agreement is to ensure 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. This release is categorized as Tier II sites in the Compliance Agreement, meaning remediation of the releases began prior to August 14, 2018, the effective date of 19.15.29 NMAC. Based on the excavation activities and soil sampling conducted, XTO is submitting this deferral request.

## BACKGROUND

According to Section 12 of 19.15.29 NMAC, LTE applied Table 1, *Closure Criteria for Soils Impacted by a Release*. Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data and known aquifer properties. The nearest permitted water well is C 02492 POD2, located approximately 1,794 feet southwest of the Site, with a depth to groundwater of 150 feet bgs and a total depth of 300 feet bgs. The elevation of the water well is 10 feet below the elevation of the Site. The Site is greater than 1,000 feet from a water source and greater than 200 feet from a private domestic water source. The closest significant watercourse to the Site is a dry wash located approximately 1.52 miles northwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. Based on these criteria, the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 2,500 mg/kg total petroleum hydrocarbons (TPH); 1,000 mg/kg TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO); and 20,000 mg/kg chloride.

## DELINEATION AND EXCAVATION ACTIVITIES

On May 24, 2018, LTE personnel was on site to investigate horizontal impacts to soil in the area within the tank battery near the source of the release. Two soil sample locations (SS1A and SS4A) were selected based on information provided on the initial Form C-141 and field observations (Figure 2). The soil samples were screened for volatile aromatic hydrocarbons using a photo-ionization detector (PID) equipped with a 10.6 electron volt lamp and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with location, date, time, sampler, and method of analysis, and immediately placed on ice. The samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Analytical Laboratories, Inc. (Xenco) in Midland, Texas for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0. Results are presented on Figure 2 and summarized in Table 1, and the complete analytical reports are included as Attachment 2.

LTE returned to the Site on December 4 and 14, 2018 to collect additional discrete soil samples (SS04B@2', SS06@0.5', SS06@2', SS07@0.5', SS07@1', SS08@1', SS08@3') to further investigate horizontal and vertical impacts. Additionally, LTE oversaw excavation near the source of the release via hydro-vacuum due to presence of subsurface lines and production equipment. To direct excavation activities, LTE screened soil using a PID and Hach® chloride QuanTab® test strips. The excavation measured approximately 171 square feet and was completed to a depth

of 2 feet bgs. Approximately 29 cubic yards of impacted soil was removed from the excavation. The impacted soil was taken to Lea Land Landfill located in Hobbs, New Mexico.

Upon completion of excavation activities, LTE collected 5-point composite samples, each representing a 200 square foot area, from the excavation floor and sidewalls. The 5-point composite samples were collected by depositing 5 aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thorough mixing. Composite soil samples SW05 and SW06 were collected from the walls of the excavation at depths ranging from 0 to 1.5 feet bgs. Composite soil sample FS02 was collected from the excavation floor at a depth of 1.5 feet bgs and contained concentrations that exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO. The excavation was deepened to 2 feet bgs and composite sample FS02A was collected. Analytical results indicated that composite sample FS02A was in compliance with NMOCD Table 1 Closure Criteria. The hydro-vacuum was unable to address impacted soil north of the excavation (as represented by soil sample SS4A@0.5') due to the density of existing pipelines and production equipment and soft sand surrounding the earthen berm that prohibited truck and heavy equipment access. XTO safety policy restricts soil disturbing activities to a 2-foot radius of any surface lines or tanks. These XTO safety policies are established to protect workers and to reduce the likelihood of compromising equipment and equipment foundations.

On February 2, 2019, LTE personnel returned to the Site to collect site characterizations samples inside and outside the earthen containment berm using a hand auger. Discrete soil samples BH01 through BH04 were collected at 1 foot bgs and BH01A through BH04A were collected at 2 feet bgs (Figure 2). Samples were collected, handled, and analyzed as previously described.

## ANALYTICAL RESULTS

Laboratory analytical results indicated that composite soil sample FS02 exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO. The excavation was deepened and the subsequent sample was below the NMOCD Table 1 Closure Criteria. Composite soil sample SW06 exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO and TPH. The east wall of the excavation was limited due to XTO's safety policy which prohibits excavating within 2 feet of equipment.

Discrete soil sample SS4A@0.5' exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO. A subsequent sample, SS04B, was collected at 2 feet bgs and was in compliance with NMOCD Table 1 Closure Criteria. Discrete soil sample SS06@0.5' exceeded NMOCD Table 1 Closure Criteria for GRO/DRO and TPH. Subsequent soil sample SS06@2' was in compliance with NMOCD Table 1 Closure Criteria. Due to the proximity of pipelines and processing equipment and the inability to safely get the hydro-vacuum equipment in the vicinity of the samples, the impacted soil was left in place. Discrete soil samples were collected below and in each cardinal direction around the containment area to delineate the impacted soil.

Laboratory analytical results for all other soil samples collected were compliant with the NMOCD Table 1 closure criteria for benzene, BTEX, TPH, GRO/DRO, and chloride. Results are presented on Figure 2 and summarized in Table 1, and the complete laboratory reports are shown as Attachment 2. Benzene and BTEX results are not presented on Figure 2 because concentrations were below laboratory detection levels in all of the samples.

## DEFERRAL REQUEST

A total of approximately 29 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place within the earthern containment berm to comply with XTO safety policies regarding earth-moving activities within 2-feet of tanks and processing equipment.

Laboratory analytical results for excavation sidewall sample SW06 indicated that soil with GRO/DRO and TPH concentrations exceeding the NMOCD Table 1 Closure Criteria was left in place within 2 feet of a tank. An estimated 5 cubic yards of impacted soil remains in place, assuming a maximum 2-foot depth based on the excavation floor sample collected from 2 feet bgs that was compliant with the NMOCD Table 1 closure criteria. Laboratory analytical results indicate that SS4A and SS06@0.5' exceeded NMOCD Table 1 Closure Criteria for GRO/DRO and TPH, respectively. An estimated 5 cubic yards of impacted soil remains in place around soil samples SS4A and SS06@0.5' assuming a maximum depth of 2 feet bgs based on subsequent delineation samples. All impacted soil left in place is within the earthen containment and has been delineated vertically and laterally.

XTO requests to backfill the existing excavation and complete remediation during any future major well pad construction/alteration or final plugging and abandonment, whichever occurs first. LTE and XTO do not believe deferment will result in imminent risk to human health, the environment, or groundwater.

Upon approval of the deferral request, 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 for each release is included as Attachment 1, a photographic log of the Site is included as Attachment 3, and the soil sample logs are included as Attachment 4.

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

Sincerely,
LT ENVIRONMENTAL, INC.

Adrian Baker

Ashley L. Ager

Adrian Baker
Project Geologist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Deborah McKinney, BLM
Jim Amos, BLM

Attachments:

| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Soil Sample Locations |
| Table 1 | Soil Analytical Results |
| Attachment 1 | Initial/Final NMOCD Form C-141 (2RP-3761) |
| Attachment 2 | Laboratory Analytical Reports |
| Attachment 3 | Photographic Log |
| Attachment 4 | Soil Sample Log |

FIGURES

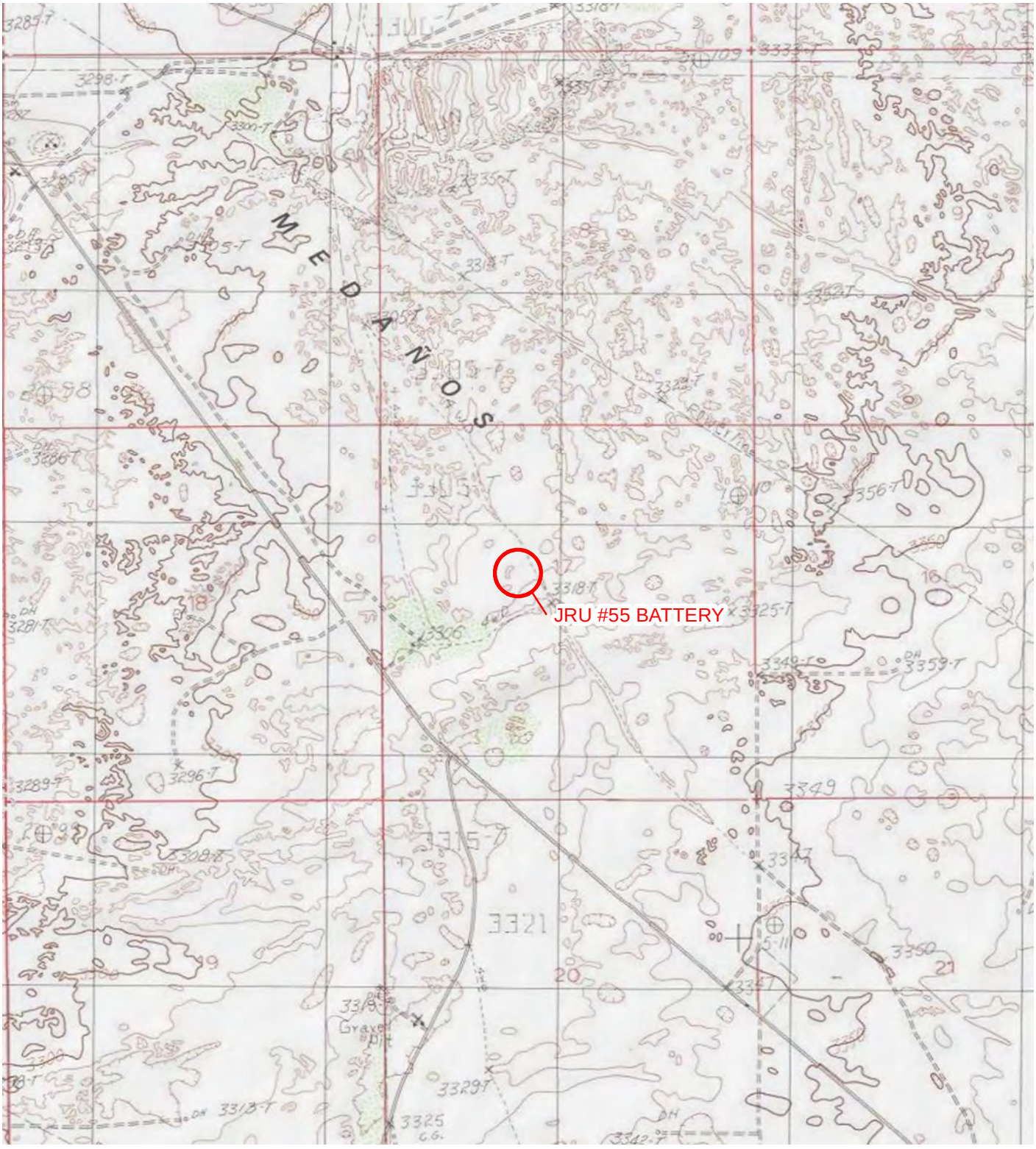



IMAGE COURTESY OF ESRI/USGS

**LEGEND**

SITE LOCATION

0 2,000 4,000

Feet

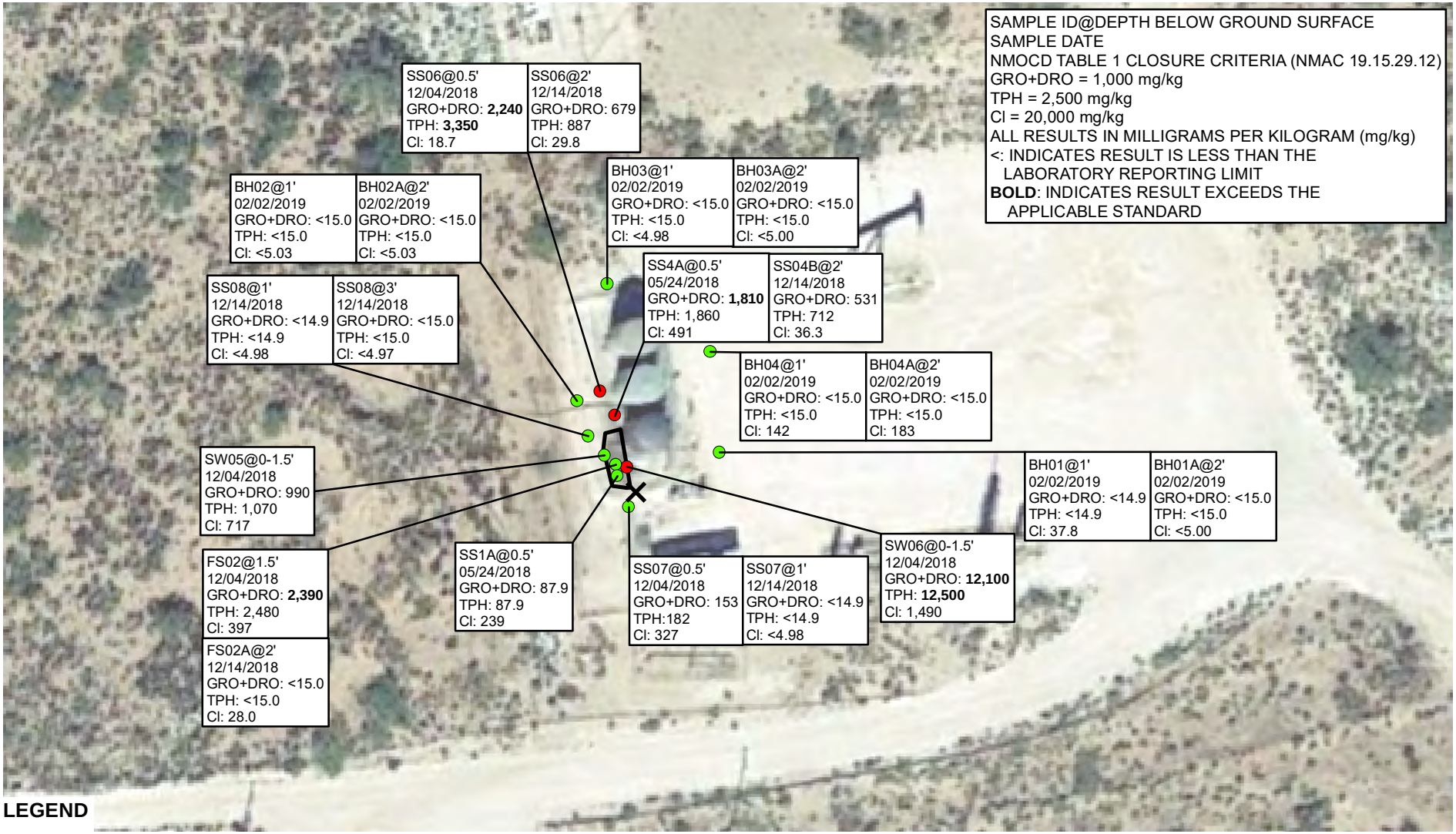
N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 2RP-3761.

FIGURE 1
SITE LOCATION MAP
JRU #55 BATTERY
UNIT F SEC 17 T23S R31E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012918027_JRU 55 TANK BATTERY\012918027_FIG01_SL_2018_3863.mxd




**LEGEND**

- RELEASE LOCATION
- SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE STANDARDS
- FINAL SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- EXCAVATION EXTENT

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: BENZENE AND BTEX CONCENTRATIONS IN ALL SAMPLES WERE BELOW LABORATORY DETECTION LIMITS.
NOTE: REMEDIATION PERMIT NUMBER 2RP-3761

IMAGE COURTESY OF GOOGLE EARTH 2017

0 60 120
Feet

N

FIGURE 2
SOIL SAMPLE LOCATIONS
JRU #55 BATTERY
UNIT F SEC 17 T23S R31E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012918027_JRU 55 TANK BATTERY\012918027_FIG02_FINAL SS_2018_3761.mxd

TABLE

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

**JRU #55 BATTERY**
**REMEDIATION PERMIT NUMBER 2RP-3761**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | C6-C10 GRO (mg/kg) | C10-C28 DRO (mg/kg) | C28-C40 ORO (mg/kg) | GRO and DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS1A | 0.5 | 05/24/2018 | <0.00197 | <0.00197 | <0.00197 | <0.00197 | <0.00197 | <15.0 | 87.9 | <15.0 | 87.9 | 87.9 | 239 |
| SS4A | 0.5 | 05/24/2018 | <0.00197 | <0.00197 | <0.00197 | <0.00197 | <0.00197 | <15.0 | 1,810 | 53.0 | **1,810** | 1,860 | 491 |
| FS02 | 1.5 | 12/04/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | 2,390 | 85.1 | **2,390** | 2,480 | 397 |
| SW05 | 0 - 1.5 | 12/04/2018 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | 990 | 78.6 | 990 | 1,070 | 717 |
| SW06 | 0 - 1.5 | 12/04/2018 | <0.00201 | 0.00368 | 0.0173 | 0.0475 | 0.0685 | 124 | 12,000 | 390 | **12,100** | **12,500** | 1,490 |
| SS06 | 0.5 | 12/04/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | 3,240 | 109 | **3,240** | **3,350** | 18.7 |
| SS07 | 0.5 | 12/04/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | 153 | 28.9 | 153 | 182 | 327 |
| FS02A | 2 | 12/14/2018 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 28.0 |
| SS04B | 2 | 12/14/2018 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <15.0 | 531 | 181 | 531 | 712 | 36.3 |
| SS06 | 2 | 12/14/2018 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | 46.6 | 632 | 208 | 679 | 887 | 29.8 |
| SS07 | 1 | 12/14/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <14.9 | <14.9 | <14.9 | <14.9 | <14.9 | <4.98 |
| SS08 | 1 | 12/14/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <14.9 | <14.9 | <14.9 | <14.9 | <14.9 | <4.98 |
| SS08 | 3 | 12/14/2018 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <4.97 |
| BH01 | 1 | 02/02/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <14.9 | <14.9 | <14.9 | <14.9 | <14.9 | 37.8 |
| BH01A | 2 | 02/02/2019 | <0.00200 | <0.00200 | <0.00200 | 0.00866 | 0.00866 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <5.00 |
| BH02 | 1 | 02/02/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <5.03 |
| BH02A | 2 | 02/02/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <5.03 |
| BH03 | 1 | 02/02/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <4.98 |
| BH03A | 2 | 02/02/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | <5.00 |
| BH04 | 1 | 02/02/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 142 |
| BH04A | 2 | 02/02/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 183 |
| NMOCD Table 1 Closure Criteria | | | 10 | NE | NE | NE | 50 | NE | NE | NE | 1,000 | 2,500 | 20,000 |

**Notes:**
bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes
mg/kg - milligrams per kilogram
NE - not established
NMOCD - New Mexico Oil Conservation Division
DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits
**Bold** - indicates result exceeds the applicable regulatory standard
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-3761)

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 01 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

nAB1601883L105 260737

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. | Contact: Amy Ruth |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: JRU #55 Battery | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: Federal | Mineral Owner: Federal | API No. 30-015-27589 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| F | 17 | 23S | 31E | 2060 | North | 1850 | West | Eddy |

**Latitude** 32.306040° **Longitude** -103.802369°

## NATURE OF RELEASE

| | | | |
|---|---|---|---|
| Type of Release: Produced Water and Crude Oil | | Volume of Release: 7 bbls PW, 3 bbls oil | Volume Recovered: 2 bbls PW, 1 bbl oil |
| Source of Release: Oil circulating line | | Date and Hour of Occurrence: *6/22/2016 time unknown* | Date and Hour of Discovery: *6/22/2016 1 pm* |
| Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required | | If YES, To Whom? N/A | |
| By Whom? N/A | | Date and Hour N/A | |
| Was a Watercourse Reached? ☐ Yes ☒ No | | If YES, Volume Impacting the Watercourse. N/A | |

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

Describe Cause of Problem and Remedial Action Taken.*
Leak occurred on the oil circulating steel line in the portion buried in the tank earthen berm. Leak was due to a hole developing in the line due to external corrosion. Line was clamped until section can be repaired.

Describe Area Affected and Cleanup Action Taken.*
Leak affected 347 ft² of caliche within the tank earthen berm. Standing fluids were recovered.

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

| | |
|---|---|
| Signature: | OIL CONSERVATION DIVISION |
| Printed Name: Amy C. Ruth | Approved by Environmental Specialist: |
| Title: EHS Remediation Specialist | Approval Date: 7/6/16 Expiration Date: N/A |
| E-mail Address: ACRuth@basspet.com | Conditions of Approval: Attached ☐ |
| Date: 7/1/2016 Phone: 432-661-0571 | Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 8/7/16 |

* Attach Additional Sheets If Necessary

2RP-3761

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-3761 |
| 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 # *(assigned by OCD)* |
| Contact mailing address 522 W. Mermod St Suite 704 Carlsbad, NM 8820 | |

## Location of Release Source

Latitude 32.306040 Longitude -103.802369
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name JRU #55 Battery | Site Type Exploration and Production |
| Date Release Discovered 6/22/2016 | API# *(if applicable)* 30-015-27589 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| F | 17 | 23S | 31E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☒ Crude Oil | Volume Released (bbls) 3 | Volume Recovered (bbls) 1 |
| ☒ Produced Water | Volume Released (bbls) 7 | Volume Recovered (bbls) 2 |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☐ Other (describe) | Volume/Weight Released (provide units) | Volume/Weight Recovered (provide units) |

Cause of Release

A leak occurred on the oil circulating steel line in the portion buried in the tank earthen berm. Leak was due to a hole developing in the line due to external corrosion. Line was clamped until section can be repaired. The leak affected 347 sq. ft. of caliche within the tank earthen berm. Standing fluids were recovered.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3761 |
| 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? |
| If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? | |

## Initial Response

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

☒ The source of the release has been stopped.

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

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: _____ Date: 2/11/2019

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

**OCD Only**

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3761 |
| 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-3761 |
| Facility ID | |
| Application ID | |

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: _____ Date: 2/11/2019

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

**OCD Only**

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3761 |
| Facility ID | |
| Application ID | |

# Remediation Plan

**Remediation Plan Checklist**: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only**: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated.

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: _____ Date: 2/11/2019

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

**OCD Only**

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

ATTACHMENT 2: LABORATORY ANALYTICAL REPORTS

# Analytical Report 587377

## for

## LT Environmental, Inc.

**Project Manager: Adrian Baker**

**JRU 55 Battery/012978027 (2RP-3761)**

**012918027**

**03-JUN-18**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

03-JUN-18

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

Reference: XENCO Report No(s): **587377**
**JRU 55 Battery/012978027 (2RP-3761)**
Project Address: Delaware Basin

**Adrian Baker**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 587377. 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. 587377 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 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SS 1 A | S | 05-24-18 11:00 | - 6 In | 587377-001 |
| SS 4 A | S | 05-24-18 11:00 | - 6 In | 587377-002 |
| FS1 | S | 05-24-18 11:00 | - 2 In | 587377-003 |
| SW 1 | S | 05-24-18 11:00 | - 1 In | 587377-004 |
| SW 2 | S | 05-24-18 11:00 | - 1 In | 587377-005 |
| SW 3 | S | 05-24-18 11:00 | - 1 In | 587377-006 |
| SW 4 | S | 05-24-18 11:00 | - 1 In | 587377-007 |

# CASE NARRATIVE

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

***Project Name: JRU 55 Battery/012978027 (2RP-3761)***

Project ID: *012918027*
Work Order Number(s): *587377*

Report Date: *03-JUN-18*
Date Received: *05/29/2018*

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3052093 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 587377

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55 Battery/012978027 (2RP-3761)

**Project Id:** 012918027
**Contact:** Adrian Baker
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue May-29-18 09:29 am
**Report Date:** 03-JUN-18
**Project Manager:** Jessica Kramer

| Analysis Requested | | 587377-001 | | 587377-002 | | 587377-003 | | 587377-004 | | 587377-005 | | 587377-006 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Id: | SS 1 A | | SS 4 A | | FS1 | | SW 1 | | SW 2 | | SW 3 | |
| | Depth: | 6 In | | 6 In | | 2 In | | 1 In | | 1 In | | 1 In | |
| | Matrix: | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | Sampled: | May-24-18 11:00 | | May-24-18 11:00 | | May-24-18 11:00 | | May-24-18 11:00 | | May-24-18 11:00 | | May-24-18 11:00 | |
| **BTEX by EPA 8021B** | Extracted: | May-30-18 11:00 | | May-30-18 11:00 | | May-30-18 11:00 | | May-30-18 11:00 | | May-30-18 11:00 | | May-30-18 11:00 | |
| | Analyzed: | May-31-18 02:00 | | May-31-18 02:18 | | May-31-18 02:36 | | May-31-18 15:20 | | May-31-18 03:13 | | May-31-18 03:31 | |
| | Units/RL: | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| Toluene | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00394 | 0.00394 | <0.00394 | 0.00394 | <0.00394 | 0.00394 | <0.00397 | 0.00397 | <0.00397 | 0.00397 | <0.00399 | 0.00399 |
| o-Xylene | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00197 | 0.00197 | <0.00198 | 0.00198 | <0.00198 | 0.00198 | <0.00200 | 0.00200 |
| **Inorganic Anions by EPA 300** | Extracted: | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | | May-31-18 08:30 | | May-31-18 08:30 | |
| | Analyzed: | May-30-18 16:34 | | May-30-18 17:26 | | May-30-18 17:32 | | May-30-18 17:37 | | May-31-18 09:33 | | May-31-18 10:20 | |
| | Units/RL: | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 239 | 5.00 | 491 | 4.95 | 119 | 4.95 | <4.95 | 4.95 | 5.25 | 4.99 | <5.00 | 5.00 |
| **TPH by SW8015 Mod** | Extracted: | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | | May-30-18 15:00 | |
| | Analyzed: | May-30-18 23:22 | | May-31-18 00:25 | | May-31-18 00:46 | | May-31-18 01:07 | | May-31-18 01:28 | | May-31-18 01:49 | |
| | Units/RL: | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 | <14.9 | 14.9 |
| Diesel Range Organics (DRO) | | 87.9 | 15.0 | 1810 | 15.0 | 174 | 15.0 | 327 | 14.9 | <15.0 | 15.0 | <14.9 | 14.9 |
| Oil Range Hydrocarbons (ORO) | | <15.0 | 15.0 | 53.0 | 15.0 | <15.0 | 15.0 | 18.7 | 14.9 | <15.0 | 15.0 | <14.9 | 14.9 |
| Total TPH | | 87.9 | 15.0 | 1860 | 15.0 | 174 | 15.0 | 346 | 14.9 | <15.0 | 15.0 | <14.9 | 14.9 |



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Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analysis Summary 587377

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55 Battery/012978027 (2RP-3761)

**Project Id:** 012918027
**Contact:** Adrian Baker
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue May-29-18 09:29 am
**Report Date:** 03-JUN-18
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 587377-007 | | | | | |
| | ***Field Id:*** | SW 4 | | | | | |
| | ***Depth:*** | 1 In | | | | | |
| | ***Matrix:*** | SOIL | | | | | |
| | ***Sampled:*** | May-24-18 11:00 | | | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | May-30-18 11:00 | | | | | |
| | ***Analyzed:*** | May-31-18 15:01 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Benzene | | <0.00199 | 0.00199 | | | | |
| Toluene | | <0.00199 | 0.00199 | | | | |
| Ethylbenzene | | <0.00199 | 0.00199 | | | | |
| m,p-Xylenes | | <0.00398 | 0.00398 | | | | |
| o-Xylene | | <0.00199 | 0.00199 | | | | |
| Total Xylenes | | <0.00199 | 0.00199 | | | | |
| Total BTEX | | <0.00199 | 0.00199 | | | | |
| **Inorganic Anions by EPA 300** | ***Extracted:*** | May-31-18 08:30 | | | | | |
| | ***Analyzed:*** | May-31-18 10:26 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Chloride | | 45.5 | 5.00 | | | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | May-30-18 15:00 | | | | | |
| | ***Analyzed:*** | May-31-18 02:10 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | | | | |
| Oil Range Hydrocarbons (ORO) | | <15.0 | 15.0 | | | | |
| Total TPH | | <15.0 | 15.0 | | | | |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

Sample Id: **SS 1 A** Matrix: Soil Date Received:05.29.18 09.29

Lab Sample Id: 587377-001 Date Collected: 05.24.18 11.00 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: SCM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051853

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **239** | 5.00 | mg/kg | 05.30.18 16.34 | | 1 |

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051895

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 05.30.18 23.22 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **87.9** | 15.0 | mg/kg | 05.30.18 23.22 | | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 05.30.18 23.22 | U | 1 |
| **Total TPH** | PHC635 | **87.9** | 15.0 | mg/kg | 05.30.18 23.22 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 112 | % | 70-135 | 05.30.18 23.22 | |
| o-Terphenyl | 84-15-1 | 119 | % | 70-135 | 05.30.18 23.22 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS 1 A** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-001 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |
| Toluene | 108-88-3 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00394 | 0.00394 | mg/kg | 05.31.18 02.00 | U | 1 |
| o-Xylene | 95-47-6 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |
| Total BTEX | | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.00 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 102 | % | 70-130 | 05.31.18 02.00 | |
| 4-Bromofluorobenzene | 460-00-4 | 95 | % | 70-130 | 05.31.18 02.00 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

Sample Id: **SS 4 A** Matrix: Soil Date Received:05.29.18 09.29

Lab Sample Id: 587377-002 Date Collected: 05.24.18 11.00 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: SCM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051853

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **491** | 4.95 | mg/kg | 05.30.18 17.26 | | 1 |

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051895

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 05.31.18 00.25 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1810** | 15.0 | mg/kg | 05.31.18 00.25 | | 1 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **53.0** | 15.0 | mg/kg | 05.31.18 00.25 | | 1 |
| **Total TPH** | PHC635 | **1860** | 15.0 | mg/kg | 05.31.18 00.25 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 05.31.18 00.25 | |
| o-Terphenyl | 84-15-1 | 116 | % | 70-135 | 05.31.18 00.25 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS 4 A** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-002 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 6 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |
| Toluene | 108-88-3 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00394 | 0.00394 | mg/kg | 05.31.18 02.18 | U | 1 |
| o-Xylene | 95-47-6 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |
| Total BTEX | | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.18 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 05.31.18 02.18 | |
| 4-Bromofluorobenzene | 460-00-4 | 92 | % | 70-130 | 05.31.18 02.18 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS1** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-003 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 2 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 05.30.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3051853 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **119** | 4.95 | mg/kg | 05.30.18 17.32 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 05.30.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3051895 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 05.31.18 00.46 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **174** | 15.0 | mg/kg | 05.31.18 00.46 | | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 05.31.18 00.46 | U | 1 |
| **Total TPH** | PHC635 | **174** | 15.0 | mg/kg | 05.31.18 00.46 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 110 | % | 70-135 | 05.31.18 00.46 | |
| o-Terphenyl | 84-15-1 | 118 | % | 70-135 | 05.31.18 00.46 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS1** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-003 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 2 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |
| Toluene | 108-88-3 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00394 | 0.00394 | mg/kg | 05.31.18 02.36 | U | 1 |
| o-Xylene | 95-47-6 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |
| Total BTEX | | <0.00197 | 0.00197 | mg/kg | 05.31.18 02.36 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 93 | % | 70-130 | 05.31.18 02.36 | |
| 4-Bromofluorobenzene | 460-00-4 | 108 | % | 70-130 | 05.31.18 02.36 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

Sample Id: **SW 1** Matrix: Soil Date Received:05.29.18 09.29

Lab Sample Id: 587377-004 Date Collected: 05.24.18 11.00 Sample Depth: 1 In

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: SCM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051853

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.95 | 4.95 | mg/kg | 05.30.18 17.37 | U | 1 |

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051895

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 05.31.18 01.07 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **327** | 14.9 | mg/kg | 05.31.18 01.07 | | 1 |
| **Oil Range Hydrocarbons (ORO)** | PHCG2835 | **18.7** | 14.9 | mg/kg | 05.31.18 01.07 | | 1 |
| **Total TPH** | PHC635 | **346** | 14.9 | mg/kg | 05.31.18 01.07 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 05.31.18 01.07 | |
| o-Terphenyl | 84-15-1 | 114 | % | 70-135 | 05.31.18 01.07 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 1** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-004 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00397 | 0.00397 | mg/kg | 05.31.18 15.20 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 05.31.18 15.20 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 117 | % | 70-130 | 05.31.18 15.20 | |
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 05.31.18 15.20 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 2** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-005 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 05.31.18 08.30 | Basis: | Wet Weight |
| Seq Number: | 3051902 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **5.25** | 4.99 | mg/kg | 05.31.18 09.33 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 05.30.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3051895 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 05.31.18 01.28 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 05.31.18 01.28 | U | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 05.31.18 01.28 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 05.31.18 01.28 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 100 | % | 70-135 | 05.31.18 01.28 | |
| o-Terphenyl | 84-15-1 | 105 | % | 70-135 | 05.31.18 01.28 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 2** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-005 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00397 | 0.00397 | mg/kg | 05.31.18 03.13 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 05.31.18 03.13 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 117 | % | 70-130 | 05.31.18 03.13 | |
| 1,4-Difluorobenzene | 540-36-3 | 99 | % | 70-130 | 05.31.18 03.13 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 3** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-006 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 05.31.18 08.30 | Basis: | Wet Weight |
| Seq Number: | 3051902 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.00 | 5.00 | mg/kg | 05.31.18 10.20 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 05.30.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3051895 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 05.31.18 01.49 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <14.9 | 14.9 | mg/kg | 05.31.18 01.49 | U | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <14.9 | 14.9 | mg/kg | 05.31.18 01.49 | U | 1 |
| Total TPH | PHC635 | <14.9 | 14.9 | mg/kg | 05.31.18 01.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 05.31.18 01.49 | |
| o-Terphenyl | 84-15-1 | 108 | % | 70-135 | 05.31.18 01.49 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 3** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-006 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 05.31.18 03.31 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 05.31.18 03.31 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 101 | % | 70-130 | 05.31.18 03.31 | |
| 1,4-Difluorobenzene | 540-36-3 | 92 | % | 70-130 | 05.31.18 03.31 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

Sample Id: **SW 4** Matrix: Soil Date Received:05.29.18 09.29

Lab Sample Id: 587377-007 Date Collected: 05.24.18 11.00 Sample Depth: 1 In

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: SCM % Moisture:

Analyst: SCM Date Prep: 05.31.18 08.30 Basis: Wet Weight

Seq Number: 3051902

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **45.5** | 5.00 | mg/kg | 05.31.18 10.26 | | 1 |

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 05.30.18 15.00 Basis: Wet Weight

Seq Number: 3051895

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 05.31.18 02.10 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 05.31.18 02.10 | U | 1 |
| Oil Range Hydrocarbons (ORO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 05.31.18 02.10 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 05.31.18 02.10 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 05.31.18 02.10 | |
| o-Terphenyl | 84-15-1 | 109 | % | 70-135 | 05.31.18 02.10 | |

# Certificate of Analytical Results 587377

## LT Environmental, Inc., Arvada, CO

JRU 55 Battery/012978027 (2RP-3761)

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW 4** | Matrix: | Soil | Date Received: | 05.29.18 09.29 |
| Lab Sample Id: | 587377-007 | Date Collected: | 05.24.18 11.00 | Sample Depth: | 1 In |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JUM | | | % Moisture: | |
| Analyst: | JUM | Date Prep: | 05.30.18 11.00 | Basis: | Wet Weight |
| Seq Number: | 3052093 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 05.31.18 15.01 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 05.31.18 15.01 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 119 | % | 70-130 | 05.31.18 15.01 | |
| 1,4-Difluorobenzene | 540-36-3 | 99 | % | 70-130 | 05.31.18 15.01 | |

# 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 587377



## LT Environmental, Inc.

JRU 55 Battery/012978027 (2RP-3761)

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3051853 — Matrix: Solid — Date Prep: 05.30.18
MB Sample Id: 7655696-1-BLK — LCS Sample Id: 7655696-1-BKS — LCSD Sample Id: 7655696-1-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 | 274 | 110 | 268 | 107 | 90-110 | 2 | 20 | mg/kg | 05.30.18 16:24 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3051902 — Matrix: Solid — Date Prep: 05.31.18
MB Sample Id: 7655767-1-BLK — LCS Sample Id: 7655767-1-BKS — LCSD Sample Id: 7655767-1-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 | 269 | 108 | 269 | 108 | 90-110 | 0 | 20 | mg/kg | 05.31.18 09:22 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3051853 — Matrix: Soil — Date Prep: 05.30.18
Parent Sample Id: 587377-001 — MS Sample Id: 587377-001 S — MSD Sample Id: 587377-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 239 | 250 | 499 | 104 | 499 | 104 | 90-110 | 0 | 20 | mg/kg | 05.30.18 16:39 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3051853 — Matrix: Soil — Date Prep: 05.30.18
Parent Sample Id: 587525-003 — MS Sample Id: 587525-003 S — MSD Sample Id: 587525-003 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <4.96 | 248 | 270 | 109 | 278 | 112 | 90-110 | 3 | 20 | mg/kg | 05.30.18 17:58 | X |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3051902 — Matrix: Soil — Date Prep: 05.31.18
Parent Sample Id: 587377-005 — MS Sample Id: 587377-005 S — MSD Sample Id: 587377-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 5.25 | 250 | 277 | 109 | 278 | 109 | 90-110 | 0 | 20 | mg/kg | 05.31.18 09:38 | |

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 587377



## LT Environmental, Inc.

JRU 55 Battery/012978027 (2RP-3761)

**Analytical Method:** **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3051902 Matrix: Soil Date Prep: 05.31.18
Parent Sample Id: 587528-001 MS Sample Id: 587528-001 S MSD Sample Id: 587528-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <4.92 | 246 | 271 | 110 | 271 | 110 | 90-110 | 0 | 20 | mg/kg | 05.31.18 10:52 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3051895 Matrix: Solid Date Prep: 05.30.18
MB Sample Id: 7655762-1-BLK LCS Sample Id: 7655762-1-BKS LCSD Sample Id: 7655762-1-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 | 936 | 94 | 927 | 93 | 70-135 | 1 | 20 | mg/kg | 05.30.18 22:40 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 1020 | 102 | 1000 | 100 | 70-135 | 2 | 20 | mg/kg | 05.30.18 22:40 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 89 | | 126 | | 129 | | 70-135 | % | 05.30.18 22:40 |
| o-Terphenyl | 95 | | 121 | | 121 | | 70-135 | % | 05.30.18 22:40 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3051895 Matrix: Soil Date Prep: 05.30.18
Parent Sample Id: 587377-001 MS Sample Id: 587377-001 S MSD Sample Id: 587377-001 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 | 962 | 96 | 964 | 96 | 70-135 | 0 | 20 | mg/kg | 05.30.18 23:43 | |
| Diesel Range Organics (DRO) | 87.9 | 998 | 1070 | 98 | 1070 | 98 | 70-135 | 0 | 20 | mg/kg | 05.30.18 23:43 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 129 | | 129 | | 70-135 | % | 05.30.18 23:43 |
| o-Terphenyl | 125 | | 123 | | 70-135 | % | 05.30.18 23:43 |

| | | | |
|---|---|---|---|
| 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 587377



## LT Environmental, Inc.

JRU 55 Battery/012978027 (2RP-3761)

**Analytical Method:** BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3052093
Matrix: Solid
Date Prep: 05.30.18
MB Sample Id: 7655893-1-BLK
LCS Sample Id: 7655893-1-BKS
LCSD Sample Id: 7655893-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00197 | 0.0984 | 0.0991 | 101 | 0.105 | 106 | 70-130 | 6 | 35 | mg/kg | 05.30.18 20:39 | |
| Toluene | <0.00197 | 0.0984 | 0.104 | 106 | 0.108 | 110 | 70-130 | 4 | 35 | mg/kg | 05.30.18 20:39 | |
| Ethylbenzene | <0.00197 | 0.0984 | 0.102 | 104 | 0.111 | 113 | 70-130 | 8 | 35 | mg/kg | 05.30.18 20:39 | |
| m,p-Xylenes | <0.00394 | 0.197 | 0.222 | 113 | 0.233 | 118 | 70-130 | 5 | 35 | mg/kg | 05.30.18 20:39 | |
| o-Xylene | <0.00197 | 0.0984 | 0.110 | 112 | 0.118 | 120 | 70-130 | 7 | 35 | mg/kg | 05.30.18 20:39 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 105 | | 104 | | 98 | | 70-130 | % | 05.30.18 20:39 |
| 4-Bromofluorobenzene | 95 | | 92 | | 97 | | 70-130 | % | 05.30.18 20:39 |

**Analytical Method:** BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3052093
Matrix: Soil
Date Prep: 05.30.18
Parent Sample Id: 587229-001
MS Sample Id: 587229-001 S
MSD Sample Id: 587229-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00196 | 0.0982 | 0.0684 | 70 | 0.0769 | 78 | 70-130 | 12 | 35 | mg/kg | 05.30.18 21:14 | |
| Toluene | <0.00196 | 0.0982 | 0.0664 | 68 | 0.0689 | 69 | 70-130 | 4 | 35 | mg/kg | 05.30.18 21:14 | X |
| Ethylbenzene | <0.00196 | 0.0982 | 0.0579 | 59 | 0.0635 | 64 | 70-130 | 9 | 35 | mg/kg | 05.30.18 21:14 | X |
| m,p-Xylenes | <0.00393 | 0.196 | 0.118 | 60 | 0.128 | 65 | 70-130 | 8 | 35 | mg/kg | 05.30.18 21:14 | X |
| o-Xylene | <0.00196 | 0.0982 | 0.0651 | 66 | 0.0642 | 65 | 70-130 | 1 | 35 | mg/kg | 05.30.18 21:14 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 95 | | 110 | | 70-130 | % | 05.30.18 21:14 |
| 4-Bromofluorobenzene | 111 | | 124 | | 70-130 | % | 05.30.18 21:14 |

| | | | |
|---|---|---|---|
| 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 | |

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# CHAIN OF CUSTODY

Page 1 Of 1

Xenco Quote #

Xenco Job # 527377

**Client / Reporting Information**

Company Name / Branch: LT Environmental, Inc.
Company Address: 4600 W 60th Ave Arvada, CO 80003
Email: abaker@ltenviron.com Phone No: 432-894-5641
Project Contact: Adrian Baker
Samplers's Name Daniel Thomas

**Project Information**

Project Name/Number: JRU 55 Battery/012918027 (2RP-3761)
Project Location:
Invoice To:
PO Number:

**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 | Collection: Date | Collection: Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | NONE | BTEX EPA 8021 | TPH | Chloride | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SS1A | 6" | 5-24-18 | 1100 | Soil | 1 | | | | | | | | X | X | X | X | |
| 2 | SS4A | 6" | | 1105 | | | | | | | | | | | | | | |
| 3 | FS1 | 2' | | 1110 | | | | | | | | | | | | | | |
| 4 | SW1 | 1' | | 1115 | | | | | | | | | | | | | | |
| 5 | SW2 | 1' | | 1120 | | | | | | | | | | | | | | |
| 6 | SW3 | 1' | | 1125 | | | | | | | | | | | | | | |
| 7 | SW4 | 1' | | 1130 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

**Turnaround Time ( Business days)**

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY (Standart 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

**Notes:**

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 | | 5-24-18 1720 | 1 | 2 | 5/25 1530 | 2 Received 5/29/18 |
| 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| 5 | Relinquished by: | Date Time: | Received By: | Custody Seal # | Preserved where applicable | On Ice / Cooler Temp. / Thermo. Corr. Factor |
| | | | 5 | | | RB 2.5 0.0 |

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.

# Analytical Report 607737

## for

## LT Environmental, Inc.

**Project Manager: Adrian Baker**

**JRU 55**

**07-FEB-19**

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

07-FEB-19

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

Reference: XENCO Report No(s): **607737**
**JRU 55**
Project Address: 12918027

**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) 607737. 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. 607737 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.*
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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

# Sample Cross Reference 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SS06 | S | 12-04-18 11:40 | 0.5 ft | 607737-001 |
| SW05 | S | 12-04-18 11:45 | 0 - 1.5 ft | 607737-002 |
| SW06 | S | 12-04-18 11:50 | 0 - 1.5 ft | 607737-003 |
| FS02 | S | 12-04-18 12:00 | 1.5 ft | 607737-004 |
| SS07 | S | 12-04-18 12:45 | 0.5 ft | 607737-005 |

Version: 1.%

# CASE NARRATIVE

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

***Project Name: JRU 55***

Project ID:
Work Order Number(s): *607737*

Report Date: *07-FEB-19*
Date Received: *12/06/2018*

**Sample receipt non conformances and comments:**

PER CLIENTS EMAIL, CORRECTED SAMPLE NAMES. SS04 TO SS06, SS06 TO SS07. JK 02/07/19

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

None

**Analytical non conformances and comments:**

Batch: LBA-3072194 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3072258 TPH by SW8015 Mod
Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 607737-003.

# Certificate of Analysis Summary 607737

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55

**Project Id:**
**Contact:** Adrian Baker
**Project Location:** 12918027

**Date Received in Lab:** Thu Dec-06-18 11:15 am
**Report Date:** 07-FEB-19
**Project Manager:** Jessica Kramer

| Analysis Requested | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Lab Id:* | 607737-001 | | 607737-002 | | 607737-003 | | 607737-004 | | 607737-005 | |
| | *Field Id:* | SS06 | | SW05 | | SW06 | | FS02 | | SS07 | |
| | *Depth:* | 0.5- ft | | 0-1.5 ft | | 0-1.5 ft | | 1.5- ft | | 0.5- ft | |
| | *Matrix:* | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | *Sampled:* | Dec-04-18 11:40 | | Dec-04-18 11:45 | | Dec-04-18 11:50 | | Dec-04-18 12:00 | | Dec-04-18 12:45 | |
| **BTEX by EPA 8021B** | *Extracted:* | Dec-07-18 15:30 | | Dec-07-18 15:30 | | Dec-07-18 15:30 | | Dec-07-18 15:30 | | Dec-07-18 15:30 | |
| | *Analyzed:* | Dec-07-18 21:28 | | Dec-07-18 21:49 | | Dec-07-18 22:11 | | Dec-07-18 22:32 | | Dec-08-18 00:18 | |
| | *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 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Toluene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | 0.00368 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | 0.0173 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00398 | 0.00398 | 0.0319 | 0.00402 | <0.00400 | 0.00400 | <0.00399 | 0.00399 |
| o-Xylene | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | 0.0156 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | 0.0475 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00200 | 0.00200 | <0.00199 | 0.00199 | 0.0685 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| **Inorganic Anions by EPA 300** | *Extracted:* | Dec-07-18 09:00 | | Dec-07-18 09:00 | | Dec-07-18 09:00 | | Dec-07-18 09:00 | | Dec-07-18 09:00 | |
| | *Analyzed:* | Dec-07-18 22:16 | | Dec-07-18 22:35 | | Dec-07-18 22:41 | | Dec-07-18 22:59 | | Dec-07-18 23:06 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 18.7 | 4.96 | 717 | 4.96 | 1490 | 4.96 | 397 | 4.99 | 327 | 5.00 |
| **TPH by SW8015 Mod** | *Extracted:* | Dec-07-18 17:00 | | Dec-07-18 17:00 | | Dec-07-18 17:00 | | Dec-07-18 17:00 | | Dec-07-18 17:00 | |
| | *Analyzed:* | Dec-09-18 08:02 | | Dec-08-18 19:12 | | Dec-08-18 19:32 | | Dec-09-18 08:21 | | Dec-08-18 20:12 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | 124 | 74.8 | <15.0 | 15.0 | <15.0 | 15.0 |
| Diesel Range Organics (DRO) | | 3240 | 15.0 | 990 | 15.0 | 12000 | 74.8 | 2390 | 15.0 | 153 | 15.0 |
| Motor Oil Range Hydrocarbons (MRO) | | 109 | 15.0 | 78.6 | 15.0 | 390 | 74.8 | 85.1 | 15.0 | 28.9 | 15.0 |
| Total TPH | | 3350 | 15.0 | 1070 | 15.0 | 12500 | 74.8 | 2480 | 15.0 | 182 | 15.0 |



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

Version: 1.%

Jessica Kramer
Project Assistant

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS06** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-001 | Date Collected: | 12.04.18 11.40 | Sample Depth: | 0.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.07.18 09.00 | Basis: | Wet Weight |
| Seq Number: | 3072201 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **18.7** | 4.96 | mg/kg | 12.07.18 22.16 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.07.18 17.00 | Basis: | Wet Weight |
| Seq Number: | 3072258 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.09.18 08.02 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **3240** | 15.0 | mg/kg | 12.09.18 08.02 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **109** | 15.0 | mg/kg | 12.09.18 08.02 | | 1 |
| **Total TPH** | PHC635 | **3350** | 15.0 | mg/kg | 12.09.18 08.02 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 12.09.18 08.02 | |
| o-Terphenyl | 84-15-1 | 128 | % | 70-135 | 12.09.18 08.02 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS06** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-001 | Date Collected: | 12.04.18 11.40 | Sample Depth: | 0.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.07.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3072194 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 12.07.18 21.28 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.07.18 21.28 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 93 | % | 70-130 | 12.07.18 21.28 | |
| 1,4-Difluorobenzene | 540-36-3 | 97 | % | 70-130 | 12.07.18 21.28 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-002 | Date Collected: | 12.04.18 11.45 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.07.18 09.00 | Basis: | Wet Weight |
| Seq Number: | 3072201 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **717** | 4.96 | mg/kg | 12.07.18 22.35 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.07.18 17.00 | Basis: | Wet Weight |
| Seq Number: | 3072258 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.08.18 19.12 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **990** | 15.0 | mg/kg | 12.08.18 19.12 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **78.6** | 15.0 | mg/kg | 12.08.18 19.12 | | 1 |
| **Total TPH** | PHC635 | **1070** | 15.0 | mg/kg | 12.08.18 19.12 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 106 | % | 70-135 | 12.08.18 19.12 | |
| o-Terphenyl | 84-15-1 | 106 | % | 70-135 | 12.08.18 19.12 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-002 | Date Collected: | 12.04.18 11.45 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.07.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3072194 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 12.07.18 21.49 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 12.07.18 21.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 98 | % | 70-130 | 12.07.18 21.49 | |
| 1,4-Difluorobenzene | 540-36-3 | 105 | % | 70-130 | 12.07.18 21.49 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-003 | Date Collected: | 12.04.18 11.50 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.07.18 09.00 | Basis: | Wet Weight |
| Seq Number: | 3072201 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1490** | 4.96 | mg/kg | 12.07.18 22.41 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.07.18 17.00 | Basis: | Wet Weight |
| Seq Number: | 3072258 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons (GRO)** | PHC610 | **124** | 74.8 | mg/kg | 12.08.18 19.32 | | 5 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **12000** | 74.8 | mg/kg | 12.08.18 19.32 | | 5 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **390** | 74.8 | mg/kg | 12.08.18 19.32 | | 5 |
| **Total TPH** | PHC635 | **12500** | 74.8 | mg/kg | 12.08.18 19.32 | | 5 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 107 | % | 70-135 | 12.08.18 19.32 | |
| o-Terphenyl | 84-15-1 | 248 | % | 70-135 | 12.08.18 19.32 | ** |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-003 | Date Collected: | 12.04.18 11.50 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.07.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3072194 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 12.07.18 22.11 | U | 1 |
| **Toluene** | 108-88-3 | **0.00368** | 0.00201 | mg/kg | 12.07.18 22.11 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0173** | 0.00201 | mg/kg | 12.07.18 22.11 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0319** | 0.00402 | mg/kg | 12.07.18 22.11 | | 1 |
| **o-Xylene** | 95-47-6 | **0.0156** | 0.00201 | mg/kg | 12.07.18 22.11 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0475** | 0.00201 | mg/kg | 12.07.18 22.11 | | 1 |
| **Total BTEX** | | **0.0685** | 0.00201 | mg/kg | 12.07.18 22.11 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.07.18 22.11 | |
| 4-Bromofluorobenzene | 460-00-4 | 127 | % | 70-130 | 12.07.18 22.11 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-004 | Date Collected: | 12.04.18 12.00 | Sample Depth: | 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.07.18 09.00 | Basis: | Wet Weight |
| Seq Number: | 3072201 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **397** | 4.99 | mg/kg | 12.07.18 22.59 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.07.18 17.00 | Basis: | Wet Weight |
| Seq Number: | 3072258 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.09.18 08.21 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **2390** | 15.0 | mg/kg | 12.09.18 08.21 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **85.1** | 15.0 | mg/kg | 12.09.18 08.21 | | 1 |
| **Total TPH** | PHC635 | **2480** | 15.0 | mg/kg | 12.09.18 08.21 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 104 | % | 70-135 | 12.09.18 08.21 | |
| o-Terphenyl | 84-15-1 | 113 | % | 70-135 | 12.09.18 08.21 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-004 | Date Collected: | 12.04.18 12.00 | Sample Depth: | 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.07.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3072194 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 12.07.18 22.32 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.07.18 22.32 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 112 | % | 70-130 | 12.07.18 22.32 | |
| 1,4-Difluorobenzene | 540-36-3 | 110 | % | 70-130 | 12.07.18 22.32 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS07** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-005 | Date Collected: | 12.04.18 12.45 | Sample Depth: | 0.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.07.18 09.00 | Basis: | Wet Weight |
| Seq Number: | 3072201 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **327** | 5.00 | mg/kg | 12.07.18 23.06 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.07.18 17.00 | Basis: | Wet Weight |
| Seq Number: | 3072258 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.08.18 20.12 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **153** | 15.0 | mg/kg | 12.08.18 20.12 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **28.9** | 15.0 | mg/kg | 12.08.18 20.12 | | 1 |
| **Total TPH** | PHC635 | **182** | 15.0 | mg/kg | 12.08.18 20.12 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 12.08.18 20.12 | |
| o-Terphenyl | 84-15-1 | 101 | % | 70-135 | 12.08.18 20.12 | |

# Certificate of Analytical Results 607737

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS07** | Matrix: | Soil | Date Received: | 12.06.18 11.15 |
| Lab Sample Id: | 607737-005 | Date Collected: | 12.04.18 12.45 | Sample Depth: | 0.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.07.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3072194 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 12.08.18 00.18 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.08.18 00.18 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 76 | % | 70-130 | 12.08.18 00.18 | |
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.08.18 00.18 | |

# 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 607737



## LT Environmental, Inc.

JRU 55

**Analytical Method:** **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3072201 Matrix: Solid Date Prep: 12.07.18
MB Sample Id: 7667553-1-BLK LCS Sample Id: 7667553-1-BKS LCSD Sample Id: 7667553-1-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 | 270 | 108 | 259 | 104 | 90-110 | 4 | 20 | mg/kg | 12.07.18 20:37 | |

**Analytical Method:** **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3072201 Matrix: Soil Date Prep: 12.07.18
Parent Sample Id: 607687-003 MS Sample Id: 607687-003 S MSD Sample Id: 607687-003 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 292 | 250 | 505 | 85 | 478 | 74 | 90-110 | 5 | 20 | mg/kg | 12.07.18 20:56 | X |

**Analytical Method:** **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3072201 Matrix: Soil Date Prep: 12.07.18
Parent Sample Id: 607737-001 MS Sample Id: 607737-001 S MSD Sample Id: 607737-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 18.7 | 248 | 270 | 101 | 270 | 101 | 90-110 | 0 | 20 | mg/kg | 12.07.18 22:22 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3072258 Matrix: Solid Date Prep: 12.07.18
MB Sample Id: 7667653-1-BLK LCS Sample Id: 7667653-1-BKS LCSD Sample Id: 7667653-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 997 | 100 | 964 | 96 | 70-135 | 3 | 20 | mg/kg | 12.08.18 12:18 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 994 | 99 | 954 | 95 | 70-135 | 4 | 20 | mg/kg | 12.08.18 12:18 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | | 120 | | 114 | | 70-135 | % | 12.08.18 12:18 |
| o-Terphenyl | 97 | | 107 | | 99 | | 70-135 | % | 12.08.18 12:18 |

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 607737

## LT Environmental, Inc.

JRU 55

**Analytical Method:** TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3072258 — Matrix: Soil — Date Prep: 12.07.18
Parent Sample Id: 607739-001 — MS Sample Id: 607739-001 S — MSD Sample Id: 607739-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <7.98 | 997 | 1010 | 101 | 901 | 90 | 70-135 | 11 | 20 | mg/kg | 12.08.18 13:16 | |
| Diesel Range Organics (DRO) | 27.9 | 997 | 1030 | 101 | 920 | 89 | 70-135 | 11 | 20 | mg/kg | 12.08.18 13:16 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 124 | | 105 | | 70-135 | % | 12.08.18 13:16 |
| o-Terphenyl | 105 | | 92 | | 70-135 | % | 12.08.18 13:16 |

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3072194 — Matrix: Solid — Date Prep: 12.07.18
MB Sample Id: 7667688-1-BLK — LCS Sample Id: 7667688-1-BKS — LCSD Sample Id: 7667688-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.0998 | 0.0861 | 86 | 0.101 | 101 | 70-130 | 16 | 35 | mg/kg | 12.07.18 17:32 | |
| Toluene | <0.00200 | 0.0998 | 0.0763 | 76 | 0.0894 | 89 | 70-130 | 16 | 35 | mg/kg | 12.07.18 17:32 | |
| Ethylbenzene | <0.00200 | 0.0998 | 0.0883 | 88 | 0.111 | 111 | 70-130 | 23 | 35 | mg/kg | 12.07.18 17:32 | |
| m,p-Xylenes | <0.00399 | 0.200 | 0.177 | 89 | 0.232 | 116 | 70-130 | 27 | 35 | mg/kg | 12.07.18 17:32 | |
| o-Xylene | <0.00200 | 0.0998 | 0.0847 | 85 | 0.108 | 108 | 70-130 | 24 | 35 | mg/kg | 12.07.18 17:32 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 88 | | 128 | | 119 | | 70-130 | % | 12.07.18 17:32 |
| 4-Bromofluorobenzene | 85 | | 103 | | 107 | | 70-130 | % | 12.07.18 17:32 |

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3072194 — Matrix: Soil — Date Prep: 12.07.18
Parent Sample Id: 607375-009 — MS Sample Id: 607375-009 S — MSD Sample Id: 607375-009 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 | 0.0992 | 0.0894 | 90 | 0.0963 | 95 | 70-130 | 7 | 35 | mg/kg | 12.07.18 18:15 | |
| Toluene | <0.00198 | 0.0992 | 0.0773 | 78 | 0.0819 | 81 | 70-130 | 6 | 35 | mg/kg | 12.07.18 18:15 | |
| Ethylbenzene | <0.00198 | 0.0992 | 0.0820 | 83 | 0.0829 | 82 | 70-130 | 1 | 35 | mg/kg | 12.07.18 18:15 | |
| m,p-Xylenes | <0.00397 | 0.198 | 0.159 | 80 | 0.157 | 78 | 70-130 | 1 | 35 | mg/kg | 12.07.18 18:15 | |
| o-Xylene | <0.00198 | 0.0992 | 0.0778 | 78 | 0.0772 | 76 | 70-130 | 1 | 35 | mg/kg | 12.07.18 18:15 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 112 | | 122 | | 70-130 | % | 12.07.18 18:15 |
| 4-Bromofluorobenzene | 101 | | 100 | | 70-130 | % | 12.07.18 18:15 |

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: 160737

XENCO LABORATORIES

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

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

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | JRU 55 | Turn Around | |
| Project Number: | 012918027 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Lynda Laumbach | Due Date: | 12/12 |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.2/3.1 | Thermometer ID | IR2 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes No (N/A) | Correction Factor: | -0.1 |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| SS04 | S | 12/4 | 11:40 | 0.5' | 1 | X | X | X |
| SW05 | S | | 11:45 | 0-1.5' | 1 | X | X | X |
| SW06 | S | | 11:50 | 0-1.5' | 1 | X | X | X |
| FS02 | S | | 12:00 | 1.5' | 1 | X | X | X |
| SS06 | S | | 12:45 | 0.5' | 1 | X | X | X |

**ANALYSIS REQUEST**

**Work Order Notes**

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

**Sample Comments**

2RP 3761 composites

**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 | | Timothy Elliott | 12/04/2018 17:10 | 2 | 12/5/18 1104 Timothy P. Elliott | 12/5/18 - 11:05 |
| 3 | | 12/6 1115 | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1


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

**Warning**: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 12/06/2018 11:15:00 AM

**Work Order #:** 607737

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

**Temperature Measuring device used : R8**

| Sample Receipt Checklist | Comments |
|---|---|
| #1 *Temperature of cooler(s)? | 3.1 |
| #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: 12/06/2018

Brianna Teel

**Checklist reviewed by:** Jessica Kramer Date: 12/06/2018

Jessica Kramer

# Analytical Report 609032

## for

## LT Environmental, Inc.

**Project Manager: Adrian Baker**

**JRU 55**

**26-DEC-18**

Collected By: Client



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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

26-DEC-18

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

Reference: XENCO Report No(s): **609032**
**JRU 55**
Project Address: Delaware Basin

**Adrian Baker**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 609032. 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. 609032 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 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS03 | S | 12-14-18 10:00 | 1.5 ft | 609032-001 |
| SW07 | S | 12-14-18 10:10 | 0 - 1.5 ft | 609032-002 |
| SW08 | S | 12-14-18 10:15 | 0 - 1.5 ft | 609032-003 |
| SS06 | S | 12-14-18 11:45 | 2 ft | 609032-004 |
| SS08 | S | 12-14-18 11:50 | 1 ft | 609032-005 |
| SS08 | S | 12-14-18 12:00 | 3 ft | 609032-006 |
| SS07 | S | 12-14-18 12:05 | 1 ft | 609032-007 |
| SS04B | S | 12-14-18 12:30 | 2 ft | 609032-008 |
| FS02A | S | 12-14-18 14:10 | 2 ft | 609032-009 |

Version: 1.%

# CASE NARRATIVE

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

***Project Name: JRU 55***

Project ID:
Work Order Number(s): *609032*

Report Date: *26-DEC-18*
Date Received: *12/18/2018*

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3073519 Inorganic Anions by EPA 300
Chloride recovered above QC limits in the laboratory control sample. Samples in the analytical batch are: 609032-005, -006, -007, -008, -009.

Compound(s) reported above QC limits for the Blank Spike and Blank Spike Duplicate. Batch passes in accordance to Marginal Exceedence (NELAC Quality Systems, Appendix D). Daily CCV and ICV are within QC Limits. Sample data reported as valid.

Batch: LBA-3073531 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 609032

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55

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

**Date Received in Lab:** Tue Dec-18-18 12:15 pm
**Report Date:** 26-DEC-18
**Project Manager:** Jessica Kramer

| Analysis Requested | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Lab Id:* | 609032-001 | | 609032-002 | | 609032-003 | | 609032-004 | | 609032-005 | | 609032-006 | |
| | *Field Id:* | FS03 | | SW07 | | SW08 | | SS06 | | SS08 | | SS08 | |
| | *Depth:* | 1.5- ft | | 0-1.5 ft | | 0-1.5 ft | | 2- ft | | 1- ft | | 3- ft | |
| | *Matrix:* | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | *Sampled:* | Dec-14-18 10:00 | | Dec-14-18 10:10 | | Dec-14-18 10:15 | | Dec-14-18 11:45 | | Dec-14-18 11:50 | | Dec-14-18 12:00 | |
| **BTEX by EPA 8021B** | *Extracted:* | Dec-19-18 12:00 | | Dec-19-18 12:00 | | Dec-19-18 12:00 | | Dec-19-18 12:00 | | Dec-19-18 12:00 | | Dec-19-18 12:00 | |
| | *Analyzed:* | Dec-19-18 17:05 | | Dec-19-18 17:24 | | Dec-19-18 17:43 | | Dec-19-18 18:02 | | Dec-19-18 18:21 | | Dec-19-18 18:40 | |
| | *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 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Toluene | | <0.00199 | 0.00199 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Ethylbenzene | | <0.00199 | 0.00199 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| m,p-Xylenes | | <0.00398 | 0.00398 | <0.00403 | 0.00403 | <0.00402 | 0.00402 | <0.00402 | 0.00402 | <0.00400 | 0.00400 | <0.00399 | 0.00399 |
| o-Xylene | | <0.00199 | 0.00199 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total Xylenes | | <0.00199 | 0.00199 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| Total BTEX | | <0.00199 | 0.00199 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00201 | 0.00201 | <0.00200 | 0.00200 | <0.00200 | 0.00200 |
| **Inorganic Anions by EPA 300** | *Extracted:* | Dec-19-18 15:30 | | Dec-19-18 15:30 | | Dec-19-18 15:30 | | Dec-19-18 15:30 | | Dec-19-18 16:30 | | Dec-19-18 16:30 | |
| | *Analyzed:* | Dec-20-18 00:39 | | Dec-20-18 00:46 | | Dec-20-18 00:52 | | Dec-20-18 00:58 | | Dec-20-18 01:40 | | Dec-20-18 01:59 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 62.6 | 5.00 | 2540 | 25.0 | 41.9 | 5.00 | 29.8 | 4.95 | <4.98 | 4.98 | <4.97 | 4.97 |
| **TPH by SW8015 Mod** | *Extracted:* | Dec-23-18 15:00 | | Dec-23-18 15:00 | | Dec-23-18 15:00 | | Dec-23-18 15:00 | | Dec-23-18 15:00 | | Dec-23-18 15:00 | |
| | *Analyzed:* | Dec-24-18 22:26 | | Dec-24-18 23:28 | | Dec-24-18 23:49 | | Dec-25-18 00:10 | | Dec-25-18 00:31 | | Dec-25-18 00:52 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | 46.6 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 |
| Diesel Range Organics (DRO) | | 36.0 | 15.0 | 1400 | 15.0 | 268 | 15.0 | 632 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | 305 | 15.0 | 89.1 | 15.0 | 208 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 |
| Total TPH | | 36.0 | 15.0 | 1710 | 15.0 | 357 | 15.0 | 887 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 |



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Version: 1.%

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analysis Summary 609032

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55

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

**Date Received in Lab:** Tue Dec-18-18 12:15 pm
**Report Date:** 26-DEC-18
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 609032-007 | | 609032-008 | | 609032-009 | | | | | |
| | ***Field Id:*** | SS07 | | SS04B | | FS02A | | | | | |
| | ***Depth:*** | 1- ft | | 2- ft | | 2- ft | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | | | | |
| | ***Sampled:*** | Dec-14-18 12:05 | | Dec-14-18 12:30 | | Dec-14-18 14:10 | | | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Dec-19-18 12:00 | | Dec-19-18 12:00 | | Dec-19-18 12:00 | | | | | |
| | ***Analyzed:*** | Dec-19-18 18:59 | | Dec-19-18 20:13 | | Dec-19-18 20:32 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Benzene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| Toluene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00403 | 0.00403 | <0.00398 | 0.00398 | | | | |
| o-Xylene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| Total BTEX | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00199 | 0.00199 | | | | |
| **Inorganic Anions by EPA 300** | ***Extracted:*** | Dec-19-18 16:30 | | Dec-19-18 16:30 | | Dec-19-18 16:30 | | | | | |
| | ***Analyzed:*** | Dec-20-18 02:05 | | Dec-20-18 02:11 | | Dec-20-18 02:17 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Chloride | | <4.98 | 4.98 | 36.3 | 5.00 | 28.0 | 4.96 | | | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | Dec-23-18 15:00 | | Dec-23-18 15:00 | | Dec-23-18 15:00 | | | | | |
| | ***Analyzed:*** | Dec-25-18 01:13 | | Dec-25-18 01:34 | | Dec-25-18 01:55 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <14.9 | 14.9 | 531 | 15.0 | <15.0 | 15.0 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <14.9 | 14.9 | 181 | 15.0 | <15.0 | 15.0 | | | | |
| Total TPH | | <14.9 | 14.9 | 712 | 15.0 | <15.0 | 15.0 | | | | |



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Version: 1.%

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-001 | Date Collected: | 12.14.18 10.00 | Sample Depth: | 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3073517 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **62.6** | 5.00 | mg/kg | 12.20.18 00.39 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.24.18 22.26 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **36.0** | 15.0 | mg/kg | 12.24.18 22.26 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 12.24.18 22.26 | U | 1 |
| **Total TPH** | PHC635 | **36.0** | 15.0 | mg/kg | 12.24.18 22.26 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 86 | % | 70-135 | 12.24.18 22.26 | |
| o-Terphenyl | 84-15-1 | 86 | % | 70-135 | 12.24.18 22.26 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-001 | Date Collected: | 12.14.18 10.00 | Sample Depth: | 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 12.19.18 17.05 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 12.19.18 17.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.19.18 17.05 | |
| 4-Bromofluorobenzene | 460-00-4 | 93 | % | 70-130 | 12.19.18 17.05 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-002 | Date Collected: | 12.14.18 10.10 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3073517 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2540** | 25.0 | mg/kg | 12.20.18 00.46 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.24.18 23.28 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **1400** | 15.0 | mg/kg | 12.24.18 23.28 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **305** | 15.0 | mg/kg | 12.24.18 23.28 | | 1 |
| **Total TPH** | PHC635 | **1710** | 15.0 | mg/kg | 12.24.18 23.28 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 85 | % | 70-135 | 12.24.18 23.28 | |
| o-Terphenyl | 84-15-1 | 94 | % | 70-135 | 12.24.18 23.28 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-002 | Date Collected: | 12.14.18 10.10 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 12.19.18 17.24 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 12.19.18 17.24 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.19.18 17.24 | |
| 4-Bromofluorobenzene | 460-00-4 | 91 | % | 70-130 | 12.19.18 17.24 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-003 | Date Collected: | 12.14.18 10.15 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3073517 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **41.9** | 5.00 | mg/kg | 12.20.18 00.52 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.24.18 23.49 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **268** | 15.0 | mg/kg | 12.24.18 23.49 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **89.1** | 15.0 | mg/kg | 12.24.18 23.49 | | 1 |
| **Total TPH** | PHC635 | **357** | 15.0 | mg/kg | 12.24.18 23.49 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 80 | % | 70-135 | 12.24.18 23.49 | |
| o-Terphenyl | 84-15-1 | 81 | % | 70-135 | 12.24.18 23.49 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-003 | Date Collected: | 12.14.18 10.15 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 12.19.18 17.43 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 12.19.18 17.43 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 92 | % | 70-130 | 12.19.18 17.43 | |
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.19.18 17.43 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS06** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-004 | Date Collected: | 12.14.18 11.45 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 15.30 | Basis: | Wet Weight |
| Seq Number: | 3073517 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **29.8** | 4.95 | mg/kg | 12.20.18 00.58 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons (GRO)** | PHC610 | **46.6** | 15.0 | mg/kg | 12.25.18 00.10 | | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **632** | 15.0 | mg/kg | 12.25.18 00.10 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **208** | 15.0 | mg/kg | 12.25.18 00.10 | | 1 |
| **Total TPH** | PHC635 | **887** | 15.0 | mg/kg | 12.25.18 00.10 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 95 | % | 70-135 | 12.25.18 00.10 | |
| o-Terphenyl | 84-15-1 | 95 | % | 70-135 | 12.25.18 00.10 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS06** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-004 | Date Collected: | 12.14.18 11.45 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 12.19.18 18.02 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 12.19.18 18.02 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 91 | % | 70-130 | 12.19.18 18.02 | |
| 1,4-Difluorobenzene | 540-36-3 | 108 | % | 70-130 | 12.19.18 18.02 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-005 | Date Collected: | 12.14.18 11.50 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3073519 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.98 | 4.98 | mg/kg | 12.20.18 01.40 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 12.25.18 00.31 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <14.9 | 14.9 | mg/kg | 12.25.18 00.31 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <14.9 | 14.9 | mg/kg | 12.25.18 00.31 | U | 1 |
| Total TPH | PHC635 | <14.9 | 14.9 | mg/kg | 12.25.18 00.31 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 85 | % | 70-135 | 12.25.18 00.31 | |
| o-Terphenyl | 84-15-1 | 83 | % | 70-135 | 12.25.18 00.31 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-005 | Date Collected: | 12.14.18 11.50 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 12.19.18 18.21 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.21 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 109 | % | 70-130 | 12.19.18 18.21 | |
| 4-Bromofluorobenzene | 460-00-4 | 93 | % | 70-130 | 12.19.18 18.21 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-006 | Date Collected: | 12.14.18 12.00 | Sample Depth: | 3 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3073519 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.97 | 4.97 | mg/kg | 12.20.18 01.59 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.25.18 00.52 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 12.25.18 00.52 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 12.25.18 00.52 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 12.25.18 00.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 12.25.18 00.52 | |
| o-Terphenyl | 84-15-1 | 91 | % | 70-135 | 12.25.18 00.52 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS08** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-006 | Date Collected: | 12.14.18 12.00 | Sample Depth: | 3 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 12.19.18 18.40 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.40 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 110 | % | 70-130 | 12.19.18 18.40 | |
| 4-Bromofluorobenzene | 460-00-4 | 93 | % | 70-130 | 12.19.18 18.40 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS07** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-007 | Date Collected: | 12.14.18 12.05 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3073519 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.98 | 4.98 | mg/kg | 12.20.18 02.05 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 12.25.18 01.13 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <14.9 | 14.9 | mg/kg | 12.25.18 01.13 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <14.9 | 14.9 | mg/kg | 12.25.18 01.13 | U | 1 |
| Total TPH | PHC635 | <14.9 | 14.9 | mg/kg | 12.25.18 01.13 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 87 | % | 70-135 | 12.25.18 01.13 | |
| o-Terphenyl | 84-15-1 | 87 | % | 70-135 | 12.25.18 01.13 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS07** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-007 | Date Collected: | 12.14.18 12.05 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 12.19.18 18.59 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 12.19.18 18.59 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 81 | % | 70-130 | 12.19.18 18.59 | |
| 1,4-Difluorobenzene | 540-36-3 | 108 | % | 70-130 | 12.19.18 18.59 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS04B** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-008 | Date Collected: | 12.14.18 12.30 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3073519 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **36.3** | 5.00 | mg/kg | 12.20.18 02.11 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.25.18 01.34 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **531** | 15.0 | mg/kg | 12.25.18 01.34 | | 1 |
| **Motor Oil Range Hydrocarbons (MRO)** | PHCG2835 | **181** | 15.0 | mg/kg | 12.25.18 01.34 | | 1 |
| **Total TPH** | PHC635 | **712** | 15.0 | mg/kg | 12.25.18 01.34 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 88 | % | 70-135 | 12.25.18 01.34 | |
| o-Terphenyl | 84-15-1 | 88 | % | 70-135 | 12.25.18 01.34 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SS04B** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-008 | Date Collected: | 12.14.18 12.30 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 12.19.18 20.13 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 12.19.18 20.13 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 83 | % | 70-130 | 12.19.18 20.13 | |
| 1,4-Difluorobenzene | 540-36-3 | 107 | % | 70-130 | 12.19.18 20.13 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02A** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-009 | Date Collected: | 12.14.18 14.10 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 12.19.18 16.30 | Basis: | Wet Weight |
| Seq Number: | 3073519 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **28.0** | 4.96 | mg/kg | 12.20.18 02.17 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 12.23.18 15.00 | Basis: | Wet Weight |
| Seq Number: | 3073959 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 12.25.18 01.55 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 12.25.18 01.55 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 12.25.18 01.55 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 12.25.18 01.55 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 92 | % | 70-135 | 12.25.18 01.55 | |
| o-Terphenyl | 84-15-1 | 93 | % | 70-135 | 12.25.18 01.55 | |

# Certificate of Analytical Results 609032

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02A** | Matrix: | Soil | Date Received: | 12.18.18 12.15 |
| Lab Sample Id: | 609032-009 | Date Collected: | 12.14.18 14.10 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 12.19.18 12.00 | Basis: | Wet Weight |
| Seq Number: | 3073531 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 12.19.18 20.32 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 12.19.18 20.32 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 107 | % | 70-130 | 12.19.18 20.32 | |
| 4-Bromofluorobenzene | 460-00-4 | 91 | % | 70-130 | 12.19.18 20.32 | |

# 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 609032



## LT Environmental, Inc.

JRU 55

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3073517 — Matrix: Solid — Date Prep: 12.19.18
MB Sample Id: 7668398-1-BLK — LCS Sample Id: 7668398-1-BKS — LCSD Sample Id: 7668398-1-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 | 258 | 103 | 257 | 103 | 90-110 | 0 | 20 | mg/kg | 12.19.18 21:49 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3073519 — Matrix: Solid — Date Prep: 12.19.18
MB Sample Id: 7668399-1-BLK — LCS Sample Id: 7668399-1-BKS — LCSD Sample Id: 7668399-1-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 | 312 | 125 | 273 | 109 | 90-110 | 13 | 20 | mg/kg | 12.20.18 01:28 | H |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3073517 — Matrix: Soil — Date Prep: 12.19.18
Parent Sample Id: 609020-009 — MS Sample Id: 609020-009 S — MSD Sample Id: 609020-009 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 64.1 | 248 | 321 | 104 | 314 | 101 | 90-110 | 2 | 20 | mg/kg | 12.19.18 23:39 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3073517 — Matrix: Soil — Date Prep: 12.19.18
Parent Sample Id: 609149-001 — MS Sample Id: 609149-001 S — MSD Sample Id: 609149-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 400 | 250 | 638 | 95 | 630 | 92 | 90-110 | 1 | 20 | mg/kg | 12.19.18 22:07 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3073519 — Matrix: Soil — Date Prep: 12.19.18
Parent Sample Id: 609032-005 — MS Sample Id: 609032-005 S — MSD Sample Id: 609032-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.855 | 249 | 268 | 108 | 273 | 110 | 90-110 | 2 | 20 | mg/kg | 12.20.18 01:46 | |

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 609032



## LT Environmental, Inc.

JRU 55

**Analytical Method:** **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3073519 Matrix: Soil Date Prep: 12.19.18
Parent Sample Id: 609033-006 MS Sample Id: 609033-006 S MSD Sample Id: 609033-006 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.27 | 250 | 274 | 109 | 274 | 109 | 90-110 | 0 | 20 | mg/kg | 12.20.18 03:18 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3073959 Matrix: Solid Date Prep: 12.23.18
MB Sample Id: 7668692-1-BLK LCS Sample Id: 7668692-1-BKS LCSD Sample Id: 7668692-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 1020 | 102 | 949 | 95 | 70-135 | 7 | 20 | mg/kg | 12.24.18 21:44 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1070 | 107 | 952 | 95 | 70-135 | 12 | 20 | mg/kg | 12.24.18 21:44 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | | 126 | | 120 | | 70-135 | % | 12.24.18 21:44 |
| o-Terphenyl | 111 | | 127 | | 109 | | 70-135 | % | 12.24.18 21:44 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3073959 Matrix: Soil Date Prep: 12.23.18
Parent Sample Id: 609032-001 MS Sample Id: 609032-001 S MSD Sample Id: 609032-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <7.99 | 998 | 830 | 83 | 816 | 82 | 70-135 | 2 | 20 | mg/kg | 12.24.18 22:47 | |
| Diesel Range Organics (DRO) | 36.0 | 998 | 844 | 81 | 839 | 80 | 70-135 | 1 | 20 | mg/kg | 12.24.18 22:47 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | | 89 | | 70-135 | % | 12.24.18 22:47 |
| o-Terphenyl | 85 | | 79 | | 70-135 | % | 12.24.18 22:47 |

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 609032



## LT Environmental, Inc.

JRU 55

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

Seq Number: 3073531 Matrix: Solid Date Prep: 12.19.18

MB Sample Id: 7668412-1-BLK LCS Sample Id: 7668412-1-BKS LCSD Sample Id: 7668412-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000383 | 0.0996 | 0.0912 | 92 | 0.0956 | 96 | 70-130 | 5 | 35 | mg/kg | 12.19.18 14:16 | |
| Toluene | <0.000454 | 0.0996 | 0.0867 | 87 | 0.0902 | 90 | 70-130 | 4 | 35 | mg/kg | 12.19.18 14:16 | |
| Ethylbenzene | <0.000563 | 0.0996 | 0.0927 | 93 | 0.0966 | 97 | 70-130 | 4 | 35 | mg/kg | 12.19.18 14:16 | |
| m,p-Xylenes | <0.00101 | 0.199 | 0.169 | 85 | 0.175 | 88 | 70-130 | 3 | 35 | mg/kg | 12.19.18 14:16 | |
| o-Xylene | <0.000343 | 0.0996 | 0.0816 | 82 | 0.0854 | 85 | 70-130 | 5 | 35 | mg/kg | 12.19.18 14:16 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | | 101 | | 102 | | 70-130 | % | 12.19.18 14:16 |
| 4-Bromofluorobenzene | 76 | | 84 | | 86 | | 70-130 | % | 12.19.18 14:16 |

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

Seq Number: 3073531 Matrix: Soil Date Prep: 12.19.18

Parent Sample Id: 609022-001 MS Sample Id: 609022-001 S MSD Sample Id: 609022-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000384 | 0.0998 | 0.0624 | 63 | 0.0734 | 73 | 70-130 | 16 | 35 | mg/kg | 12.19.18 14:54 | X |
| Toluene | <0.000455 | 0.0998 | 0.0518 | 52 | 0.0600 | 59 | 70-130 | 15 | 35 | mg/kg | 12.19.18 14:54 | X |
| Ethylbenzene | <0.000564 | 0.0998 | 0.0456 | 46 | 0.0527 | 52 | 70-130 | 14 | 35 | mg/kg | 12.19.18 14:54 | X |
| m,p-Xylenes | <0.00101 | 0.200 | 0.0809 | 40 | 0.0926 | 46 | 70-130 | 13 | 35 | mg/kg | 12.19.18 14:54 | X |
| o-Xylene | <0.000344 | 0.0998 | 0.0407 | 41 | 0.0466 | 46 | 70-130 | 14 | 35 | mg/kg | 12.19.18 14:54 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 104 | | 105 | | 70-130 | % | 12.19.18 14:54 |
| 4-Bromofluorobenzene | 91 | | 91 | | 70-130 | % | 12.19.18 14:54 |

| | | | |
|---|---|---|---|
| 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: 609032

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

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | JRU 55 | Turn Around | |
| Project Number: | | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Lynda Lambach | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 1.6/1.5 | Thermometer ID | | |
| Received Intact: | (Yes) No | R8 | | |
| Cooler Custody Seals: | Yes No (N/A) | Correction Factor: | -0.1 | |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | | |

ANALYSIS REQUEST

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| FS03 | S | 12/14/2018 | 10:00 | 1.5' | 1 | X | X | X |
| SW07 | S | | 10:10 | 0-1.5' | 1 | X | X | X |
| SW08 | S | | 10:15 | 0-1.5' | 1 | X | X | X |
| SS06 | S | | 11:45 | 2' | 1 | X | X | X |
| SS08 | S | | 11:50 | 1' | 1 | X | X | X |
| SS-8 | S | | 12:00 | 3' | 1 | X | X | X |
| SS07 | S | | 12:05 | 1' | 1 | X | X | X |
| SS04B | S | | 12:30 | 2' | 1 | X | X | X |
| FS02A | S | ↓ | 14:10 | 2' | 1 | X | X | X |
| | | | | | | | | |

**Work Order Notes**

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

**Sample Comments**

average depth

**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

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| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | | 12/17/18 7:55 | 2 | | 12/17/18 0935 |
| 3 | | | 12/17/18 15:30 | 4 | | 12/18/18 1215 |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

773998680930


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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning**: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 12/18/2018 12:15:00 PM

**Work Order #:** 609032

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

**Temperature Measuring device used : R8**

| Sample Receipt Checklist | Comments |
|---|---|
| #1 *Temperature of cooler(s)? | 1.5 |
| #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)? | **Yes** |
| #18 Water VOC samples have zero headspace? | **N/A** |

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Katie Lowe Date: 12/18/2018

**Checklist reviewed by:** Jessica Kramer Date: 12/18/2018

# Analytical Report 613478

## for

## LT Environmental, Inc.

**Project Manager: Adrian Baker**

**JRU 55**

**012918027 2RP3761**

**06-FEB-19**

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

06-FEB-19

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

Reference: XENCO Report No(s): **613478**
**JRU 55**
Project Address: Delaware Basin

**Adrian Baker**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 613478. 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. 613478 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 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| BH01 | S | 02-02-19 13:25 | 1 ft | 613478-001 |
| BH01A | S | 02-02-19 13:35 | 2 ft | 613478-002 |
| BH02 | S | 02-02-19 13:30 | 1 ft | 613478-003 |
| BH02A | S | 02-02-19 13:45 | 2 ft | 613478-004 |
| BH03 | S | 02-02-19 13:55 | 1 ft | 613478-005 |
| BH03A | S | 02-02-19 14:15 | 2 ft | 613478-006 |
| BH04 | S | 02-02-19 14:15 | 1 ft | 613478-007 |
| BH04A | S | 02-02-19 14:25 | 2 ft | 613478-008 |

# CASE NARRATIVE

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

***Project Name: JRU 55***

Project ID: *012918027 2RP3761*
Work Order Number(s): *613478*

Report Date: *06-FEB-19*
Date Received: *02/05/2019*

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3078191 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3078196 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 613478

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55

**Project Id:** 012918027 2RP3761
**Contact:** Adrian Baker
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue Feb-05-19 12:43 pm
**Report Date:** 06-FEB-19
**Project Manager:** Jessica Kramer

| Analysis Requested | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Lab Id:* | 613478-001 | | 613478-002 | | 613478-003 | | 613478-004 | | 613478-005 | | 613478-006 | |
| | *Field Id:* | BH01 | | BH01A | | BH02 | | BH02A | | BH03 | | BH03A | |
| | *Depth:* | 1- ft | | 2- ft | | 1- ft | | 2- ft | | 1- ft | | 2- ft | |
| | *Matrix:* | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | *Sampled:* | Feb-02-19 13:25 | | Feb-02-19 13:35 | | Feb-02-19 13:30 | | Feb-02-19 13:45 | | Feb-02-19 13:55 | | Feb-02-19 14:15 | |
| **BTEX by EPA 8021B** | *Extracted:* | Feb-05-19 14:30 | | Feb-05-19 14:30 | | Feb-05-19 13:00 | | Feb-05-19 13:00 | | Feb-05-19 13:00 | | Feb-05-19 13:00 | |
| | *Analyzed:* | Feb-06-19 02:23 | | Feb-06-19 02:44 | | Feb-05-19 18:24 | | Feb-05-19 18:43 | | Feb-05-19 19:02 | | Feb-05-19 19:21 | |
| | *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 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| Toluene | | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| Ethylbenzene | | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| m,p-Xylenes | | <0.00398 | 0.00398 | 0.00662 | 0.00400 | <0.00398 | 0.00398 | <0.00399 | 0.00399 | <0.00398 | 0.00398 | <0.00402 | 0.00402 |
| o-Xylene | | <0.00199 | 0.00199 | 0.00204 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| Total Xylenes | | <0.00199 | 0.00199 | 0.00866 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| Total BTEX | | <0.00199 | 0.00199 | 0.00866 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00201 | 0.00201 |
| **Inorganic Anions by EPA 300** | *Extracted:* | Feb-05-19 13:00 | | Feb-05-19 13:00 | | Feb-05-19 13:00 | | Feb-05-19 13:00 | | Feb-05-19 16:30 | | Feb-05-19 16:30 | |
| | *Analyzed:* | Feb-06-19 00:11 | | Feb-06-19 00:17 | | Feb-06-19 00:24 | | Feb-06-19 00:30 | | Feb-06-19 01:10 | | Feb-06-19 01:29 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 37.8 | 5.00 | <5.00 | 5.00 | <5.03 | 5.03 | <5.03 | 5.03 | <4.98 | 4.98 | <5.00 | 5.00 |
| **TPH by SW8015 Mod** | *Extracted:* | Feb-05-19 17:00 | | Feb-05-19 17:00 | | Feb-05-19 17:00 | | Feb-05-19 17:00 | | Feb-05-19 17:00 | | Feb-05-19 17:00 | |
| | *Analyzed:* | Feb-05-19 19:37 | | Feb-05-19 19:57 | | Feb-05-19 20:17 | | Feb-06-19 07:05 | | Feb-06-19 07:44 | | Feb-05-19 21:17 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Diesel Range Organics (DRO) | | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Motor Oil Range Hydrocarbons (MRO) | | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Total TPH | | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analysis Summary 613478

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 55

**Project Id:** 012918027 2RP3761
**Contact:** Adrian Baker
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue Feb-05-19 12:43 pm
**Report Date:** 06-FEB-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 613478-007 | | 613478-008 | | | | | |
| | ***Field Id:*** | BH04 | | BH04A | | | | | |
| | ***Depth:*** | 1- ft | | 2- ft | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | | | | |
| | ***Sampled:*** | Feb-02-19 14:15 | | Feb-02-19 14:25 | | | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Feb-05-19 13:00 | | Feb-05-19 13:00 | | | | | |
| | ***Analyzed:*** | Feb-05-19 19:40 | | Feb-05-19 19:59 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Benzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Toluene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00400 | 0.00400 | | | | |
| o-Xylene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Total BTEX | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| **Inorganic Anions by EPA 300** | ***Extracted:*** | Feb-05-19 16:30 | | Feb-05-19 16:30 | | | | | |
| | ***Analyzed:*** | Feb-06-19 01:35 | | Feb-06-19 01:41 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Chloride | | 142 | 5.03 | 183 | 4.95 | | | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | Feb-05-19 17:00 | | Feb-05-19 17:00 | | | | | |
| | ***Analyzed:*** | Feb-05-19 21:36 | | Feb-06-19 05:46 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total TPH | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-001 | Date Collected: | 02.02.19 13.25 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078192 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **37.8** | 5.00 | mg/kg | 02.06.19 00.11 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 02.05.19 19.37 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <14.9 | 14.9 | mg/kg | 02.05.19 19.37 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <14.9 | 14.9 | mg/kg | 02.05.19 19.37 | U | 1 |
| Total TPH | PHC635 | <14.9 | 14.9 | mg/kg | 02.05.19 19.37 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 96 | % | 70-135 | 02.05.19 19.37 | |
| o-Terphenyl | 84-15-1 | 96 | % | 70-135 | 02.05.19 19.37 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-001 | Date Collected: | 02.02.19 13.25 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3078196 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 02.06.19 02.23 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 02.06.19 02.23 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 92 | % | 70-130 | 02.06.19 02.23 | |
| 4-Bromofluorobenzene | 460-00-4 | 88 | % | 70-130 | 02.06.19 02.23 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-002 | Date Collected: | 02.02.19 13.35 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078192 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.00 | 5.00 | mg/kg | 02.06.19 00.17 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.05.19 19.57 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.05.19 19.57 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.05.19 19.57 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.05.19 19.57 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 02.05.19 19.57 | |
| o-Terphenyl | 84-15-1 | 91 | % | 70-135 | 02.05.19 19.57 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-002 | Date Collected: | 02.02.19 13.35 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3078196 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 02.06.19 02.44 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 02.06.19 02.44 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 02.06.19 02.44 | U | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00662** | 0.00400 | mg/kg | 02.06.19 02.44 | | 1 |
| **o-Xylene** | 95-47-6 | **0.00204** | 0.00200 | mg/kg | 02.06.19 02.44 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00866** | 0.00200 | mg/kg | 02.06.19 02.44 | | 1 |
| **Total BTEX** | | **0.00866** | 0.00200 | mg/kg | 02.06.19 02.44 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 82 | % | 70-130 | 02.06.19 02.44 | |
| 4-Bromofluorobenzene | 460-00-4 | 82 | % | 70-130 | 02.06.19 02.44 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

Sample Id: **BH02** Matrix: Soil Date Received:02.05.19 12.43

Lab Sample Id: 613478-003 Date Collected: 02.02.19 13.30 Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 02.05.19 13.00 Basis: Wet Weight

Seq Number: 3078192

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.03 | 5.03 | mg/kg | 02.06.19 00.24 | U | 1 |

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 02.05.19 17.00 Basis: Wet Weight

Seq Number: 3078222

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.05.19 20.17 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.05.19 20.17 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.05.19 20.17 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.05.19 20.17 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 89 | % | 70-135 | 02.05.19 20.17 | |
| o-Terphenyl | 84-15-1 | 88 | % | 70-135 | 02.05.19 20.17 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-003 | Date Collected: | 02.02.19 13.30 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 02.05.19 18.24 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 02.05.19 18.24 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 110 | % | 70-130 | 02.05.19 18.24 | |
| 4-Bromofluorobenzene | 460-00-4 | 108 | % | 70-130 | 02.05.19 18.24 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-004 | Date Collected: | 02.02.19 13.45 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078192 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.03 | 5.03 | mg/kg | 02.06.19 00.30 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.06.19 07.05 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.06.19 07.05 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.06.19 07.05 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.06.19 07.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 96 | % | 70-135 | 02.06.19 07.05 | |
| o-Terphenyl | 84-15-1 | 95 | % | 70-135 | 02.06.19 07.05 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-004 | Date Collected: | 02.02.19 13.45 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 02.05.19 18.43 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 02.05.19 18.43 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 111 | % | 70-130 | 02.05.19 18.43 | |
| 4-Bromofluorobenzene | 460-00-4 | 111 | % | 70-130 | 02.05.19 18.43 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-005 | Date Collected: | 02.02.19 13.55 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 16.30 | Basis: | Wet Weight |
| Seq Number: | 3078193 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <4.98 | 4.98 | mg/kg | 02.06.19 01.10 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.06.19 07.44 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.06.19 07.44 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.06.19 07.44 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.06.19 07.44 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 96 | % | 70-135 | 02.06.19 07.44 | |
| o-Terphenyl | 84-15-1 | 96 | % | 70-135 | 02.06.19 07.44 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-005 | Date Collected: | 02.02.19 13.55 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 02.05.19 19.02 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 02.05.19 19.02 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 110 | % | 70-130 | 02.05.19 19.02 | |
| 4-Bromofluorobenzene | 460-00-4 | 109 | % | 70-130 | 02.05.19 19.02 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-006 | Date Collected: | 02.02.19 14.15 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 16.30 | Basis: | Wet Weight |
| Seq Number: | 3078193 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <5.00 | 5.00 | mg/kg | 02.06.19 01.29 | U | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.05.19 21.17 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.05.19 21.17 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.05.19 21.17 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.05.19 21.17 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 02.05.19 21.17 | |
| o-Terphenyl | 84-15-1 | 105 | % | 70-135 | 02.05.19 21.17 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH03A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-006 | Date Collected: | 02.02.19 14.15 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 02.05.19 19.21 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 02.05.19 19.21 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 112 | % | 70-130 | 02.05.19 19.21 | |
| 1,4-Difluorobenzene | 540-36-3 | 110 | % | 70-130 | 02.05.19 19.21 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH04** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-007 | Date Collected: | 02.02.19 14.15 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 16.30 | Basis: | Wet Weight |
| Seq Number: | 3078193 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **142** | 5.03 | mg/kg | 02.06.19 01.35 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078222 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.05.19 21.36 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.05.19 21.36 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.05.19 21.36 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.05.19 21.36 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 02.05.19 21.36 | |
| o-Terphenyl | 84-15-1 | 87 | % | 70-135 | 02.05.19 21.36 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH04** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-007 | Date Collected: | 02.02.19 14.15 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 02.05.19 19.40 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.40 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 111 | % | 70-130 | 02.05.19 19.40 | |
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 02.05.19 19.40 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH04A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-008 | Date Collected: | 02.02.19 14.25 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Inorganic Anions by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 02.05.19 16.30 | Basis: | Wet Weight |
| Seq Number: | 3078193 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **183** | 4.95 | mg/kg | 02.06.19 01.41 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | ARM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 02.05.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3078223 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 02.06.19 05.46 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 02.06.19 05.46 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 02.06.19 05.46 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 02.06.19 05.46 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 99 | % | 70-135 | 02.06.19 05.46 | |
| o-Terphenyl | 84-15-1 | 96 | % | 70-135 | 02.06.19 05.46 | |

# Certificate of Analytical Results 613478

## LT Environmental, Inc., Arvada, CO

JRU 55

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH04A** | Matrix: | Soil | Date Received: | 02.05.19 12.43 |
| Lab Sample Id: | 613478-008 | Date Collected: | 02.02.19 14.25 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | SCM | | | % Moisture: | |
| Analyst: | SCM | Date Prep: | 02.05.19 13.00 | Basis: | Wet Weight |
| Seq Number: | 3078191 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 02.05.19 19.59 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 02.05.19 19.59 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 02.05.19 19.59 | |
| 1,4-Difluorobenzene | 540-36-3 | 111 | % | 70-130 | 02.05.19 19.59 | |

# 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 613478



## LT Environmental, Inc.

JRU 55

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3078192 — Matrix: Solid — Date Prep: 02.05.19
MB Sample Id: 7671127-1-BLK — LCS Sample Id: 7671127-1-BKS — LCSD Sample Id: 7671127-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 250 | 100 | 239 | 96 | 90-110 | 4 | 20 | mg/kg | 02.05.19 21:24 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3078193 — Matrix: Solid — Date Prep: 02.05.19
MB Sample Id: 7671129-1-BLK — LCS Sample Id: 7671129-1-BKS — LCSD Sample Id: 7671129-1-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 | 250 | 100 | 249 | 100 | 90-110 | 0 | 20 | mg/kg | 02.06.19 00:58 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3078192 — Matrix: Soil — Date Prep: 02.05.19
Parent Sample Id: 613477-001 — MS Sample Id: 613477-001 S — MSD Sample Id: 613477-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.852 | 248 | 240 | 97 | 249 | 100 | 90-110 | 4 | 20 | mg/kg | 02.05.19 21:43 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3078192 — Matrix: Soil — Date Prep: 02.05.19
Parent Sample Id: 613477-011 — MS Sample Id: 613477-011 S — MSD Sample Id: 613477-011 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.26 | 250 | 230 | 91 | 239 | 95 | 90-110 | 4 | 20 | mg/kg | 02.05.19 23:13 | |

**Analytical Method:** Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3078193 — Matrix: Soil — Date Prep: 02.05.19
Parent Sample Id: 613478-005 — MS Sample Id: 613478-005 S — MSD Sample Id: 613478-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.855 | 249 | 259 | 104 | 251 | 101 | 90-110 | 3 | 20 | mg/kg | 02.06.19 01:16 | |

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



Final 1.000

# QC Summary 613478



## LT Environmental, Inc.

JRU 55

**Analytical Method:** TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3078222 — Matrix: Solid — Date Prep: 02.05.19
MB Sample Id: 7671160-1-BLK — LCS Sample Id: 7671160-1-BKS — LCSD Sample Id: 7671160-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 851 | 85 | 878 | 88 | 70-135 | 3 | 20 | mg/kg | 02.05.19 12:29 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 953 | 95 | 978 | 98 | 70-135 | 3 | 20 | mg/kg | 02.05.19 12:29 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | | 123 | | 127 | | 70-135 | % | 02.05.19 12:29 |
| o-Terphenyl | 93 | | 119 | | 122 | | 70-135 | % | 02.05.19 12:29 |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3078223 — Matrix: Solid — Date Prep: 02.05.19
MB Sample Id: 7671161-1-BLK — LCS Sample Id: 7671161-1-BKS — LCSD Sample Id: 7671161-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 895 | 90 | 908 | 91 | 70-135 | 1 | 20 | mg/kg | 02.05.19 22:36 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1010 | 101 | 1020 | 102 | 70-135 | 1 | 20 | mg/kg | 02.05.19 22:36 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | | 125 | | 126 | | 70-135 | % | 02.05.19 22:36 |
| o-Terphenyl | 95 | | 105 | | 127 | | 70-135 | % | 02.05.19 22:36 |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3078222 — Matrix: Soil — Date Prep: 02.05.19
Parent Sample Id: 613229-021 — MS Sample Id: 613229-021 S — MSD Sample Id: 613229-021 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <7.99 | 999 | 927 | 93 | 923 | 92 | 70-135 | 0 | 20 | mg/kg | 02.05.19 13:54 | |
| Diesel Range Organics (DRO) | <8.12 | 999 | 1070 | 107 | 1060 | 106 | 70-135 | 1 | 20 | mg/kg | 02.05.19 13:54 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 121 | | 130 | | 70-135 | % | 02.05.19 13:54 |
| o-Terphenyl | 124 | | 127 | | 70-135 | % | 02.05.19 13:54 |

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 613478

## LT Environmental, Inc.

JRU 55

**Analytical Method:** TPH by SW8015 Mod | Prep Method: TX1005P
Seq Number: 3078223 | Matrix: Soil | Date Prep: 02.05.19
Parent Sample Id: 613477-001 | MS Sample Id: 613477-001 S | MSD Sample Id: 613477-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <7.99 | 998 | 813 | 81 | 789 | 79 | 70-135 | 3 | 20 | mg/kg | 02.05.19 23:34 | |
| Diesel Range Organics (DRO) | <8.11 | 998 | 907 | 91 | 879 | 88 | 70-135 | 3 | 20 | mg/kg | 02.05.19 23:34 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 119 | | 116 | | 70-135 | % | 02.05.19 23:34 |
| o-Terphenyl | 111 | | 104 | | 70-135 | % | 02.05.19 23:34 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3078191 | Matrix: Solid | Date Prep: 02.05.19
MB Sample Id: 7671150-1-BLK | LCS Sample Id: 7671150-1-BKS | LCSD Sample Id: 7671150-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000386 | 0.100 | 0.124 | 124 | 0.126 | 126 | 70-130 | 2 | 35 | mg/kg | 02.05.19 10:55 | |
| Toluene | <0.000457 | 0.100 | 0.110 | 110 | 0.110 | 110 | 70-130 | 0 | 35 | mg/kg | 02.05.19 10:55 | |
| Ethylbenzene | <0.000567 | 0.100 | 0.104 | 104 | 0.104 | 104 | 70-130 | 0 | 35 | mg/kg | 02.05.19 10:55 | |
| m,p-Xylenes | <0.00102 | 0.201 | 0.207 | 103 | 0.207 | 104 | 70-130 | 0 | 35 | mg/kg | 02.05.19 10:55 | |
| o-Xylene | <0.000346 | 0.100 | 0.102 | 102 | 0.102 | 102 | 70-130 | 0 | 35 | mg/kg | 02.05.19 10:55 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | | 106 | | 106 | | 70-130 | % | 02.05.19 10:55 |
| 4-Bromofluorobenzene | 95 | | 103 | | 103 | | 70-130 | % | 02.05.19 10:55 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3078196 | Matrix: Solid | Date Prep: 02.05.19
MB Sample Id: 7671157-1-BLK | LCS Sample Id: 7671157-1-BKS | LCSD Sample Id: 7671157-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | 0.101 | 0.111 | 110 | 0.118 | 118 | 70-130 | 6 | 35 | mg/kg | 02.05.19 16:45 | |
| Toluene | <0.00201 | 0.101 | 0.0873 | 86 | 0.0950 | 95 | 70-130 | 8 | 35 | mg/kg | 02.05.19 16:45 | |
| Ethylbenzene | <0.00201 | 0.101 | 0.106 | 105 | 0.106 | 106 | 70-130 | 0 | 35 | mg/kg | 02.05.19 16:45 | |
| m,p-Xylenes | <0.00402 | 0.201 | 0.228 | 113 | 0.221 | 111 | 70-130 | 3 | 35 | mg/kg | 02.05.19 16:45 | |
| o-Xylene | <0.00201 | 0.101 | 0.102 | 101 | 0.0997 | 100 | 70-130 | 2 | 35 | mg/kg | 02.05.19 16:45 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 85 | | 88 | | 99 | | 70-130 | % | 02.05.19 16:45 |
| 4-Bromofluorobenzene | 86 | | 103 | | 87 | | 70-130 | % | 02.05.19 16:45 |

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 613478



## LT Environmental, Inc.

JRU 55

**Analytical Method:** BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3078191
Matrix: Soil
Date Prep: 02.05.19
Parent Sample Id: 612979-001
MS Sample Id: 612979-001 S
MSD Sample Id: 612979-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000770 | 0.200 | 0.127 | 64 | 0.0925 | 93 | 70-130 | 31 | 35 | mg/kg | 02.05.19 11:33 | X |
| Toluene | <0.000911 | 0.200 | 0.112 | 56 | 0.0797 | 80 | 70-130 | 34 | 35 | mg/kg | 02.05.19 11:33 | X |
| Ethylbenzene | <0.00113 | 0.200 | 0.103 | 52 | 0.0742 | 74 | 70-130 | 33 | 35 | mg/kg | 02.05.19 11:33 | X |
| m,p-Xylenes | <0.00203 | 0.400 | 0.207 | 52 | 0.148 | 74 | 70-130 | 33 | 35 | mg/kg | 02.05.19 11:33 | X |
| o-Xylene | <0.000689 | 0.200 | 0.103 | 52 | 0.0733 | 73 | 70-130 | 34 | 35 | mg/kg | 02.05.19 11:33 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | | 107 | | 70-130 | % | 02.05.19 11:33 |
| 4-Bromofluorobenzene | 108 | | 106 | | 70-130 | % | 02.05.19 11:33 |

**Analytical Method:** BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3078196
Matrix: Soil
Date Prep: 02.05.19
Parent Sample Id: 613477-001
MS Sample Id: 613477-001 S
MSD Sample Id: 613477-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0737 | 74 | 0.0791 | 78 | 70-130 | 7 | 35 | mg/kg | 02.05.19 17:28 | |
| Toluene | <0.00200 | 0.100 | 0.0626 | 63 | 0.0645 | 64 | 70-130 | 3 | 35 | mg/kg | 02.05.19 17:28 | X |
| Ethylbenzene | <0.00200 | 0.100 | 0.0749 | 75 | 0.0820 | 81 | 70-130 | 9 | 35 | mg/kg | 02.05.19 17:28 | |
| m,p-Xylenes | 0.00169 | 0.200 | 0.141 | 70 | 0.159 | 78 | 70-130 | 12 | 35 | mg/kg | 02.05.19 17:28 | |
| o-Xylene | <0.00200 | 0.100 | 0.0676 | 68 | 0.0734 | 73 | 70-130 | 8 | 35 | mg/kg | 02.05.19 17:28 | X |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 112 | | 109 | | 70-130 | % | 02.05.19 17:28 |
| 4-Bromofluorobenzene | 102 | | 100 | | 70-130 | % | 02.05.19 17:28 |

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



Final 1.000

# Chain of Custody

Work Order No: 613478

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

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

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | JRU 55 | Turn Around | |
| Project Number: | 012918027 2RP-3761 | Routine ☐ | |
| P.O. Number: | | Rush: 1 | |
| Sampler's Name: | L Lambdin, G. Green | Due Date: 2/4/06 | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 0.3/0.2 | Thermometer ID: | 100 | |
| Received Intact: | (Yes) No | | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.1 | |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | 8 | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| BH01 | S | 02/02/19 | 13:25 | 1' | 1 | X | X | X |
| BH01A | S | | 13:35 | 2' | 1 | X | X | X |
| BH02 | S | | 14:30 | 1' | 1 | X | X | X |
| BH02A | S | | 14:45 | 2' | 1 | X | X | X |
| BH03 | S | | 13:55 | 1' | 1 | X | X | X |
| BH03A | S | | 14:15 | 2' | 1 | X | X | X |
| BH04 | S | | 14:15 | 1' | 1 | X | X | X |
| BH04A | S | | 14:25 | 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**

discrete

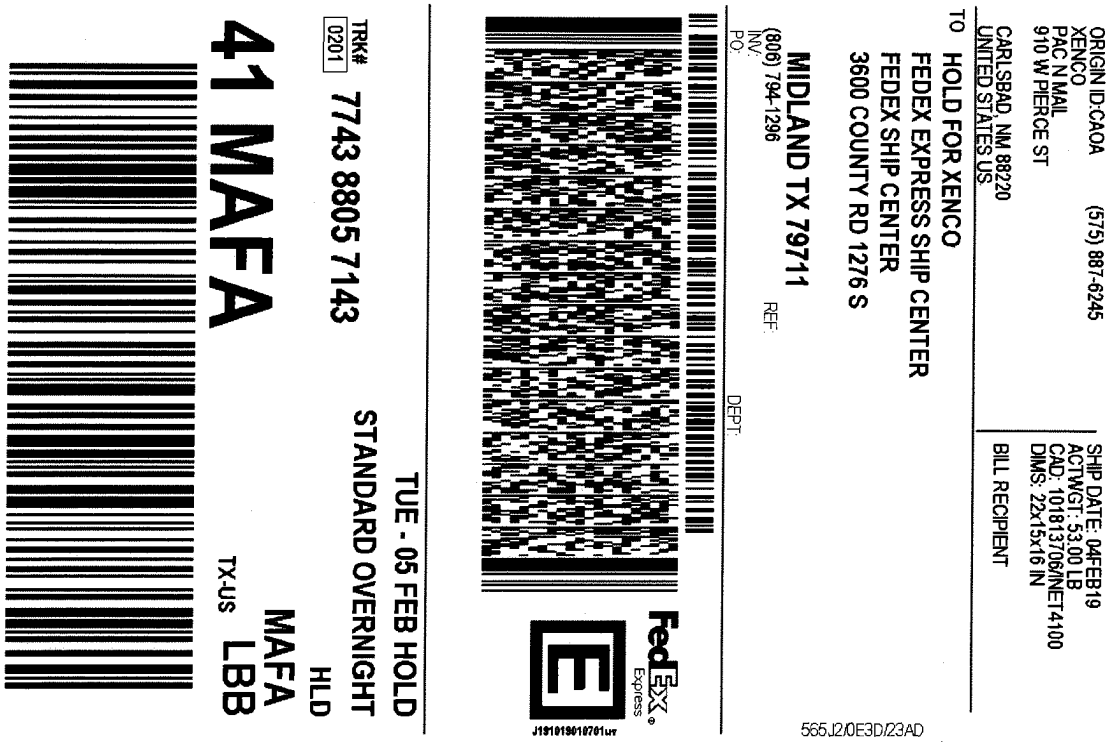
**Total 200.7 / 6010 200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

*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 | | 02/04/19 7:0 | 2 | | |
| 3 | | 2/5/19 1239 | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1




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

**Warning**: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 02/05/2019 12:43:45 PM

**Work Order #:** 613478

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

**Temperature Measuring device used : R8**

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

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Brianna Teel Date: 02/05/2019

Brianna Teel

**Checklist reviewed by:** Jessica Kramer Date: 02/05/2019

Jessica Kramer

# ATTACHMENT 3: PHOTOGRAPHIC LOG

**View to the north of the west side of the tank battery prior to excavation.**

| | | |
|---|---|---|
| Project: 012918027 | XTO Energy, Inc.<br>JRU #55 Battery | LTE Advancing Opportunity |
| May 24, 2018 | Photographic Log | |

**View north of the excavation.**

| | | |
|---|---|---|
| Project: 012918027 | XTO Energy, Inc.<br>JRU #55 Battery | LTE Advancing Opportunity |
| October 4, 2018 | Photographic Log | |

# ATTACHMENT 4: SOIL SAMPLE LOG

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

| Identifier: BH01 | Date: 2/2/2019 |
|---|---|
| Project Name: JRU-55 | RP Number: 2RP-3761 |
| Logged By: GG | Method: Hand Auger |
| Hole Diameter: 3" | Total Depth: 2' |

**LITHOLOGIC / SOIL SAMPLING LOG**

Lat/Long:

Field Screening: PID / chloride

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| D | 1.0 | 4.9 | | ~~BH01~~ BH01 | 1 | | | clay loam, low plasticity, brown |
| M | 0.4 | 8.0 | | ~~BH01a~~ BH01A | 2 | | | clay loam, med plasticity, brown |
| | | | | | 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: | Date: |
|---|---|
| BH02 | 2/2/2019 |
| Project Name: | RP Number: |
| JRU-55 | 2RP-3761 |
| Logged By: GG | Method: Hand auger |
| Field Screening: PID / Chlorides | Hole Diameter: 3" / Total Depth: 2' |

**LITHOLOGIC / SOIL SAMPLING LOG**

Lat/Long:

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| 1430 D | 0.6 | 2.9 | | ~~BH01~~ BH02 | 0–1 | | | sandy loam, Low plasticity |
| 1445 D | 0.4 | 2.9 | | ~~BH02~~ BH02A | 1–2 | | | sandy loam, Low Plasticity |

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

| Identifier: | Date: |
|---|---|
| BH 03 | 2/2/2019 |
| **Project Name:** | **RP Number:** |
| JRU-55 | 2RP-3761 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: GG / Method: Hand Auger |
| Lat/Long: | Field Screening: PID/chloride / Hole Diameter: 3" / Total Depth: 2' |

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| 1355 D | 0.2 | 15.6 | | ~~BH03~~ BH03 | 0–1 | | | Sandy loam, low plasticity, brown |
| 1415 D | 0.2 | 3.6 | | ~~BH03A~~ BH03A | 1–2 | | | Sandy loam, low plasticity brown |
| | | | | | 2–12 | | | |

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

| Identifier: | Date: |
|---|---|
| BH-4 | 2/2/2019 |
| **Project Name:** JRU-55 2RP 3761 | **RP Number:** 2RP-3761 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: LL / Method: Hand Auger |
| Lat/Long: | Field Screening: PID, Chlorides (Hach) / Hole Diameter: 3" / Total Depth: 2' |

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | |
| D | 1.6 | 12.2 | N | BH04 | 1 | 1' | | Sandy loam, dry, brown. 70/30 |
| D | 2.5 | 7.2 | N | BH04 | 2 | 2' | | clumps together, low plasticity, brown sandy loam, 60/40 |
| | | | | | 3 | | | |
| | | | | | 4 | | | |
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| | | | | | 11 | | | |
| | | | | | 12 | | | |

14:15
14:25

**District I**
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
**District II**
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
**District III**
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
**District IV**
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505

CONDITIONS

Action 234012

## CONDITIONS

| | |
|---|---|
| Operator:<br>XTO ENERGY, INC<br>6401 Holiday Hill Road<br>Midland, TX 79707 | OGRID:<br>5380 |
| | Action Number:<br>234012 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| amaxwell | The Deferral Request and C-141 will be accepted for record and marked accordingly. The release will remain open in OCD database files and reflect an open environmental issue. | 7/3/2023 |
| amaxwell | Remediation is to occur during any future major construction/alteration or final plugging and abandonment, whichever occurs first. | 7/3/2023 |