

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

JMW 134127699

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. 260737  
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220  
Facility Name: James Ranch Unit #17 Tank Battery  
Tank Battery is on the same pad as the Well #17

Contact: Tony Savoie  
Telephone No. 575-887-7329  
Facility Type: Exploration and Production

Surface Owner: Federal

Mineral Owner: Federal

API No. 30-015-27784

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	6	23S	31E	2080	North	1980	West	Eddy

Latitude N 32.335180 Longitude W 103.819280

#### NATURE OF RELEASE

Type of Release: Crude oil and produced water	Volume of Release: 5 Bbls. oil and 15 Bbls. produced water	Volume Recovered: 5 Bbls. oil
Source of Release: 2" circulating line	Date and Hour of Occurrence: 4/26/13 Time unknown	Date and Hour of Discovery: 4/26/13 at 10:00 a.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

RECEIVED

MAY 17 2013

NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.\*

The circulating line on the 500 Bbl. oil production tank failed due to corrosion. The line and the tank were replaced.

Describe Area Affected and Cleanup Action Taken.\* The entire surface area of the earthen containment around the production tanks was affected by the release. The area measures approximately 3000 sq. ft. No remediation activities have taken place, new gravel was placed over the spill area inside the containment area. The affected area will be remediated in accordance to the NMOCD guidelines, the tank battery will be evaluated for re-construction inside impervious containment.

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.

#### OIL CONSERVATION DIVISION

Signature: Tony Savoie

Printed Name: Tony Savoie

Title: Waste Management and Remediation Specialist

E-mail Address: tasavoie@basspet.com

Date: 5/16/13

Phone: 432-556-8730

Approved by Environmental Specialist:

Signed By: Mike Benavides

MAY 21 2013

Approval Date:

Expiration Date:

Conditions of Approval:

Remediation per OCD Rule & Guidelines. **SUBMIT REMEDIATION PROPOSAL NO LATER THAN:**

Attached ☐

\* Attach Additional Sheets If Necessary

2RP-1657

District I  
1625 N. French Dr., Hobbs, NM 88240  
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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	nJMW1314127699
District RP	2RP-1657
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Garrett Green	Contact Telephone 575-200-0729
Contact email garrett.green@exxonmobil.com	Incident # (assigned by OCD)
Contact mailing address 3104 E. Greene Street, Carlsbad, New Mexico, 88220	

### Location of Release Source

Latitude 32.335180 Longitude -103.819280  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: James Ranch Unit #17 Tank Battery	Site Type Exploration and Production
Date Release Discovered: 4/26/2013	API# (if applicable) 30-015-27784

Unit Letter	Section	Township	Range	County
F	6	23S	31E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 5	Volume Recovered (bbls) 5
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 15	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

#### Cause of Release:

The circulating line on the 500 bbl oil production tank failed due to corrosion. The line and tank were replaced. The entire surface area of the earthen containment around the production tanks was affected by the release. The area measures approx. 3000 sq. ft. No remediation activities have taken place, new gravel was placed over the spill area inside the containment area. The affected area will be remediated in accordance to NMOCDD guidelines, the tank battery will be evaluated for reconstruction inside the impervious containment.


## Oil Conservation Division

Incident ID	nJMW1314127699
District RP	2RP-1657
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> X 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*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: N/A	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Garrett Green</u>	Title: <u>SSHE Coordinator</u>
Signature: <u></u>	Date: <u>6-27-2023</u>
email: <u>garrett.green@exxonmobil.com</u>	Telephone: <u>575-200-0729</u>
<b><u>OCD Only</u></b>  Received by: _____ Date: _____	

Incident ID	nJMW131412/699
District RP	2RP-1657
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.



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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 GreenTitle: SSHE CoordinatorSignature: Date: 6-27-2023email: garrett.green@exxonmobil.comTelephone: 575-200-0729**OCD Only**Received by: Shelly WellsDate: 6/27/2023

Incident ID	nJMW1314127699
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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 GreenTitle: SSHE CoordinatorSignature: Date: 6-27-2023email: garrett.green@exxonmobil.comTelephone: 575-200-0729**OCD Only**Received by: Shelly Wells Date: 6/27/2023☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☒ Deferral ApprovedSignature: 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.



June 27, 2023

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

**Re: Deferral Request Addendum  
James Ranch Unit 17 Battery  
Incident Numbers nJMW1314127699 and nAB1506430295  
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 at the James Ranch Unit 17 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 Numbers nJMW1314127699 and nAB1506430295.

#### **SITE DESCRIPTION AND RELEASE SUMMARY**

The Site is located in Unit F, Section 6, Township 23 South, Range 31 East, in Eddy County, New Mexico (32.335180°, -103.819280°) and is associated with oil and gas exploration and production operations on Federal land managed by the Bureau of Land Management (BLM).

On April 26, 2013, a 2-inch circulating line on a 500-barrel (bbl) oil production tank failed due to corrosion and resulted in 5 barrels (bbls) of crude oil and 15 bbls of produced water to be released within an unlined earthen containment berm. The 2-inch circulating line and the 500-bbl tank were both replaced. Approximately 5 bbls of crude oil were recovered. The former operator reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 (Form C-141) on May 16, 2013. The release was assigned Remediation Permit (RP) Number 2RP-1657 and Incident Number nJMW1314127699.

A second release occurred on February 20, 2015, when the well was being serviced by a pulling unit and the E-Pot was removed. The E-Pot is designed to shut the well down in the event of a stuffing box packing failure. During the E-Pot removal, the packing failed and 12 bbls of crude oil and 40 bbls of produced water were released onto the well pad and surrounding pasture area. The packing was replaced and approximately 5 bbls of crude oil and 10 bbls of produced water were recovered by a vacuum truck. The spill impacted approximately 2,300 square feet of caliche well pad and approximately 1,500 square feet of pasture. The former operator reported the release to the NMOCD on a Form C-141 on March 3, 2015. The release was assigned RP Number 2RP-2850 and Incident Number nAB1506430295.

XTO Energy, Inc.  
Deferral Request Addendum  
James Ranch Unit 17 Battery

The releases were 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.

Both releases occurred at the same production facility; therefore, the sampling and excavation activities were completed to address both releases simultaneously.

## 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-141s, Site Assessment/Characterization. Potential site receptors are identified on Figure 1. 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

During October and December 2018, delineation and excavation activities were conducted at the Site to address impacted soil resulting from the two historical releases of crude oil and produced water. Impacted soil was excavated to the extent possible; however, an estimated 68 cubic yards of impacted soil were left in place beneath the tanks (Incident Number nJMW1314127699) and 33 cubic yards of impacted soil were left in place next to the pumpjack (Incident Number nAB1506430295) for compliance with XTO safety policy regarding earth-moving activities within 2-feet of active production equipment and 10-feet of active wellheads/pumpjacks. 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 23, 2023, NMOCD denied the *Deferral Request* for Incident Numbers nJMW1314127699 and nAB1506430295 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 remediation 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.).



XTO Energy, Inc.  
Deferral Request Addendum  
James Ranch Unit 17 Battery

## ADDITIONAL DEPTH TO GROUNDWATER DETERMINATION

New depth to groundwater data became available since the submittal of the February 11, 2019, *Deferral Request*. A borehole was drilled approximately 0.48 miles west of the Site during May 2019. The borehole was advanced to a depth of 150 feet below ground surface (bgs) via sonic drilling rig and was permitted as New Mexico Office of the State Engineer (NMOSE) well C-04325. The location of the borehole is presented on Figure 1. A field geologist logged and described soils continuously. The borehole lithologic/soil sampling log is included in Appendix A. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed that groundwater was greater than 150 feet bgs. The borehole was properly abandoned using drill cuttings and hydrated bentonite chips. All wells used for depth to groundwater determination are depicted on Figure 1.

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

## ADDITIONAL SOIL SAMPLING ACTIVITIES

Horizontal delineation of a release was not enforced, nor practiced, until it became more frequently required by NMOCD through denial language throughout 2021. Therefore, in order to ensure NMOCD approval of this *Deferral Request Addendum*, additional soil sampling activities were completed at the Site. On May 30, 2023, Ensolum personnel collected assessment soil samples SS01 through SS04 from a depth of 0.5 feet bgs around the release extents, to confirm the horizontal extent of the releases. Additionally, on June 6, 2023, four boreholes (BH01 through BH04) were advanced via hand auger in the pasture area south of the well pad to confirm the absence of impacted soil associated with Incident Number nAB1506430295. The boreholes were advanced until hand auger refusal, encountered at depths ranging from 1-foot to 3 feet bgs. Two discrete delineation soil samples were collected from each borehole at depths ranging from 0.5 feet to 3 feet bgs. The assessment and delineation soil sample locations are presented on Figure 2.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for assessment samples SS01 through SS04 and the delineation samples collected from boreholes BH01 through BH04 indicated all COC concentrations were compliant with the most stringent Table 1 Closure Criteria.

## DEFERRAL REQUEST

Approximately 130 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place for compliance with XTO safety policy regarding earth-moving activities within 2-feet of active production equipment and 10-feet of active wellheads/pumpjacks. The impacted soil remaining in-place is delineated vertically and laterally to below the Site Closure Criteria. XTO does not believe deferment will result in imminent risk to human health, the environment, or groundwater.

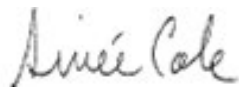
Based on confirmed depth to groundwater greater than 100 feet bgs within 0.5 miles of the Site, the additional soil sampling activities presented in this addendum, and the excavation and delineation data

XTO Energy, Inc.  
Deferral Request Addendum  
James Ranch Unit 17 Battery

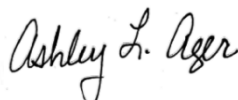
presented in the February 11, 2019, *Deferral Request*, (included as Appendix E), XTO respectfully requests deferral of final remediation for Incident Numbers nJMW1314127699 and nAB1506430295 until major well pad construction/alteration or final plugging and abandonment, whichever occurs first.

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

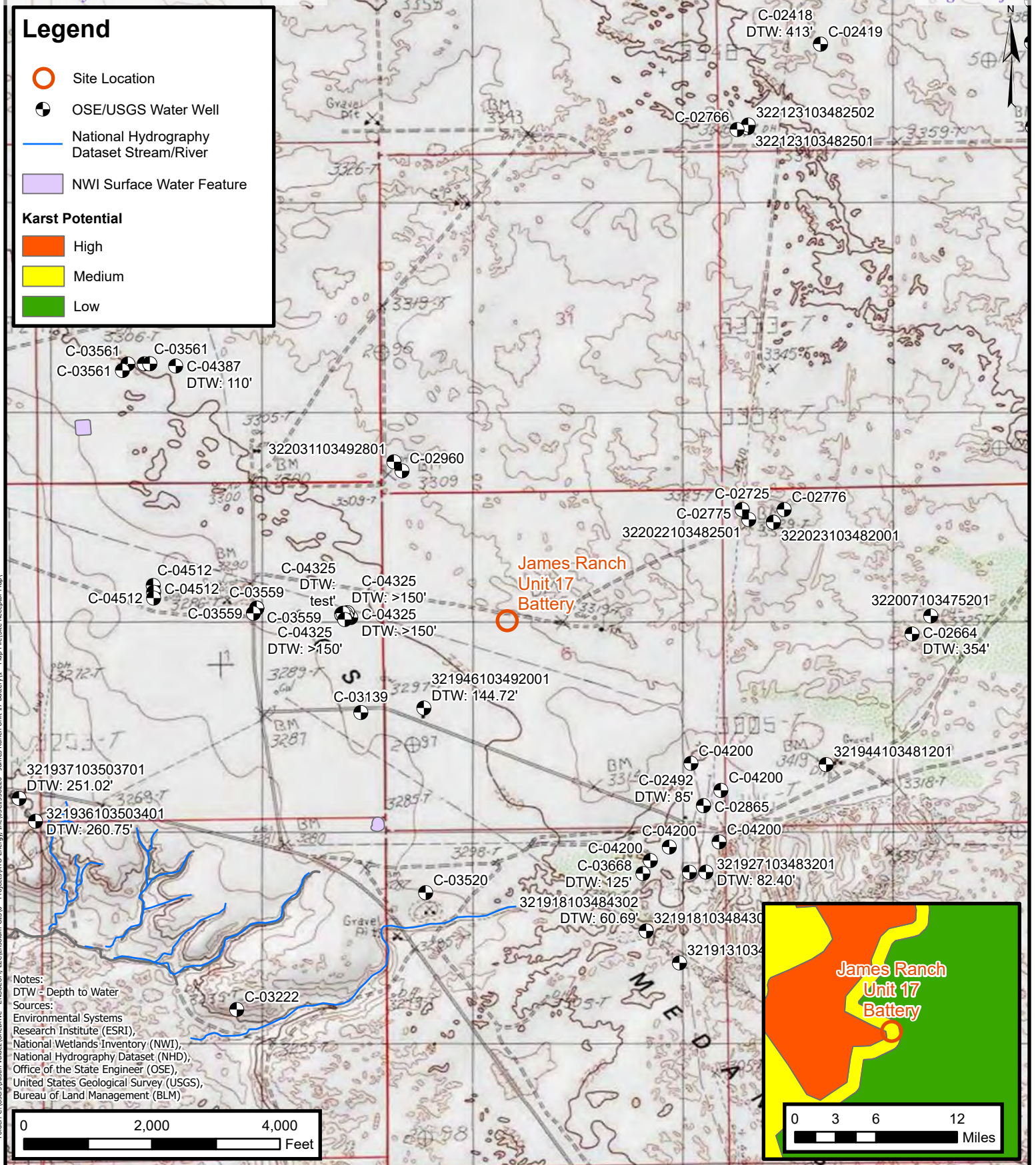
Appendices:

Figure 1	Site Receptor Map
Figure 2	Soil Sample Locations (2023)
Table 1	Soil Sample Analytical Results (2023)
Appendix A	Referenced Well Records
Appendix B	Photographic Log (2023)
Appendix C	Laboratory Analytical Reports & Chain-of-Custody Documentation (2023)
Appendix D	NMOCD Notifications
Appendix E	February 11, 2019, Deferral Request



FIGURES





## Site Receptor Map

XTO Energy, Inc.

James Ranch Unit 17 Battery

Incident Number: nJMW1314127699 and nAB1506430295

Unit F, Section 6, Township 23 South, Range 31 East

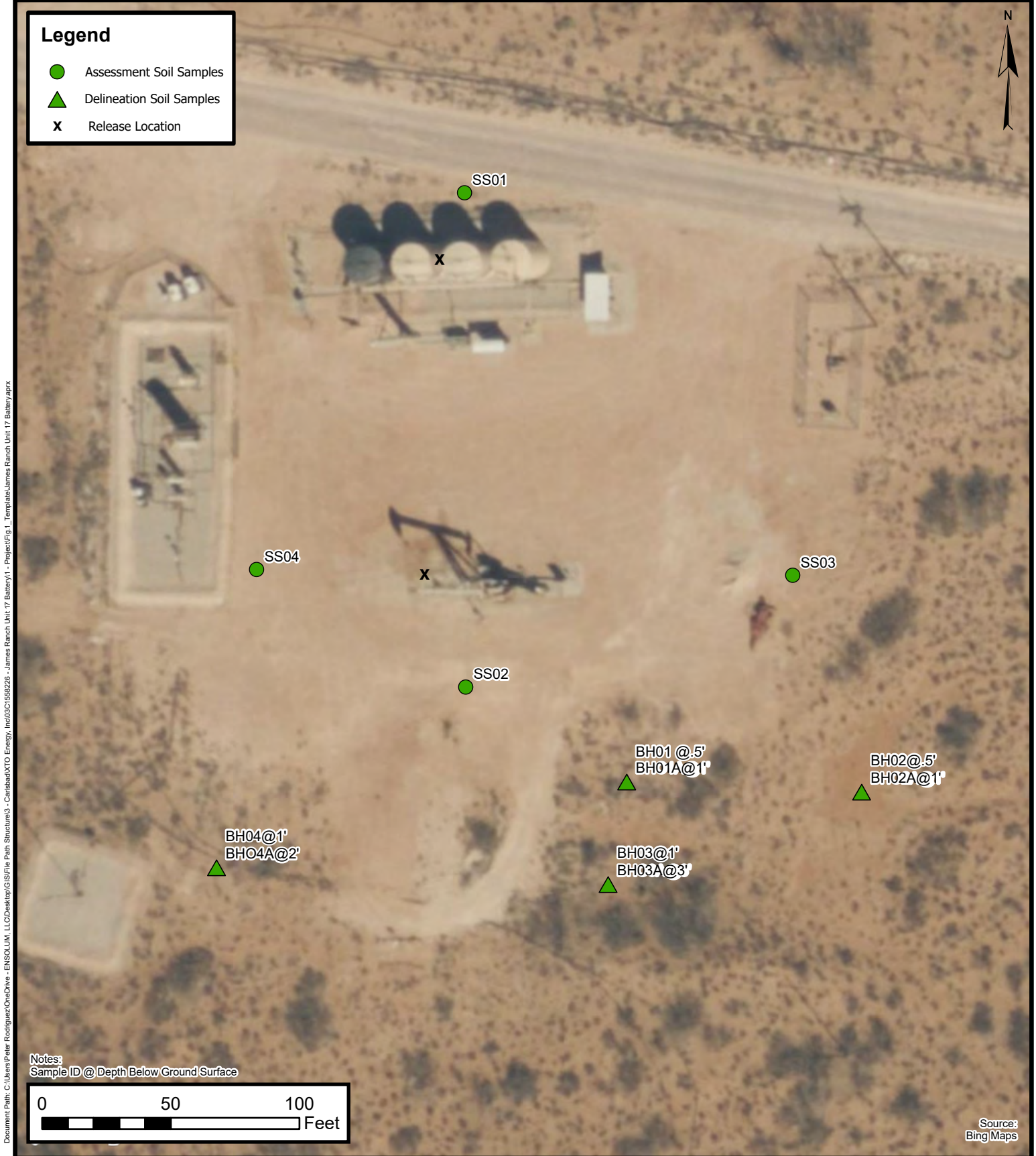
Eddy County, New Mexico

FIGURE

1







## Soil Sample Locations

XTO Energy, Inc  
James Ranch Unit 17 Battery

Incident Number: NJMW1314127699 and NAB1506430295

Unit F, Section 6, T23S, R31E  
Eddy County, New Mexico

FIGURE

2





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS (2023)**  
 James Ranch Unit 17 Battery  
 XTO Energy, Inc.  
 Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Assessment Soil Samples										
SS01	05/30/2023	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	144
SS02	05/30/2023	0.5	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	49.7
SS03	05/30/2023	0.5	<0.00199	<0.00398	<50.0	68.0	<50.0	68.0	68.0	300
SS04	05/30/2023	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	123
Delineation Soil Samples										
BH01	06/02/2023	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	56.9
BH01A	06/02/2023	1	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	46.2
BH02	06/02/2023	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	45.1
BH02A	06/02/2023	1	<0.00198	<0.00396	<50.0	<50.0	<50.0	<50.0	<50.0	57.6
BH03	06/02/2023	1	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	46.1
BH03A	06/02/2023	3	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	51.4
BH04	06/02/2023	1	<0.00202	<0.00404	<49.9	<49.9	<49.9	<49.9	<49.9	61.9
BH04A	06/02/2023	2	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	47.6

## Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation requirement where applicable.

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

NMAC: New Mexico Administrative Code





## APPENDIX A


### Referenced Well Records

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		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>C04325 MW01</b>		Date: <b>5/22/19</b>		
				Project Name: JRU 10		RP Number: 2RP-3404, 2RP-3464, 2RP-3179		
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>				Logged By: BEN BELILL		Method: <b>Loic</b>		
Lat/Long: <b>32.335339, -103.827697</b>		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO		Hole Diameter: 6.15"		Total Depth: <b>150'</b>		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		(SP-SM)	
D	<112	0.5	N	MW01	1	1'		Silty SAND dry, browned, poorly graded, f.-m., some vegetation.
D	<112	0.4	N	MW01A	2	2'		
D	<112	0.1	N	MW01B	3	3'		
D	<112	0.3	N	MW01C	4	4'	CLICHE	CLICHE w/ Sand, dry, lt brown/tan, oily calc, some m. red sand, no odor.
P	<112	0.1	N	MW01D	5	5'		
D	<112	0.5	N	MW01E	6	6'		
D	<112	0.4	N	MW01F	7	7'		
D	<112	0.3	N	MW01G	8	8'		
D	403	0.1	N	MW01H	9	9'	SP	SAND w/ Caliche, dry, lt brown/brown, f.-m., poorly graded, no odor.
D	345	0.8	N	MW01I	10	10'		SFT
D	345	3.1	N	MW01J	11	11'	(SP-SM)	SANDY SILT, dry, browned, <del>no odor</del> , some fine sand, poorly graded, f.-m., no odor.
					12	12'		


 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier <del>XXXX</del> <b>MW01</b>	Date <b>5/22/19</b>					
Project Name: JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELILL	Method					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO	Hole Diameter: <del>6.00</del>					
Total Depth:		Comment: All Chloride test include a 60% error factor.						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
1650	D <112	1.6	N	MW01K	12	12'	(SP-Sm)	STFA
	D <112	3.8	N	MW01L	13	13'		
	D <112	4.9	N	MW01M	14	14'		
	D <112	4.8	N	MW01N	15	15'		
	D <112	1.1	N	MW01O	16	16'		
	D <112	0	N	MW01P	17	17'		
	D <112	4.1	N	MW01Q	18	18'	ML	SILT, dry, ben/ind, no plastic, no odor
	D <112	6.5	N	MW01R	19	19'		
	D <180	1.3	N	MW01S	20	20'		
	D <180	9.2	N	MW01T	21	21'		
	D <112	7.4	N	MW01U	22	22'		
1725	D <112	5.1	N	MW01V	23	23'		
					24	24'		


 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MWD1</b> Date: <b>5/22/19</b>						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Project Name: <b>JRU 10</b> RP Number: <b>2RP-3464, 2RP-3179, 2RP-3243</b>						
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Logged By: <b>BEN BELILL</b> Method: <b>Total Depth</b>						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	6.5	N	MWD1 AA	24	24	ML	SAA
D	<112	4.6	N	MWD1 X	25	25'		
D	<112	5.1	N	MWD1 Y	26	26'		
D	<112	9.4	N	MWD1 Z	27	27'		
D	<112	0.8	N	MWD1 AB	28	28		
D	<112	1.2	N	MWD1 AC	29	29		
D	<112	0.9	N	MWD1 AD	30	30		
D	<112	0.8	N	MWD1 AE	31	31		
D	<112	3.0	N	MWD1 AF	32	32		
D	<112	3.1	N	MWD1 AG	33	33		
D	<112	0.0	N	MWD1 AH	34	34		
	<112	0.0	N	MWD1 AI	35	35		
					36			





 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/22/14 - 5/23/14</b>					
		Project Name: JRU 10	RP Number: 2RP-3464, 2RP-3179 2RP-3243					
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELJILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.0	N	MW01 AF 36	36	36	CL	silty CLAY, dry, red/bra, low plasticity, no odor.
D	<112	0.0	N	MW01 AJ 37	37	37		
D	<112	1.5	N	MW01 AK 38	38	38		
D	<112	0.0	N	MW01 AL 39	39	39		
D	<112	0.0	N	MW01 AM 40	40	40		
D	<112	0.0	N	MW01 AN 41	41	41		
D	<112	1.4	N	MW01 AO 42	42	42		
D	<112	2.8	N	MW01 AP 43	43	43		
D	<112	1.8	N	MW01 AQ 44	44	44		
D	<112	2.5	N	MW01 AR 45	45	45		
D	<112	1.9	N	MW01 AS 46	46	46		
D	<112	2.0	N	MW01 AT 47	47	47		
					48			







		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier MW01		Date 5/23/19		
				Project Name: JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243		
<b>LITHOLOGIC / SOIL BORING LOG</b>				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter: 6.15"		Total Depth:		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0730	D <112	0.3	N	MW01 AW 48	48	48	CL	silty CLAY, dry, red/brn, low plasticity, no odor
0735	D <112	1.3	N	MW01 AX 49	49	49		silty CLAY w/ calcine, dry, red/brn, low plasticity, some poly coated tan calcine gravel, no odor
0740	D <112	1.2	N	MW01 AW 50	50	50		silty CLAY, dry, red/brn, low plasticity, no odor
0750	D <112	1.2	N	MW01 AX 51	51	51		
0800	D <112	1.3	N	MW01 AX 52	52	52		
0810	D <112	1.5	N	MW01 AZ 53	53	53		
	D <112	0.1	N	MW01 BA 54	54	54		
	D <112	0.3	N	MW01 BB 55	55	55		
	D <112	2.0	N	MW01 BC 56	56	56		
	D <112	2.9	N	MW01 BD 57	57	57		
	D <112	3.8	N	MW01 BE 58	58	58		
	D <112	2.3	N	MW01 BF 59	59	59		
					60			


		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01		Date: 5/23/19		
				Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243		
<b>LITHOLOGIC / SOIL BORING LOG</b>				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter:		Total Depth:		
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	2.8	N	MW01 BG 60	60	60	CL	Silty CLAY, dry, brn/md, low plasticity, no odor.
P	<112	2.9	N	MW01 BH 61	61	61		
P	<112	2.8	N	MW01 B I 62	62	62		
D	<112	3.4	N	MW01 B J 63	63	63		
D	<112	1.6	N	MW01 BK 64	64	64		
D	<112	11.7	N	MW01 BL 65	65	65		
P	<112	4.5	N	MW01 BM 66	66	66		
P	<112	3.7	N	MW01 BN 67	67	67		
P	<112	1.9	N	MW01 BQ 68	68	68		
D	<112	1.1	N	MW01 BR 69	69	69		
D	<112	2.3	N	MW01 BQ 70	70	70		
D	<112	1.7	N	MW01 BR 71	71	71		
					72			

 LT Environmental, Inc. 		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>		Date: <b>5/23/19</b>		
Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243		Logged By: BEN BELILL		Method:		
<b>LITHOLOGIC / SOIL BORING LOG</b>				Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO		Hole Diameter:		
Lat/Long:		Comment: All Chloride test include a 60% error factor.		Total Depth:				
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
P	<112	3.1	N	MW01 BS 72	72	72	CL	Soft
b	<112	1.0	N	MW01 BT 73	73	73		
D	<112	1.1	N	MW01 BV 74	74	74		
D	<112	6.0	N	MW01 BV 75	75	75		
D	<112	5.6	N	MW01 BW 76	76	76		
D	<112	3.4	N	MW01 BX 77	77	77		
D	<112	1.1	N	MW01 BY 78	78	78		
P	243	1.2	N	MW01 BZ 79	79	79		
D	<112	2.4	N	MW01 CA 80	80	80		
D	<112	4.7	N	MW01 CB 81	81	81		
D	<112	3.7	N	MW01 CC 82	82	82		
D	<112	3.7	N	MW01 CD 83	83	83		
					84			




 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Date: <b>5/23/14</b>						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Project Name: <b>JRU 10</b> RP Number: <b>2RP-3179, 2RP-3464, 2RP-5243</b>						
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Logged By: <b>BEN BELILL</b> Method:						
Comment: All Chloride test include a 60% error factor.		Hole Diameter: Total Depth:						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	4.9	N	MW01CE	84	84	CL	<b>S&amp;A</b> 
D	<112	1.5	N	MW01CF	85	85		
D	<112	5.3	N	MW01CG	86	86		
D	<112	2.4	N	MW01CH	87	87		
D	<112	1.6	N	MW01CI	88	88		
D	<112	1.1	N	MW01CJ	89	89		
D	<112	0.9	N	MW01CK	90	90		
D	<112	3.6	N	MW01CL	91	91	CL	
D	<112	3.8	N	MW01CM	92	92		
D	<112	1.4	N	MW01CN	93	93		
D	<112	1.2	N	MW01CO	94	94		<b>CL silty SLAY, dry, lt brn/red, low plasticity, no odor.</b> 
D	<112	0.8	N	MW01CP	95	95		

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/23/19</b>					
		Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243					
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter:	Total Depth:					
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.4	N	MW01CQ	96	96	CL	silty CLAY, brn/red, low plasticity, no odor.
D	<112	4.2	N	MW01CR	97	97		
D	2112	2.2	N	MW01CS	98	98		
D	<112	1.8	N	MW01CT	99	99		
D	<112	1.1	N	MW01CU	100	100		
D	<112	1.5	N	MW01CV	101	101		
D	2112	0.4	N	MW01CW	102	102		
D	<112	1.1	N	MW01CX	103	103		
D	<112	1.6	N	MW01CY	104	104		
D	<112	0.7	N	MW01CZ	105	105		
	<112	1.3	N	MW01DA	106	106		
	<112	0.6	N	MW01DB	107	107		
					108			

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Project Name: <b>JRU 10</b>	Date: <b>5/23/19/5/24</b> RP Number: <b>2RP-3179, 2RP-3464, 2RP-5243</b>					
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: <b>BEN BELILL</b>	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter:					
Total Depth:								
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.3	N	MW01 D	72	108	CL	SAA
D	<112	0.3	N	MW01 D	73	109		
D	<112	0.6	N	MW01 D	74	110		
D	<112	0.6	N	MW01 D	75	111		
D	<112	0.5	N	MW01 D	76	112		
D	<112	3.5	N	MW01 D	77	113		
D	<112	5.3	N	MW01 D	78	114		
D	<112	1.3	N	MW01 D	79	115		
D	<112	3.3	N	MW01 D	80	116		
D	<112	2.9	N	MW01 D	81	117		
D	<112	3.3	N	MW01 D	82	118		
D	<112	4.8	N	MW01 D	83	119		
					84			



 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/29/19 - 6/3/19</b>					
		Project Name: JRU 10	RP Number: 2RP-3404, 2RP-3464, 2RP-3179					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	3.8	N	<del>MW01 D0</del>	120	120	CL	SAA
D	<112	3.1	N	<del>MW01 D1</del>	121	121		
D	<112	1.2	N	<del>MW01 D2</del>	122	122		
D	<112	0.4	N	MW01 D3	123	123		
D	<112	0.5	N	MW01 D4	124	124		
D	<112	0.6	N	MW01 D5	125	125		
D	<112	0.8	N	MW01 D6	126	126		
D	<112	0.7	N	MW01 D7	127	127		
D	<112	1.0	N	MW01 D8	128	128		
D	<112	0.4	N	MW01 D9	129	129		
D	<112	0.5	N	MW01 D10	130	130		
D	<112	1.1	N	MW01 D11	131	131		
					132			



**LT Environmental, Inc.**  
508 West Stevens Street  
Carlsbad, New Mexico 88220

Compliance · Engineering · Remediation

Identifier:

MV01

Date:

6/3/19 - 6/4/19

Project Name:

JRU 10

RP Number: 2RP-3404, 2RP-3464,

2RP-3179

# LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BEN BELILL

Method:

Lat/Long:

Field Screening: CHLORIDES, TPH, BTEX,  
GRO, DRO, and MRO.


Hole Diameter:

6.15"

Total Depth:

Comment: All Chloride test include a 60% error factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0	<112	0.8	N	MWD1EA	132	132	CL	SAT
0	<112	0.7	N	MWD1EB	133	133		
0	<112	0.8	N	MWD1EC	134	134		
0	<112	0.9	N	MWD1ED	135	135		
0	<112	0.6	N	MWD1EE	136	136		
1700	<112	0.7	N	MWD1EF	137	137		
64	<112	1.0	N	MWD1EG	138	138	CL	CLAY w/ gravel, dry, lt brn/red, low plasticity, no odor.
0900	<112	0.9	N	MWD1EH	139	139		
0905	<112	3.8	N	MWD1EI	140	140	CL	CLAY silty CLAY, brown/red, low plasticity, no odor
0910	<112	3.5	N	MWD1EJ	141	141		
0915	<112	3.1	N	MWD1EK	142	142		
0920	<112	1.8	N	MWD1EL	143	143		
0925					144			

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Project Name: JRU 10	Date: <b>6/1/19</b> RP Number 2RP-3404, 2RP-3464, 2RP-3179					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Total Depth:								
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0930	Q	<112	3.5	N	MW01 E M	144	CL	Silt
0935	D	<112	3.2	N	MW01 E N	145		
0940	D	<112	2.7	N	MW01 E O	146		
0945	D	<112	3.1	N	MW01 E R	147		
0950	D	<112	3.0	N	MW01 E Q	148		
0955	D	<112	1.8	N	MW01 E R	149		
1000	D	<112	1.5	N	MW01 E S	150		
					7			
					8			
					9			
					10			
					11			
					12			

FOR @ 150'



## APPENDIX B

### Photographic Log

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## Photographic Log

XTO Energy, Inc

James Ranch Unit 17 Battery

Incident Numbers nJMW1314127699 &amp; nAB1506430295



Photograph 1 Date: 6/2/2023  
Description View of well pad & historical release area.  
View: North



Photograph 2 Date: 6/2/2023  
Description View of well pad & historical release area.  
View: South



Photograph 3 Date: 6/2/2023  
Description View of assessment activities in the pasture area south of the well pad.



Photograph 4 Date: 6/2/2023  
Description View of assessment activities in the pasture area south of the well pad.





## APPENDIX C

### Laboratory Analytical Reports & Chain of Custody Documentation

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Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Tacoma Morrissey  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701

Generated 6/6/2023 2:11:33 PM Revision 1

## JOB DESCRIPTION

JRU 17 Battery  
SDG NUMBER 03C1558226

## JOB NUMBER

890-4753-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

# Eurofins Carlsbad

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Generated  
6/6/2023 2:11:33 PM  
Revision 1

Client: Ensolum  
Project/Site: JRU 17 Battery

Laboratory Job ID: 890-4753-1  
SDG: 03C1558226

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⌘	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



## Case Narrative

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

**Job ID: 890-4753-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-4753-1

### REVISION

The report being provided is a revision of the original report sent on 6/5/2023. The report (revision 1) is being revised due to Per client, requesting TPH re run on sample SS01.

### Receipt

The samples were received on 5/30/2023 2:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

### Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-4753-1), SS02 (890-4753-2), SS03 (890-4753-3) and SS04 (890-4753-4).

### GC VOA

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-54618 recovered above the upper control limit for Benzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 880-54618/2), (CCV 880-54618/20), (CCV 880-54618/51) and (CCV 880-54618/64).

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-54500 and 880-54501 and analytical batch 880-54618 was outside the control limits.

Method 8021B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 880-54501 and analytical batch 880-54618 recovered outside control limits for the following analytes: Benzene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-54621 and analytical batch 880-54612 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: SS01 (890-4753-1), SS02 (890-4753-2), SS03 (890-4753-3), SS04 (890-4753-4), (890-4753-A-1-I MS) and (890-4753-A-1-J MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Client Sample ID: SS01

Lab Sample ID: 890-4753-1

Date Collected: 05/30/23 12:20

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U *	0.00201	mg/Kg		05/31/23 13:35	06/03/23 11:03	1
Toluene	<0.00201	U	0.00201	mg/Kg		05/31/23 13:35	06/03/23 11:03	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		05/31/23 13:35	06/03/23 11:03	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		05/31/23 13:35	06/03/23 11:03	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		05/31/23 13:35	06/03/23 11:03	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		05/31/23 13:35	06/03/23 11:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	05/31/23 13:35	06/03/23 11:03	1
1,4-Difluorobenzene (Surr)	93		70 - 130	05/31/23 13:35	06/03/23 11:03	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			06/05/23 12:45	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/05/23 11:22	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/06/23 09:42	06/06/23 13:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/06/23 09:42	06/06/23 13:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/06/23 09:42	06/06/23 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130	06/06/23 09:42	06/06/23 13:09	1
o-Terphenyl	105		70 - 130	06/06/23 09:42	06/06/23 13:09	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	144		4.96	mg/Kg			06/02/23 10:32	1

Client Sample ID: SS02

Lab Sample ID: 890-4753-2

Date Collected: 05/30/23 12:25

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U *	0.00198	mg/Kg		05/31/23 13:35	06/03/23 11:29	1
Toluene	<0.00198	U	0.00198	mg/Kg		05/31/23 13:35	06/03/23 11:29	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		05/31/23 13:35	06/03/23 11:29	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		05/31/23 13:35	06/03/23 11:29	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		05/31/23 13:35	06/03/23 11:29	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		05/31/23 13:35	06/03/23 11:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	05/31/23 13:35	06/03/23 11:29	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Client Sample ID: SS02

Lab Sample ID: 890-4753-2

Date Collected: 05/30/23 12:25

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	100		70 - 130	05/31/23 13:35	06/03/23 11:29	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			06/05/23 12:45	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/05/23 11:22	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/02/23 09:01	06/02/23 12:15	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/02/23 09:01	06/02/23 12:15	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/02/23 09:01	06/02/23 12:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	140	S1+	70 - 130			06/02/23 09:01	06/02/23 12:15	1
o-Terphenyl	105		70 - 130			06/02/23 09:01	06/02/23 12:15	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.7		4.99	mg/Kg			06/02/23 10:48	1

Client Sample ID: SS03

Lab Sample ID: 890-4753-3

Date Collected: 05/30/23 12:30

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *	0.00199	mg/Kg		05/31/23 13:35	06/03/23 11:56	1
Toluene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 11:56	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 11:56	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		05/31/23 13:35	06/03/23 11:56	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 11:56	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		05/31/23 13:35	06/03/23 11:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	05/31/23 13:35	06/03/23 11:56	1
1,4-Difluorobenzene (Surr)	99		70 - 130	05/31/23 13:35	06/03/23 11:56	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			06/05/23 12:45	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	68.0		50.0	mg/Kg			06/05/23 11:22	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Client Sample ID: SS03

Lab Sample ID: 890-4753-3

Date Collected: 05/30/23 12:30

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/02/23 09:01	06/02/23 12:37	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>68.0</b>		50.0	mg/Kg		06/02/23 09:01	06/02/23 12:37	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/02/23 09:01	06/02/23 12:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	136	S1+	70 - 130			06/02/23 09:01	06/02/23 12:37	1
o-Terphenyl	101		70 - 130			06/02/23 09:01	06/02/23 12:37	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		5.02	mg/Kg			06/02/23 10:53	1

Client Sample ID: SS04

Lab Sample ID: 890-4753-4

Date Collected: 05/30/23 12:35

Matrix: Solid

Date Received: 05/30/23 14:00

Sample Depth: 0.5

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *	0.00199	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
Toluene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		05/31/23 13:35	06/03/23 12:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130			05/31/23 13:35	06/03/23 12:22	1
1,4-Difluorobenzene (Surr)	99		70 - 130			05/31/23 13:35	06/03/23 12:22	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			06/05/23 12:45	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/05/23 11:22	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/02/23 09:01	06/02/23 12:59	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/02/23 09:01	06/02/23 12:59	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/02/23 09:01	06/02/23 12:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	138	S1+	70 - 130			06/02/23 09:01	06/02/23 12:59	1
o-Terphenyl	104		70 - 130			06/02/23 09:01	06/02/23 12:59	1

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Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

**Client Sample ID: SS04**  
**Date Collected: 05/30/23 12:35**  
**Date Received: 05/30/23 14:00**  
**Sample Depth: 0.5**

**Lab Sample ID: 890-4753-4**  
**Matrix: Solid**

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	123		5.03	mg/Kg			06/02/23 10:59	1	

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4740-A-21-D MS	Matrix Spike	98	107
890-4740-A-21-E MSD	Matrix Spike Duplicate	103	93
890-4753-1	SS01	109	93
890-4753-2	SS02	109	100
890-4753-3	SS03	104	99
890-4753-4	SS04	106	99
LCS 880-54501/1-A	Lab Control Sample	86	91
LCSD 880-54501/2-A	Lab Control Sample Dup	86	106
MB 880-54500/5-A	Method Blank	67 S1-	93
MB 880-54501/5-A	Method Blank	65 S1-	87

## Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-29073-A-1-C MS	Matrix Spike	111	105
880-29073-A-1-D MSD	Matrix Spike Duplicate	113	104
890-4753-1	SS01	105	105
890-4753-2	SS02	140 S1+	105
890-4753-3	SS03	136 S1+	101
890-4753-4	SS04	138 S1+	104
890-4753-A-1-I MS	890-4753-A-1-I MS	137 S1+	96
890-4753-A-1-J MSD	890-4753-A-1-J MSD	138 S1+	97
LCS 880-54621/2-A	Lab Control Sample	111	86
LCS 880-54840/2-A	Lab Control Sample	105	99
LCSD 880-54621/3-A	Lab Control Sample Dup	121	93
LCSD 880-54840/3-A	Lab Control Sample Dup	103	97
MB 880-54621/1-A	Method Blank	158 S1+	125
MB 880-54840/1-A	Method Blank	115	118

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-54500/5-A

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54500

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:23	06/02/23 12:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:23	06/02/23 12:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:23	06/02/23 12:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/31/23 13:23	06/02/23 12:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:23	06/02/23 12:21	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/31/23 13:23	06/02/23 12:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67	S1-	70 - 130	05/31/23 13:23	06/02/23 12:21	1
1,4-Difluorobenzene (Surr)	93		70 - 130	05/31/23 13:23	06/02/23 12:21	1

Lab Sample ID: MB 880-54501/5-A

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54501

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:35	06/03/23 02:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:35	06/03/23 02:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:35	06/03/23 02:06	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/31/23 13:35	06/03/23 02:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/31/23 13:35	06/03/23 02:06	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/31/23 13:35	06/03/23 02:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	65	S1-	70 - 130	05/31/23 13:35	06/03/23 02:06	1
1,4-Difluorobenzene (Surr)	87		70 - 130	05/31/23 13:35	06/03/23 02:06	1

Lab Sample ID: LCS 880-54501/1-A

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1236		mg/Kg		124	70 - 130
Toluene	0.100	0.1049		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.09867		mg/Kg		99	70 - 130
m-Xylene & p-Xylene	0.200	0.1913		mg/Kg		96	70 - 130
o-Xylene	0.100	0.09239		mg/Kg		92	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-54501/2-A

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54501

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1425	*+	mg/Kg		142	70 - 130	14	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-54501/2-A

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54501

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.1167		mg/Kg		117	70 - 130	11	35
Ethylbenzene	0.100	0.1125		mg/Kg		113	70 - 130	13	35
m-Xylene & p-Xylene	0.200	0.2190		mg/Kg		109	70 - 130	13	35
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130	15	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-4740-A-21-D MS

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 54501

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U *	0.0998	0.1168		mg/Kg		117	70 - 130
Toluene	<0.00200	U	0.0998	0.09584		mg/Kg		96	70 - 130
Ethylbenzene	<0.00200	U	0.0998	0.08918		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.200	0.1714		mg/Kg		86	70 - 130
o-Xylene	<0.00200	U	0.0998	0.08463		mg/Kg		85	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Lab Sample ID: 890-4740-A-21-E MSD

Matrix: Solid

Analysis Batch: 54618

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 54501

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U *	0.101	0.1261		mg/Kg		125	70 - 130	8	35
Toluene	<0.00200	U	0.101	0.1051		mg/Kg		104	70 - 130	9	35
Ethylbenzene	<0.00200	U	0.101	0.1006		mg/Kg		100	70 - 130	12	35
m-Xylene & p-Xylene	<0.00399	U	0.202	0.1944		mg/Kg		96	70 - 130	13	35
o-Xylene	<0.00200	U	0.101	0.09651		mg/Kg		96	70 - 130	13	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-54621/1-A

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54621

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/02/23 08:00	06/02/23 08:29	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-54621/1-A

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54621

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/02/23 08:00	06/02/23 08:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/02/23 08:00	06/02/23 08:29	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	158	S1+	70 - 130			06/02/23 08:00	06/02/23 08:29	1
o-Terphenyl	125		70 - 130			06/02/23 08:00	06/02/23 08:29	1

Lab Sample ID: LCS 880-54621/2-A

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54621

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	924.6		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	938.7		mg/Kg		94	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	111		70 - 130				
o-Terphenyl	86		70 - 130				

Lab Sample ID: LCSD 880-54621/3-A

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54621

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	987.6		mg/Kg		99	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	1030		mg/Kg		103	70 - 130	9	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	121		70 - 130						
o-Terphenyl	93		70 - 130						

Lab Sample ID: 890-4753-A-1-I MS

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: 890-4753-A-1-I MS

Prep Type: Total/NA

Prep Batch: 54621

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1236		mg/Kg		122	70 - 130
Diesel Range Organics (Over C10-C28)	104		997	991.8		mg/Kg		89	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	137	S1+	70 - 130						
o-Terphenyl	96		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-4753-A-1-J MSD

Matrix: Solid

Analysis Batch: 54612

Client Sample ID: 890-4753-A-1-J MSD

Prep Type: Total/NA

Prep Batch: 54621

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1167		mg/Kg		115	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	104		997	994.9		mg/Kg		89	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	138	S1+	70 - 130								
o-Terphenyl	97		70 - 130								

Lab Sample ID: MB 880-54840/1-A

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54840

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/06/23 08:00	06/06/23 08:28	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/06/23 08:00	06/06/23 08:28	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/06/23 08:00	06/06/23 08:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	115		70 - 130			06/06/23 08:00	06/06/23 08:28	1
o-Terphenyl	118		70 - 130			06/06/23 08:00	06/06/23 08:28	1

Lab Sample ID: LCS 880-54840/2-A

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	940.0		mg/Kg		94	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	820.3		mg/Kg		82	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
1-Chlorooctane	105		70 - 130						
o-Terphenyl	99		70 - 130						

Lab Sample ID: LCSD 880-54840/3-A

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54840

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	890.5		mg/Kg		89	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	788.6		mg/Kg		79	70 - 130	4	20

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-54840/3-A

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54840

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	103		70 - 130
o-Terphenyl	97		70 - 130

Lab Sample ID: 880-29073-A-1-C MS

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 54840

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	999	955.4		mg/Kg		96	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	999	856.4		mg/Kg		84	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	105		70 - 130

Lab Sample ID: 880-29073-A-1-D MSD

Matrix: Solid

Analysis Batch: 54827

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 54840

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	997	967.3		mg/Kg		97	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<49.8	U	997	854.8		mg/Kg		84	70 - 130	0	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	113		70 - 130
o-Terphenyl	104		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-54520/1-A

Matrix: Solid

Analysis Batch: 54607

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			06/02/23 10:16	1

Lab Sample ID: LCS 880-54520/2-A

Matrix: Solid

Analysis Batch: 54607

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	238.7		mg/Kg		95	90 - 110

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-54520/3-A

Matrix: Solid

Analysis Batch: 54607

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	239.8		mg/Kg		96	90 - 110	0	20

Lab Sample ID: 890-4753-1 MS

Matrix: Solid

Analysis Batch: 54607

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	144		248	390.7		mg/Kg		100	90 - 110		

Lab Sample ID: 890-4753-1 MSD

Matrix: Solid

Analysis Batch: 54607

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	144		248	391.5		mg/Kg		100	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## GC VOA

## Prep Batch: 54500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-54500/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 54501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	5035	
890-4753-2	SS02	Total/NA	Solid	5035	
890-4753-3	SS03	Total/NA	Solid	5035	
890-4753-4	SS04	Total/NA	Solid	5035	
MB 880-54501/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-54501/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-54501/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4740-A-21-D MS	Matrix Spike	Total/NA	Solid	5035	
890-4740-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 54618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	8021B	54501
890-4753-2	SS02	Total/NA	Solid	8021B	54501
890-4753-3	SS03	Total/NA	Solid	8021B	54501
890-4753-4	SS04	Total/NA	Solid	8021B	54501
MB 880-54500/5-A	Method Blank	Total/NA	Solid	8021B	54500
MB 880-54501/5-A	Method Blank	Total/NA	Solid	8021B	54501
LCS 880-54501/1-A	Lab Control Sample	Total/NA	Solid	8021B	54501
LCSD 880-54501/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	54501
890-4740-A-21-D MS	Matrix Spike	Total/NA	Solid	8021B	54501
890-4740-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	54501

## Analysis Batch: 54759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	Total BTEX	
890-4753-2	SS02	Total/NA	Solid	Total BTEX	
890-4753-3	SS03	Total/NA	Solid	Total BTEX	
890-4753-4	SS04	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 54612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-2	SS02	Total/NA	Solid	8015B NM	54621
890-4753-3	SS03	Total/NA	Solid	8015B NM	54621
890-4753-4	SS04	Total/NA	Solid	8015B NM	54621
MB 880-54621/1-A	Method Blank	Total/NA	Solid	8015B NM	54621
LCS 880-54621/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	54621
LCSD 880-54621/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	54621
890-4753-A-1-I MS	890-4753-A-1-I MS	Total/NA	Solid	8015B NM	54621
890-4753-A-1-J MSD	890-4753-A-1-J MSD	Total/NA	Solid	8015B NM	54621

## Prep Batch: 54621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-2	SS02	Total/NA	Solid	8015NM Prep	
890-4753-3	SS03	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

## GC Semi VOA (Continued)

## Prep Batch: 54621 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-4	SS04	Total/NA	Solid	8015NM Prep	
MB 880-54621/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-54621/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-54621/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4753-A-1-I MS	890-4753-A-1-I MS	Total/NA	Solid	8015NM Prep	
890-4753-A-1-J MSD	890-4753-A-1-J MSD	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 54741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	8015 NM	
890-4753-2	SS02	Total/NA	Solid	8015 NM	
890-4753-3	SS03	Total/NA	Solid	8015 NM	
890-4753-4	SS04	Total/NA	Solid	8015 NM	

## Analysis Batch: 54827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	8015B NM	54840
MB 880-54840/1-A	Method Blank	Total/NA	Solid	8015B NM	54840
LCS 880-54840/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	54840
LCSD 880-54840/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	54840
880-29073-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	54840
880-29073-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	54840

## Prep Batch: 54840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Total/NA	Solid	8015NM Prep	
MB 880-54840/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-54840/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-54840/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-29073-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-29073-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## HPLC/IC

## Leach Batch: 54520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Soluble	Solid	DI Leach	
890-4753-2	SS02	Soluble	Solid	DI Leach	
890-4753-3	SS03	Soluble	Solid	DI Leach	
890-4753-4	SS04	Soluble	Solid	DI Leach	
MB 880-54520/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-54520/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-54520/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4753-1 MS	SS01	Soluble	Solid	DI Leach	
890-4753-1 MSD	SS01	Soluble	Solid	DI Leach	

## Analysis Batch: 54607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-1	SS01	Soluble	Solid	300.0	54520
890-4753-2	SS02	Soluble	Solid	300.0	54520
890-4753-3	SS03	Soluble	Solid	300.0	54520

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

HPLC/IC (Continued)

Analysis Batch: 54607 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4753-4	SS04	Soluble	Solid	300.0	54520
MB 880-54520/1-A	Method Blank	Soluble	Solid	300.0	54520
LCS 880-54520/2-A	Lab Control Sample	Soluble	Solid	300.0	54520
LCSD 880-54520/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	54520
890-4753-1 MS	SS01	Soluble	Solid	300.0	54520
890-4753-1 MSD	SS01	Soluble	Solid	300.0	54520

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Client Sample ID: SS01

Lab Sample ID: 890-4753-1

Date Collected: 05/30/23 12:20

Matrix: Solid

Date Received: 05/30/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	54501	05/31/23 13:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54618	06/03/23 11:03	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54759	06/05/23 12:45	SM	EET MID
Total/NA	Analysis	8015 NM		1			54741	06/05/23 11:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54840	06/06/23 09:42	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54827	06/06/23 13:09	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	54520	05/31/23 15:16	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54607	06/02/23 10:32	CH	EET MID

Client Sample ID: SS02

Lab Sample ID: 890-4753-2

Date Collected: 05/30/23 12:25

Matrix: Solid

Date Received: 05/30/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	54501	05/31/23 13:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54618	06/03/23 11:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54759	06/05/23 12:45	SM	EET MID
Total/NA	Analysis	8015 NM		1			54741	06/05/23 11:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	54621	06/02/23 09:01	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54612	06/02/23 12:15	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	54520	05/31/23 15:16	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54607	06/02/23 10:48	CH	EET MID

Client Sample ID: SS03

Lab Sample ID: 890-4753-3

Date Collected: 05/30/23 12:30

Matrix: Solid

Date Received: 05/30/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	54501	05/31/23 13:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54618	06/03/23 11:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54759	06/05/23 12:45	SM	EET MID
Total/NA	Analysis	8015 NM		1			54741	06/05/23 11:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54621	06/02/23 09:01	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54612	06/02/23 12:37	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	54520	05/31/23 15:16	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54607	06/02/23 10:53	CH	EET MID

Client Sample ID: SS04

Lab Sample ID: 890-4753-4

Date Collected: 05/30/23 12:35

Matrix: Solid

Date Received: 05/30/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	54501	05/31/23 13:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54618	06/03/23 12:22	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54759	06/05/23 12:45	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Client Sample ID: SS04  
Date Collected: 05/30/23 12:35  
Date Received: 05/30/23 14:00

Lab Sample ID: 890-4753-4  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			54741	06/05/23 11:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54621	06/02/23 09:01	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54612	06/02/23 12:59	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	54520	05/31/23 15:16	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54607	06/02/23 10:59	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

## Method Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

### Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

### Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Carlsbad

Sample Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4753-1  
SDG: 03C1558226

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4753-1	SS01	Solid	05/30/23 12:20	05/30/23 14:00	0.5
890-4753-2	SS02	Solid	05/30/23 12:25	05/30/23 14:00	0.5
890-4753-3	SS03	Solid	05/30/23 12:30	05/30/23 14:00	0.5
890-4753-4	SS04	Solid	05/30/23 12:35	05/30/23 14:00	0.5

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Environment Testing  
Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

## Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com Page \_\_\_\_\_ of \_\_\_\_\_

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

Work Order Comments	
Program: USTRPST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDO <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

Project Name:	JRU 17 Battery	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code		ANALYSIS REQUEST		Preservative Codes
Project Number:	03C1558226	Due Date:						None NO DI Water: H <sub>2</sub> O
Project Location:	Connor Whitman	TAT starts the day received by the lab. If received by 4:30pm						Cool: Cool MeOH: Me
Sampler's Name:								HCL: HC HNO <sub>3</sub> : HN
PO #:								H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Thermometer ID: 7110007	Wet Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No					H <sub>3</sub> PO <sub>4</sub> : HP
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Correction Factor: -0.0						NaHSO <sub>4</sub> : NABIS
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Temperature Reading: 4.0						Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Corrected Temperature: 3.8						Zn Acetate+NaOH: Zn
Total Containers:								NaOH+Ascorbic Acid: SASC
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab Comp	# of Cont		Sample Comments
5501	S	5/30/23	1220	.5	G	1		Incident ID: NJMW1314127699
5502	S	5/30/23	1225	.5	G	1		NAB1506430295
5503	S	5/30/23	1230	.5	G	1		Cost Center: 1080921001
5504	S	5/30/23	1235	.5	G	1		AFF: EW 2019 03168 EXP 01



890-4753 Chain of Custody

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 SiO<sub>2</sub> Na Sr Ti Sn U V Zn

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins 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 Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

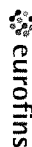
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>CMH</i>	<i>Garrett Green</i>	5-30-23 1400			
3					
5					



## Eurofins Carlsbad

1089 N Canal St.  
Carlsbad NM 88220  
Phone: 575-988-3199 Fax 575-988-3199

## Chain of Custody Record



## Environment Testing

<b>Client Information (Sub Contract Lab)</b>				Sampler	Lab PM	Carrier Tracking No(s)	COC No.
Client Contact:				Kramer Jessica			890-1305-1
Shipping/Receiving				Phone:	E-Mail	State of Origin	Page
Eurofins Environment Testing South Centr				Jessica Kramer@eurofinsus.com	New Mexico	Page 1 of 1	Job #
Address				Accreditations Required (See note):		890-4753-1	
City				NE/LAP - Texas			
Midland				Analysis Requested			
State, Zip							
TX 79701							
Phone							
432-704-5440(Tel)							
Email							
Project Name							
JRU 17 Battery							
Site:							
SSOW#							
Due Date Requested							
6/5/2023							
TAT Requested (days):							
Sample Identification - Client ID (Lab ID)							
Sample Date							
Sample Time							
Sample Type (C=Comp, G=grab)							
Matrix (W=water, S=solid, O=wastefl, BT=Tissue, A=Air)							
Field Filtered Sample (Yes or No)							
Perform MS/MSD (Yes or No)							
8016MOD_NM/8016NM_S_Prep (MOD) Full TPH							
8016MOD_Calc							
300_ORGFM_28D/DI_LEACH Chloride							
8021B/5035FP_Calc (MOD) BTEX							
Total_BTEX_GCV							
Total Number of containers							
Special Instructions/Note:							
SS01 (890-4753-1)							
SS02 (890-4753-2)							
SS03 (890-4753-3)							
SS04 (890-4753-4)							
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.							
<b>Possible Hazard Identification</b>							
Unconfirmed							
Deliverable Requested I II III IV Other (specify)				Primary Deliverable Rank 2			
Empty Kit Relinquished by				Date			
Relinquished by				Date/Time			
Relinquished by				Date/Time			
Relinquished by				Date/Time			
Custody Seals Intact:				Custody Seal No			
A Yes A No							

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4753-1

SDG Number: 03C1558226

Login Number: 4753

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4753-1

SDG Number: 03C1558226

Login Number: 4753

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 06/01/23 11:50 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Tacoma Morrissey  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701

Generated 6/9/2023 8:23:40 PM

## JOB DESCRIPTION

JRU 17 Battery  
SDG NUMBER 03C1558226

## JOB NUMBER

890-4776-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

# Eurofins Carlsbad

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
6/9/2023 8:23:40 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440



Client: Ensolum  
Project/Site: JRU 17 Battery

Laboratory Job ID: 890-4776-1  
SDG: 03C1558226

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

**Job ID: 890-4776-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-4776-1****Receipt**

The samples were received on 6/2/2023 1:29 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.2°C

**Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: BH01 (890-4776-1), BH01A (890-4776-2), BH02 (890-4776-3), BH02A (890-4776-4), BH03 (890-4776-5), BH03A (890-4776-6), BH04 (890-4776-7) and BH04A (890-4776-8).

**GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-54782 and analytical batch 880-55088 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-55088 recovered above the upper control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-55088/20).

Method 8021B: Surrogate recovery for the following sample was outside control limits: (MB 880-54782/5-A). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (MB 880-54740/1-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-54720 and analytical batch 880-54713 was outside the upper control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH01

Lab Sample ID: 890-4776-1

Date Collected: 06/02/23 11:15

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 0.5'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U F1	0.00201	mg/Kg		06/05/23 15:21	06/09/23 12:50	1
Toluene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 12:50	1
Ethylbenzene	<0.00201	U F1	0.00201	mg/Kg		06/05/23 15:21	06/09/23 12:50	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		06/05/23 15:21	06/09/23 12:50	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 12:50	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		06/05/23 15:21	06/09/23 12:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	06/05/23 15:21	06/09/23 12:50	1
1,4-Difluorobenzene (Surr)	86		70 - 130	06/05/23 15:21	06/09/23 12:50	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/06/23 11:08	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:01	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:01	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	122		70 - 130	06/05/23 11:12	06/06/23 00:01	1
o-Terphenyl	128		70 - 130	06/05/23 11:12	06/06/23 00:01	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	56.9		5.02	mg/Kg			06/06/23 02:04	1

Client Sample ID: BH01A

Lab Sample ID: 890-4776-2

Date Collected: 06/02/23 10:40

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 13:15	1
Toluene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 13:15	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 13:15	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		06/05/23 15:21	06/09/23 13:15	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 13:15	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		06/05/23 15:21	06/09/23 13:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	06/05/23 15:21	06/09/23 13:15	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH01A

Lab Sample ID: 890-4776-2

Date Collected: 06/02/23 10:40

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	89		70 - 130	06/05/23 15:21	06/09/23 13:15	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/06/23 11:08	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:23	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:23	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/05/23 11:12	06/06/23 00:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130			06/05/23 11:12	06/06/23 00:23	1
o-Terphenyl	109		70 - 130			06/05/23 11:12	06/06/23 00:23	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.2		4.95	mg/Kg			06/06/23 02:09	1

Client Sample ID: BH02

Lab Sample ID: 890-4776-3

Date Collected: 06/02/23 11:20

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 0.5'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		06/05/23 15:21	06/09/23 13:42	1
Toluene	<0.00199	U	0.00199	mg/Kg		06/05/23 15:21	06/09/23 13:42	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		06/05/23 15:21	06/09/23 13:42	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		06/05/23 15:21	06/09/23 13:42	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		06/05/23 15:21	06/09/23 13:42	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		06/05/23 15:21	06/09/23 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	06/05/23 15:21	06/09/23 13:42	1
1,4-Difluorobenzene (Surr)	81		70 - 130	06/05/23 15:21	06/09/23 13:42	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/06/23 11:08	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH02

Lab Sample ID: 890-4776-3

Date Collected: 06/02/23 11:20

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 0.5'

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 00:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 00:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 00:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			06/05/23 11:12	06/06/23 00:44	1
o-Terphenyl	108		70 - 130			06/05/23 11:12	06/06/23 00:44	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.1		4.96	mg/Kg			06/06/23 02:25	1

Client Sample ID: BH02A

Lab Sample ID: 890-4776-4

Date Collected: 06/02/23 09:15

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
Toluene	<0.00198	U	0.00198	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		06/05/23 15:21	06/09/23 14:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130			06/05/23 15:21	06/09/23 14:08	1
1,4-Difluorobenzene (Surr)	88		70 - 130			06/05/23 15:21	06/09/23 14:08	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/06/23 11:08	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 01:05	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 01:05	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/06/23 01:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130			06/05/23 11:12	06/06/23 01:05	1
o-Terphenyl	114		70 - 130			06/05/23 11:12	06/06/23 01:05	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH02A

Lab Sample ID: 890-4776-4

Date Collected: 06/02/23 09:15

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57.6		5.00	mg/Kg			06/06/23 02:31	1

Client Sample ID: BH03

Lab Sample ID: 890-4776-5

Date Collected: 06/02/23 09:20

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/05/23 15:21	06/09/23 14:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130			06/05/23 15:21	06/09/23 14:34	1
1,4-Difluorobenzene (Surr)	85		70 - 130			06/05/23 15:21	06/09/23 14:34	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/06/23 11:29	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 17:57	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 17:57	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 17:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130			06/05/23 09:14	06/05/23 17:57	1
o-Terphenyl	85		70 - 130			06/05/23 09:14	06/05/23 17:57	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.1		5.04	mg/Kg			06/06/23 02:36	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH03A

Lab Sample ID: 890-4776-6

Date Collected: 06/02/23 09:30

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 3'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 15:00	1
Toluene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 15:00	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 15:00	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		06/05/23 15:21	06/09/23 15:00	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		06/05/23 15:21	06/09/23 15:00	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		06/05/23 15:21	06/09/23 15:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130	06/05/23 15:21	06/09/23 15:00	1
1,4-Difluorobenzene (Surr)	91		70 - 130	06/05/23 15:21	06/09/23 15:00	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/06/23 11:29	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 18:19	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 18:19	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 18:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	124		70 - 130	06/05/23 09:14	06/05/23 18:19	1
o-Terphenyl	97		70 - 130	06/05/23 09:14	06/05/23 18:19	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	51.4		5.05	mg/Kg			06/06/23 02:41	1

Client Sample ID: BH04

Lab Sample ID: 890-4776-7

Date Collected: 06/02/23 10:00

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 15:26	1
Toluene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 15:26	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 15:26	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		06/05/23 15:21	06/09/23 15:26	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		06/05/23 15:21	06/09/23 15:26	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		06/05/23 15:21	06/09/23 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	06/05/23 15:21	06/09/23 15:26	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH04

Lab Sample ID: 890-4776-7

Date Collected: 06/02/23 10:00

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 1'

## Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	87		70 - 130	06/05/23 15:21	06/09/23 15:26	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/06/23 11:29	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/05/23 09:14	06/05/23 18:40	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/05/23 09:14	06/05/23 18:40	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/05/23 09:14	06/05/23 18:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	128		70 - 130			06/05/23 09:14	06/05/23 18:40	1
o-Terphenyl	97		70 - 130			06/05/23 09:14	06/05/23 18:40	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.9		4.99	mg/Kg			06/06/23 02:46	1

Client Sample ID: BH04A

Lab Sample ID: 890-4776-8

Date Collected: 06/02/23 10:05

Matrix: Solid

Date Received: 06/02/23 13:29

Sample Depth: 2'

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 15:52	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 15:52	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 15:52	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		06/05/23 15:21	06/09/23 15:52	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 15:52	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		06/05/23 15:21	06/09/23 15:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130	06/05/23 15:21	06/09/23 15:52	1
1,4-Difluorobenzene (Surr)	90		70 - 130	06/05/23 15:21	06/09/23 15:52	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			06/09/23 21:13	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/06/23 11:29	1

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Client Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH04A  
Date Collected: 06/02/23 10:05  
Date Received: 06/02/23 13:29  
Sample Depth: 2'

Lab Sample ID: 890-4776-8  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 19:01	1	
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 19:01	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 09:14	06/05/23 19:01	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	118		70 - 130			06/05/23 09:14	06/05/23 19:01	1	
o-Terphenyl	90		70 - 130			06/05/23 09:14	06/05/23 19:01	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	47.6		5.05	mg/Kg			06/06/23 02:52	1	



## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4776-1	BH01	102	86
890-4776-1 MS	BH01	104	96
890-4776-1 MSD	BH01	101	95
890-4776-2	BH01A	103	89
890-4776-3	BH02	108	81
890-4776-4	BH02A	111	88
890-4776-5	BH03	97	85
890-4776-6	BH03A	122	91
890-4776-7	BH04	107	87
890-4776-8	BH04A	118	90
LCS 880-54782/1-A	Lab Control Sample	98	88
LCSD 880-54782/2-A	Lab Control Sample Dup	92	97
MB 880-54782/5-A	Method Blank	64 S1-	86
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4769-A-1-E MS	Matrix Spike	113	81
890-4769-A-1-F MSD	Matrix Spike Duplicate	111	79
890-4771-A-1-C MS	Matrix Spike	115	112
890-4771-A-1-D MSD	Matrix Spike Duplicate	112	111
890-4776-1	BH01	122	128
890-4776-2	BH01A	102	109
890-4776-3	BH02	105	108
890-4776-4	BH02A	107	114
890-4776-5	BH03	114	85
890-4776-6	BH03A	124	97
890-4776-7	BH04	128	97
890-4776-8	BH04A	118	90
LCS 880-54720/2-A	Lab Control Sample	109	84
LCS 880-54740/2-A	Lab Control Sample	101	106
LCSD 880-54720/3-A	Lab Control Sample Dup	99	75
LCSD 880-54740/3-A	Lab Control Sample Dup	103	108
MB 880-54720/1-A	Method Blank	136 S1+	108
MB 880-54740/1-A	Method Blank	15 S1-	17 S1-
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-54782/5-A

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54782

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 12:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 12:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 12:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/05/23 15:21	06/09/23 12:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/05/23 15:21	06/09/23 12:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/05/23 15:21	06/09/23 12:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	06/05/23 15:21	06/09/23 12:23	1
1,4-Difluorobenzene (Surr)	86		70 - 130	06/05/23 15:21	06/09/23 12:23	1

Lab Sample ID: LCS 880-54782/1-A

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54782

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1037		mg/Kg		104	70 - 130
Toluene	0.100	0.09558		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.1141		mg/Kg		114	70 - 130
m-Xylene & p-Xylene	0.200	0.1956		mg/Kg		98	70 - 130
o-Xylene	0.100	0.09937		mg/Kg		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	88		70 - 130

Lab Sample ID: LCSD 880-54782/2-A

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54782

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.1235		mg/Kg		124	70 - 130	17	35
Toluene	0.100	0.1058		mg/Kg		106	70 - 130	10	35
Ethylbenzene	0.100	0.1171		mg/Kg		117	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.2010		mg/Kg		101	70 - 130	3	35
o-Xylene	0.100	0.1000		mg/Kg		100	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 890-4776-1 MS

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: BH01

Prep Type: Total/NA

Prep Batch: 54782

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.101	0.1526	F1	mg/Kg		151	70 - 130
Toluene	<0.00201	U	0.101	0.1312		mg/Kg		130	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-4776-1 MS

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: BH01

Prep Type: Total/NA

Prep Batch: 54782

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.1478	F1	mg/Kg		147	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2549		mg/Kg		126	70 - 130
o-Xylene	<0.00201	U	0.101	0.1257		mg/Kg		125	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-4776-1 MSD

Matrix: Solid

Analysis Batch: 55088

Client Sample ID: BH01

Prep Type: Total/NA

Prep Batch: 54782

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.0990	0.1368	F1	mg/Kg		138	70 - 130	11	35
Toluene	<0.00201	U	0.0990	0.1167		mg/Kg		118	70 - 130	12	35
Ethylbenzene	<0.00201	U F1	0.0990	0.1325	F1	mg/Kg		134	70 - 130	11	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.2270		mg/Kg		115	70 - 130	12	35
o-Xylene	<0.00201	U	0.0990	0.1116		mg/Kg		113	70 - 130	12	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-54720/1-A

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54720

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 08:00	06/05/23 08:21	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 08:00	06/05/23 08:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 08:00	06/05/23 08:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	136	S1+	70 - 130	06/05/23 08:00	06/05/23 08:21	1
o-Terphenyl	108		70 - 130	06/05/23 08:00	06/05/23 08:21	1

Lab Sample ID: LCS 880-54720/2-A

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	845.6		mg/Kg		85	70 - 130
Diesel Range Organics (Over C10-C28)	1000	885.3		mg/Kg		89	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-54720/2-A

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54720

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	109		70 - 130
o-Terphenyl	84		70 - 130

Lab Sample ID: LCSD 880-54720/3-A

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54720

	Spike	LCSD	LCSD						%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit			
Gasoline Range Organics (GRO)-C6-C10	1000	955.3		mg/Kg		96	70 - 130	12	20			
Diesel Range Organics (Over C10-C28)	1000	951.7		mg/Kg		95	70 - 130	7	20			

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	75		70 - 130

Lab Sample ID: 890-4769-A-1-E MS

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 54720

	Sample	Sample	Spike	MS	MS				%Rec			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1000	1080		mg/Kg		108	70 - 130			
Diesel Range Organics (Over C10-C28)	<49.9	U	1000	957.5		mg/Kg		96	70 - 130			

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	113		70 - 130
o-Terphenyl	81		70 - 130

Lab Sample ID: 890-4769-A-1-F MSD

Matrix: Solid

Analysis Batch: 54713

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 54720

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	1122		mg/Kg		112	70 - 130	4	20	
Diesel Range Organics (Over C10-C28)	<49.9	U	998	925.7		mg/Kg		93	70 - 130	3	20	

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	79		70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-54740/1-A

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 54740

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/05/23 21:06	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/05/23 21:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/05/23 11:12	06/05/23 21:06	1
Surrogate	%Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	15	S1-	70 - 130			06/05/23 11:12	06/05/23 21:06	1
o-Terphenyl	17	S1-	70 - 130			06/05/23 11:12	06/05/23 21:06	1

Lab Sample ID: LCS 880-54740/2-A

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 54740

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	865.0		mg/Kg		86	70 - 130
Diesel Range Organics (Over C10-C28)	1000	940.7		mg/Kg		94	70 - 130
Surrogate	%Recovery	LCS Qualifier	Limits				
1-Chlorooctane	101		70 - 130				
o-Terphenyl	106		70 - 130				

Lab Sample ID: LCSD 880-54740/3-A

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 54740

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	957.3		mg/Kg		96	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	1000	931.7		mg/Kg		93	70 - 130	1	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	103		70 - 130						
o-Terphenyl	108		70 - 130						

Lab Sample ID: 890-4771-A-1-C MS

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 54740

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	838.0		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	996	857.9		mg/Kg		86	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-4771-A-1-C MS

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 54740

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	115		70 - 130
o-Terphenyl	112		70 - 130

Lab Sample ID: 890-4771-A-1-D MSD

Matrix: Solid

Analysis Batch: 54716

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 54740

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	806.4		mg/Kg		78	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.9	U	996	843.3		mg/Kg		85	70 - 130	2	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	112		70 - 130
o-Terphenyl	111		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-54725/1-A

Matrix: Solid

Analysis Batch: 54802

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			06/06/23 00:17	1

Lab Sample ID: LCS 880-54725/2-A

Matrix: Solid

Analysis Batch: 54802

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.2		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-54725/3-A

Matrix: Solid

Analysis Batch: 54802

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	252.0		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 890-4775-A-2-C MS

Matrix: Solid

Analysis Batch: 54802

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	107		249	341.5		mg/Kg		94	90 - 110

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-4775-A-2-D MSD					Client Sample ID: Matrix Spike Duplicate							
Matrix: Solid					Prep Type: Soluble							
Analysis Batch: 54802												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	107		249	341.2		mg/Kg		94	90 - 110	0	20	

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## GC VOA

## Prep Batch: 54782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	5035	
890-4776-2	BH01A	Total/NA	Solid	5035	
890-4776-3	BH02	Total/NA	Solid	5035	
890-4776-4	BH02A	Total/NA	Solid	5035	
890-4776-5	BH03	Total/NA	Solid	5035	
890-4776-6	BH03A	Total/NA	Solid	5035	
890-4776-7	BH04	Total/NA	Solid	5035	
890-4776-8	BH04A	Total/NA	Solid	5035	
MB 880-54782/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-54782/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-54782/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4776-1 MS	BH01	Total/NA	Solid	5035	
890-4776-1 MSD	BH01	Total/NA	Solid	5035	

## Analysis Batch: 55088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	8021B	54782
890-4776-2	BH01A	Total/NA	Solid	8021B	54782
890-4776-3	BH02	Total/NA	Solid	8021B	54782
890-4776-4	BH02A	Total/NA	Solid	8021B	54782
890-4776-5	BH03	Total/NA	Solid	8021B	54782
890-4776-6	BH03A	Total/NA	Solid	8021B	54782
890-4776-7	BH04	Total/NA	Solid	8021B	54782
890-4776-8	BH04A	Total/NA	Solid	8021B	54782
MB 880-54782/5-A	Method Blank	Total/NA	Solid	8021B	54782
LCS 880-54782/1-A	Lab Control Sample	Total/NA	Solid	8021B	54782
LCSD 880-54782/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	54782
890-4776-1 MS	BH01	Total/NA	Solid	8021B	54782
890-4776-1 MSD	BH01	Total/NA	Solid	8021B	54782

## Analysis Batch: 55199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	Total BTEX	
890-4776-2	BH01A	Total/NA	Solid	Total BTEX	
890-4776-3	BH02	Total/NA	Solid	Total BTEX	
890-4776-4	BH02A	Total/NA	Solid	Total BTEX	
890-4776-5	BH03	Total/NA	Solid	Total BTEX	
890-4776-6	BH03A	Total/NA	Solid	Total BTEX	
890-4776-7	BH04	Total/NA	Solid	Total BTEX	
890-4776-8	BH04A	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 54713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-5	BH03	Total/NA	Solid	8015B NM	54720
890-4776-6	BH03A	Total/NA	Solid	8015B NM	54720
890-4776-7	BH04	Total/NA	Solid	8015B NM	54720
890-4776-8	BH04A	Total/NA	Solid	8015B NM	54720
MB 880-54720/1-A	Method Blank	Total/NA	Solid	8015B NM	54720
LCS 880-54720/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	54720

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## GC Semi VOA (Continued)

## Analysis Batch: 54713 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-54720/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	54720
890-4769-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	54720
890-4769-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	54720

## Analysis Batch: 54716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	8015B NM	54740
890-4776-2	BH01A	Total/NA	Solid	8015B NM	54740
890-4776-3	BH02	Total/NA	Solid	8015B NM	54740
890-4776-4	BH02A	Total/NA	Solid	8015B NM	54740
MB 880-54740/1-A	Method Blank	Total/NA	Solid	8015B NM	54740
LCS 880-54740/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	54740
LCSD 880-54740/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	54740
890-4771-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	54740
890-4771-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	54740

## Prep Batch: 54720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-5	BH03	Total/NA	Solid	8015NM Prep	
890-4776-6	BH03A	Total/NA	Solid	8015NM Prep	
890-4776-7	BH04	Total/NA	Solid	8015NM Prep	
890-4776-8	BH04A	Total/NA	Solid	8015NM Prep	
MB 880-54720/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-54720/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-54720/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4769-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4769-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Prep Batch: 54740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	8015NM Prep	
890-4776-2	BH01A	Total/NA	Solid	8015NM Prep	
890-4776-3	BH02	Total/NA	Solid	8015NM Prep	
890-4776-4	BH02A	Total/NA	Solid	8015NM Prep	
MB 880-54740/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-54740/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-54740/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4771-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4771-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 54874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Total/NA	Solid	8015 NM	
890-4776-2	BH01A	Total/NA	Solid	8015 NM	
890-4776-3	BH02	Total/NA	Solid	8015 NM	
890-4776-4	BH02A	Total/NA	Solid	8015 NM	
890-4776-5	BH03	Total/NA	Solid	8015 NM	
890-4776-6	BH03A	Total/NA	Solid	8015 NM	
890-4776-7	BH04	Total/NA	Solid	8015 NM	
890-4776-8	BH04A	Total/NA	Solid	8015 NM	

Eurofins Carlsbad

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

## HPLC/IC

## Leach Batch: 54725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Soluble	Solid	DI Leach	
890-4776-2	BH01A	Soluble	Solid	DI Leach	
890-4776-3	BH02	Soluble	Solid	DI Leach	
890-4776-4	BH02A	Soluble	Solid	DI Leach	
890-4776-5	BH03	Soluble	Solid	DI Leach	
890-4776-6	BH03A	Soluble	Solid	DI Leach	
890-4776-7	BH04	Soluble	Solid	DI Leach	
890-4776-8	BH04A	Soluble	Solid	DI Leach	
MB 880-54725/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-54725/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-54725/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4775-A-2-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-4775-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 54802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4776-1	BH01	Soluble	Solid	300.0	54725
890-4776-2	BH01A	Soluble	Solid	300.0	54725
890-4776-3	BH02	Soluble	Solid	300.0	54725
890-4776-4	BH02A	Soluble	Solid	300.0	54725
890-4776-5	BH03	Soluble	Solid	300.0	54725
890-4776-6	BH03A	Soluble	Solid	300.0	54725
890-4776-7	BH04	Soluble	Solid	300.0	54725
890-4776-8	BH04A	Soluble	Solid	300.0	54725
MB 880-54725/1-A	Method Blank	Soluble	Solid	300.0	54725
LCS 880-54725/2-A	Lab Control Sample	Soluble	Solid	300.0	54725
LCSD 880-54725/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	54725
890-4775-A-2-C MS	Matrix Spike	Soluble	Solid	300.0	54725
890-4775-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	54725

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Lab Chronicle

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH01  
Date Collected: 06/02/23 11:15  
Date Received: 06/02/23 13:29

Lab Sample ID: 890-4776-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 12:50	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54740	06/05/23 11:12	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54716	06/06/23 00:01	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:04	CH	EET MID

Client Sample ID: BH01A  
Date Collected: 06/02/23 10:40  
Date Received: 06/02/23 13:29

Lab Sample ID: 890-4776-2  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 13:15	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54740	06/05/23 11:12	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54716	06/06/23 00:23	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:09	CH	EET MID

Client Sample ID: BH02  
Date Collected: 06/02/23 11:20  
Date Received: 06/02/23 13:29

Lab Sample ID: 890-4776-3  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 13:42	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	54740	06/05/23 11:12	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54716	06/06/23 00:44	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:25	CH	EET MID

Client Sample ID: BH02A  
Date Collected: 06/02/23 09:15  
Date Received: 06/02/23 13:29

Lab Sample ID: 890-4776-4  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 14:08	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Client Sample ID: BH02A

Lab Sample ID: 890-4776-4

Date Collected: 06/02/23 09:15

Matrix: Solid

Date Received: 06/02/23 13:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54740	06/05/23 11:12	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54716	06/06/23 01:05	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:31	CH	EET MID

Client Sample ID: BH03

Lab Sample ID: 890-4776-5

Date Collected: 06/02/23 09:20

Matrix: Solid

Date Received: 06/02/23 13:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 14:34	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	54720	06/05/23 09:14	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54713	06/05/23 17:57	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:36	CH	EET MID

Client Sample ID: BH03A

Lab Sample ID: 890-4776-6

Date Collected: 06/02/23 09:30

Matrix: Solid

Date Received: 06/02/23 13:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 15:00	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54720	06/05/23 09:14	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54713	06/05/23 18:19	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:41	CH	EET MID

Client Sample ID: BH04

Lab Sample ID: 890-4776-7

Date Collected: 06/02/23 10:00

Matrix: Solid

Date Received: 06/02/23 13:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 15:26	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54720	06/05/23 09:14	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54713	06/05/23 18:40	SM	EET MID

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Lab Chronicle

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

**Client Sample ID: BH04**  
**Date Collected: 06/02/23 10:00**  
**Date Received: 06/02/23 13:29**

**Lab Sample ID: 890-4776-7**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.01 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:46	CH	EET MID

**Client Sample ID: BH04A**  
**Date Collected: 06/02/23 10:05**  
**Date Received: 06/02/23 13:29**

**Lab Sample ID: 890-4776-8**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	54782	06/05/23 15:21	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55088	06/09/23 15:52	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			55199	06/09/23 21:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54874	06/06/23 11:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.010 g	10 mL	54720	06/05/23 09:14	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54713	06/05/23 19:01	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	54725	06/05/23 09:46	KS	EET MID
Soluble	Analysis	300.0		1			54802	06/06/23 02:52	CH	EET MID

**Laboratory References:**  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Method Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

- EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

## Sample Summary

Client: Ensolum  
Project/Site: JRU 17 Battery

Job ID: 890-4776-1  
SDG: 03C1558226

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4776-1	BH01	Solid	06/02/23 11:15	06/02/23 13:29	0.5'
890-4776-2	BH01A	Solid	06/02/23 10:40	06/02/23 13:29	1'
890-4776-3	BH02	Solid	06/02/23 11:20	06/02/23 13:29	0.5'
890-4776-4	BH02A	Solid	06/02/23 09:15	06/02/23 13:29	1'
890-4776-5	BH03	Solid	06/02/23 09:20	06/02/23 13:29	1'
890-4776-6	BH03A	Solid	06/02/23 09:30	06/02/23 13:29	3'
890-4776-7	BH04	Solid	06/02/23 10:00	06/02/23 13:29	1'
890-4776-8	BH04A	Solid	06/02/23 10:05	06/02/23 13:29	2'



# Environment Testing Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

## Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com

Page 2 of 1

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Garrett Green
Company Name:	Ensalum, LLC	Company Name:	<del>Ensalum, LLC</del> XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	(351) 257-8307	Email:	Garrett.Green@XTOEnergy.com

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADAP <input type="checkbox"/> Other: _____

Project Name:	URU 17 Battery	Turn Around	Pres. Code	ANALYSIS REQUEST	Preservative Codes
Project Number:	03C1550220	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush			None: NO DI Water: H <sub>2</sub> O
Project Location:	32.33518-103.81928	Due Date:	5 days		Cool: Cool MeOH: Me
Sampler's Name:	Marlana O'Dell	TAT starts the day received by the lab, if received by 4:30pm			HCL: HC HNO <sub>3</sub> : HN
P.O. #:					H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Wet Ice: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes			H <sub>3</sub> PO <sub>4</sub> : HP
Samples Received Intact:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Thermometer ID:	TM-005		NaHSO <sub>4</sub> : NABIS
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Correction Factor:	-0.5		Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> : NaSO <sub>3</sub>
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Temperature Reading:	5.4		Zn Acetate+NaOH: Zn
Total Containers:		Corrected Temperature:	5.2		NaOH+Ascorbic Acid: SPC



890-4776 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Parameters	Sample Comments
BH01	S	10/2/23	11:15	0.5'	G	1	BTEX	Incident #:
BH01A			10:40	0.5'			Chlorides	NJM13141210498
BH02			11:20	0.5'			TPH	NAB1500430295
BH02A			9:15	1'				COST CENTER:
BH03			9:20	1'				10809221001
BH03A			9:30	3'				AEE:
BH04			10:00	1'				EW.2019.03108.EXP.01
BH04A			10:05	2'				mmorrissey@ensalum.com

Total 2007 / 6010	2008 / 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 SiO <sub>2</sub> Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010	8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471

Note: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins 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 Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins 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
<i>JP. O'Dell</i>	<i>Garrett Green</i>	6/2/23 13:29			



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4776-1

SDG Number: 03C1558226

Login Number: 4776

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4776-1

SDG Number: 03C1558226

Login Number: 4776

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 06/05/23 09:16 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



## APPENDIX D

### NMOCD Notifications

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**From:** [Collins, Melanie](#)  
**To:** [ocd.enviro \(ocd.enviro@emnrd.nm.gov\)](#); [Hamlet, Robert, EMNRD \(Robert.Hamlet@emnrd.nm.gov\)](#); [Bratcher, Michael, EMNRD \(mike.bratcher@emnrd.nm.gov\)](#); [Harimon, Jocelyn, EMNRD \(Jocelyn.Harimon@emnrd.nm.gov\)](#)  
**Cc:** [Green, Garrett J; DelawareSpills /SM; Tacoma Morrissey](#)  
**Subject:** XTO - Sampling Notification (Week of 5/29/23 - 6/2/23)  
**Date:** Thursday, May 25, 2023 3:59:35 PM  
**Attachments:** [image001.png](#)

---

[ \*\*EXTERNAL EMAIL\*\* ]

All,

XTO plans to complete final sampling activities at the sites listed below for the week of May 29, 2023.

Tuesday

- PLU BS 15H / NAB1821157574
- JRU 17 Battery / nJMW1314127699 & nAB1506430295

Wednesday

- Poker Lake Unit 78 / nAB1606239294
- PLU-CVX-JV-BS #016H / nAB1521535958

Friday

- PLU 25 BD CTB / nAPP2310045769
- JRU 17 Battery / nJMW1314127699 & nAB1506430295

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756



## APPENDIX E

February 11, 2019, Deferral Request

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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, New Mexico 87505**RE: Deferral Request  
James Ranch Unit 17 Battery  
Remediation Permit Number 2RP-1657 and 2RP-2850  
Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing excavation and soil sampling activities at the James Ranch Unit 17 Battery (Site) in Unit F, Section 6, Township 23 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The purpose of the excavating and soil sampling activities was to address impacts to soil after two separate events caused releases of crude oil and produced water onto the well pad and surrounding pasture.

On April 26, 2013, a 2-inch circulating line on a 500-barrel (bbl) oil production tank failed due to corrosion. This resulted in 5 barrels (bbls) of crude oil and 15 bbls of produced water to be released within an unlined earthen containment berm. The 2-inch circulating line and the 500-bbl tank were both replaced. Approximately 5 bbls of crude oil were recovered, and no produced water 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 May 16, 2013, and was assigned Remediation Permit (RP) Number 2RP-1657 (Attachment 1). The initial Form C-141 misidentified the Site's unit letter as E. It has been corrected to unit letter F on the final Form C-141.

A second release occurred on February 20, 2015, when the well was being serviced by a pulling unit and the E-Pot was removed. The E-Pot is designed to shut the well down in the event of a stuffing box packing failure. During the E-Pot removal, the packing failed and 12 bbls of crude oil and 40 bbls of produced water were released onto the well pad and surrounding pasture area. The packing was replaced and approximately 5 bbls of crude oil and 10 bbls of produced water were recovered by a vacuum truck. The spill impacted approximately 2,300 square feet of caliche well pad and approximately 1,500 square feet of pasture. The former operator reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 on March 3, 2015, and was assigned RP Number 2RP-2850 (Attachment 1).







Although both releases occurred while the facility was operated by the previous operator, XTO is committed to addressing any releases that remain unresolved. Since the two releases described above occurred at the same production facility, the sampling and excavation activities were completed to address both releases simultaneously. The releases are included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the NMOCD, effective November 13, 2018. The purpose of the Compliance Agreement is to ensure that reportable releases that occurred prior to August 14, 2018, where XTO is responsible for the corrective action, comply with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) as amended on August 14, 2018. The releases are 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 results of the confirmation soil sampling conducted, XTO is submitting this deferral request.

## BACKGROUND

According to Section 12 of 19.15.29 NMAC, LTE applied Table 1, the *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 with depth to groundwater data is C 02492, located about 0.86 miles southeast of the Site, with a depth to groundwater of 125 feet bgs and a total depth of 400 feet bgs. The elevation of the water well is 17 feet lower than 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 0.94 miles southwest. 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.

## PRELIMINARY SOIL SAMPLING

### RP Number 2RP-1657

On October 1, 2018, an LTE scientist collected five initial soil samples, SS01 through SS05, to assess the lateral extent of impacted soil surrounding the tank battery. The soil sample locations were selected based on information provided on the initial Form C-141 and field observations (Figure 2). To eliminate the effects from weathering and natural degradation of contaminants at the ground surface, the soil samples were collected at approximately 0.5 feet bgs.





LTE used a hand auger to further investigate vertical impacts to soil in the location of preliminary soil samples SS01 through SS05. Discrete soil samples SS01A through SS05A and SS01B through SS05B were collected at depths ranging from 1 foot to 2 feet bgs.

All 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 soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco 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.

Laboratory analytical results for the site characterization soil samples indicated soil samples SS02A, SS04, SS04A, and SS04B exceeded the NMOCD Table 1 Closure Criteria for TPH and/or GRO/DRO. All other site characterization samples were compliant with NMOCD Table 1 Closure Criteria for TPH, BTEX, and chloride. Results are presented on Figure 2 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 2. Soil sample logs are included as Attachment 4.

#### **RP Number 2RP-2850**

On October 2 and 3, 2018, LTE used a hand auger to collect site characterization samples surrounding the release location associated with 2RP-2850. Soil samples SS01 through SS11 and SS01A through SS11A were collected between 1 foot and 4 feet bgs. Based on the initial Form C-141 and field observations, it is not clear which direction the release went off pad. The site characterization samples were collected outward in every direction from the release source area so that any remaining impacted soil would be identified by the soil samples collected. Only one sample, SS05@1', contained concentrations of GRO/DRO exceeding NMOCD Table 1 Closure Criteria. No other site characterization sample exceeded Table 1 Closure Criteria for BTEX, TPH, or chloride.

#### **EXCAVATION ACTIVITIES**

##### **RP Number 2RP-1657**

Based on results from preliminary sampling and soil staining observed during that initial site investigation, LTE identified several areas for excavation: a heavily stained area in the southwest corner of the earthen containment, the area around preliminary soil sample SS02, and the area around preliminary soil sample SS04. Due to the high density of equipment and pipelines, excavation was conducted using a hydro-vacuum. On October 2 through 11, 2018, LTE returned





Billings, B.  
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to the Site to oversee excavation. To direct excavation activities, LTE screened soil using a PID and Hach® chloride QuanTab® test strips.

The excavation in the southwest portion of the tank battery measured approximately 226 square feet and was completed to depths ranging from 3 feet to 4 feet bgs, with the western end being deeper (Figure 3). Composite soil samples FS01, FS02, SW01, and SW02 were collected from the floor and sidewalls of the excavation at depths ranging from 1 foot to 3 feet bgs to confirm removal of impacted soil (Figure 3). The 5-point composite samples were collected to represent no more than 200 square feet in area by depositing 5 aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. The soil samples were handled and analyzed as described above and submitted to Xenco in Midland, Texas. The excavation in the southwest corner of the tank battery was deepened in the area around soil sample FS02, which exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO concentration. After the excavation was deepened, excavation floor sample FS02A was collected in the western portion of the southwestern excavation at 3 feet bgs.

A second excavation was advanced to approximately 3 feet bgs near preliminary soil sample SS04 on the northeast side of the tank battery. The excavation in the northeast portion of the tank battery measured approximately 102 square feet (Figure 3). The excavation was deepened in the area around soil sample SS04, SS04A, and SS04B, which exceeded NMOCD Table 1 Closure Criteria for TPH and/or GRO/DRO concentrations. After the excavation was deepened, excavation floor sample FS03 was collected at 3 feet bgs. Composite sidewall samples SW03 and SW04 were collected between 1-foot and 3 feet bgs. Composite sidewall sample SW03 was collected on southern sidewall of the excavation 2 feet from the production tanks. XTO safety policy restricts soil disturbing activities to a 2-foot radius of any production pipelines or tanks. These XTO safety policies are established to protect workers and to reduce the likelihood of compromising equipment and equipment foundations.

Similarly, LTE was unable to excavate soil near preliminary soil sample SS02 due to presence of aboveground production lines and production tanks. Approximately 45 cubic yards of impacted soil were removed from the two excavations. The impacted soil removed from the excavation was transported and properly disposed of at the Lea Land Landfill located in Hobbs, New Mexico.

#### **RP Number 2RP-2850**

On October 2 and 3, 2018, LTE personnel were on site to oversee excavation of impacted soil in the area surrounding the pumpjack at soil sample SS05. The excavation location was selected based on information provided on the initial Form C-141, field observations, and site characterization sampling results. Composite soil samples SW01 through SW04 were collected from the sidewalls of the excavation and soil sample FS01 was collected from the excavation floor at approximately 3 feet bgs. The samples were collected and submitted to Xenco for analysis using the methods described above. Further excavation south of sample location SW02 was





restricted by the pumpjack. XTO safety policy restricts soil disturbing activities to a 10-foot radius of any active pumpjack. These XTO safety policies are established to protect workers and to reduce the likelihood of compromising equipment and equipment foundations.

The excavation surrounding the pumpjack measured approximately 120 square feet and was completed to depths ranging from 1 foot to 3 feet bgs, with the southern portion of the excavation being the deepest (Figure 4). Approximately 85 cubic yards of impacted soil were removed from the excavation. The impacted soil removed from the excavation was transported and properly disposed of at the Lea Land Landfill located in Hobbs, New Mexico.

## ANALYTICAL RESULTS

### 2RP-1657

Laboratory analytical results for site characterization soil samples SS02A, SS04, SS04A, and SS04B exceeded the NMOCD Table 1 Closure Criteria for TPH and/or GRO/DRO. The soil represented by the SS04 soil sample locations was excavated and excavation floor sample FS03, along with sidewall sample SW04 were compliant with NMOCD Table 1 Closure Criteria in the northwest excavation. Sidewall excavation sample SW03 exceeded NMOCD Table 1 Closure Criteria for TPH and GRO/DRO. Due to the proximity of this location being within 2 feet of the tank battery, it was unsafe to proceed with additional excavation activities to the south.

In the southwest excavation, floor sample FS02 exceeded the NMOCD Table 1 Closure Criteria for GRO/DRO. The excavation was deepened, and subsequent excavation soil samples were compliant with all NMOCD Table 1 Closure Criteria.

Site characterization sample SS02A was collected at 1 foot bgs. It contained a GRO/DRO concentration of 3,510 mg/kg and TPH of 4,300 mg/kg. Soil sample SS02B was collected in the same location at 3 feet bgs and was complaint with NMOCD Table 1 Closure Criteria for TPH, BTEX, and chloride. Due to the proximity of the production tanks, production piping, and containment wall within 2 feet of the soil sample location, the area could not be excavated. Because the release was contained within the berm, LTE delineated the remaining impacted soil based on location of the containment berm to the south and east. Samples SS01, SS01A, and SS01B delineate the impacted soil to the west. The northwest excavation samples and characterization samples SS03, SS03A, and SS03B delineate the impacted soil to the north. Results are presented on Figure 2 and summarized in Table 1, and the complete laboratory reports are included as Attachment 2.

An estimated 68 cubic yards of impacted soil remain in place under the tanks, assuming an area between soil samples SS02 and SW03 and bound by the excavation to the north, the containment to the south, SS03 to the east, and SS01 to the west. The impacted interval occurs in the subsurface from approximately 1 to 2.5 feet bgs and is delineated at 3 feet bgs.



Billings, B.  
Page 6**2RP-2850**

Laboratory analytical results for site characterization indicated soil sample SS05 contained a concentration of GRO/DRO that exceeded the NMOCD Table 1 Closure Criteria. That area was excavated, and all excavation confirmation soil samples were compliant with NMOCD Table 1 closure criteria for TPH, BTEX, and chloride, except for sidewall sample SW02, which contained 1,250 mg/kg GRO/DRO. Due to the proximity of this sample location being within 10-feet of the pumpjack, XTO safety policy restricts further excavation due to safety regulations. Results are presented on Figure 4 and summarized in Table 2, and the complete laboratory reports are included as Attachment 2.

LTE estimates that approximately 33 cubic yards of impacted soil remains in place in the area of sample location SW02 next to the pumpjack based on the lateral extent of the excavation, SS08 to the southeast, and a subsurface thickness of 1.5 feet. The excavation vertically delineates remaining impact to 3 feet bgs.

**DEFERRAL REQUEST**

A total of approximately 130 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place for compliance with the XTO safety policies regarding earth-moving activities within 2-feet of production equipment in the tank containment and within 10-feet of the pumpjack. In the area within the tank battery (2RP-1657), an estimated 68 cubic yards of impacted soil remain in place under the tanks. In the area surrounding the pumpjack (2RP-2850), LTE estimates that approximately 33 cubic yards of impacted soil remain in place next to the pumpjack. XTO requests to backfill the existing excavations 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 excavations 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.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Handwritten signature of Adrian Baker in blue ink.

Handwritten signature of Ashley L. Ager in black ink.





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Adrian Baker  
Project Geologist

Ashley L. Ager, P.G.  
Senior Geologist

cc: Kyle Littrell, XTO  
Mike Bratcher, NMOCD  
Jim Amos, BLM  
Deborah McKinney, BLM

**Attachments:**

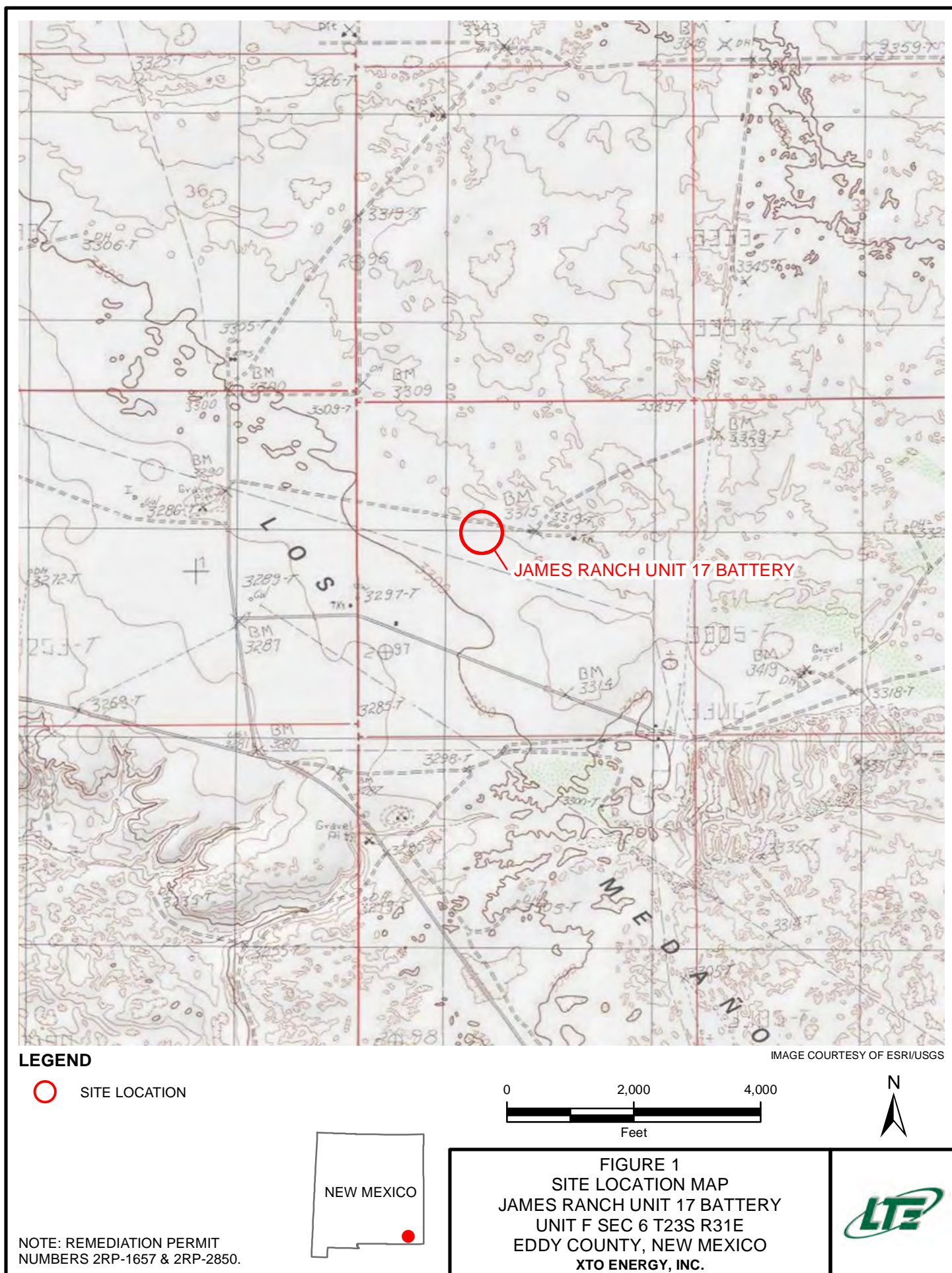
Figure 1 Site Location Map  
Figure 2 Preliminary Soil Sample Locations (2RP-1657)  
Figure 3 Final Soil Sample Locations (2RP-1657)  
Figure 4 Soil Sample Locations (2RP-2850)  
Table 1 Soil Analytical Results (2RP-1657)  
Table 2 Soil Analytical Results (2RP-2850)  
Attachment 1 Initial/Final NMOCD Form C-141 (2RP-1657 and 2RP-2850)  
Attachment 2 Laboratory Analytical Reports  
Attachment 3 Photographic Log (2RP-1657 and 2RP-2850)  
Attachment 4 Soil Sample Logs (2RP-1657 and 2RP-2850)





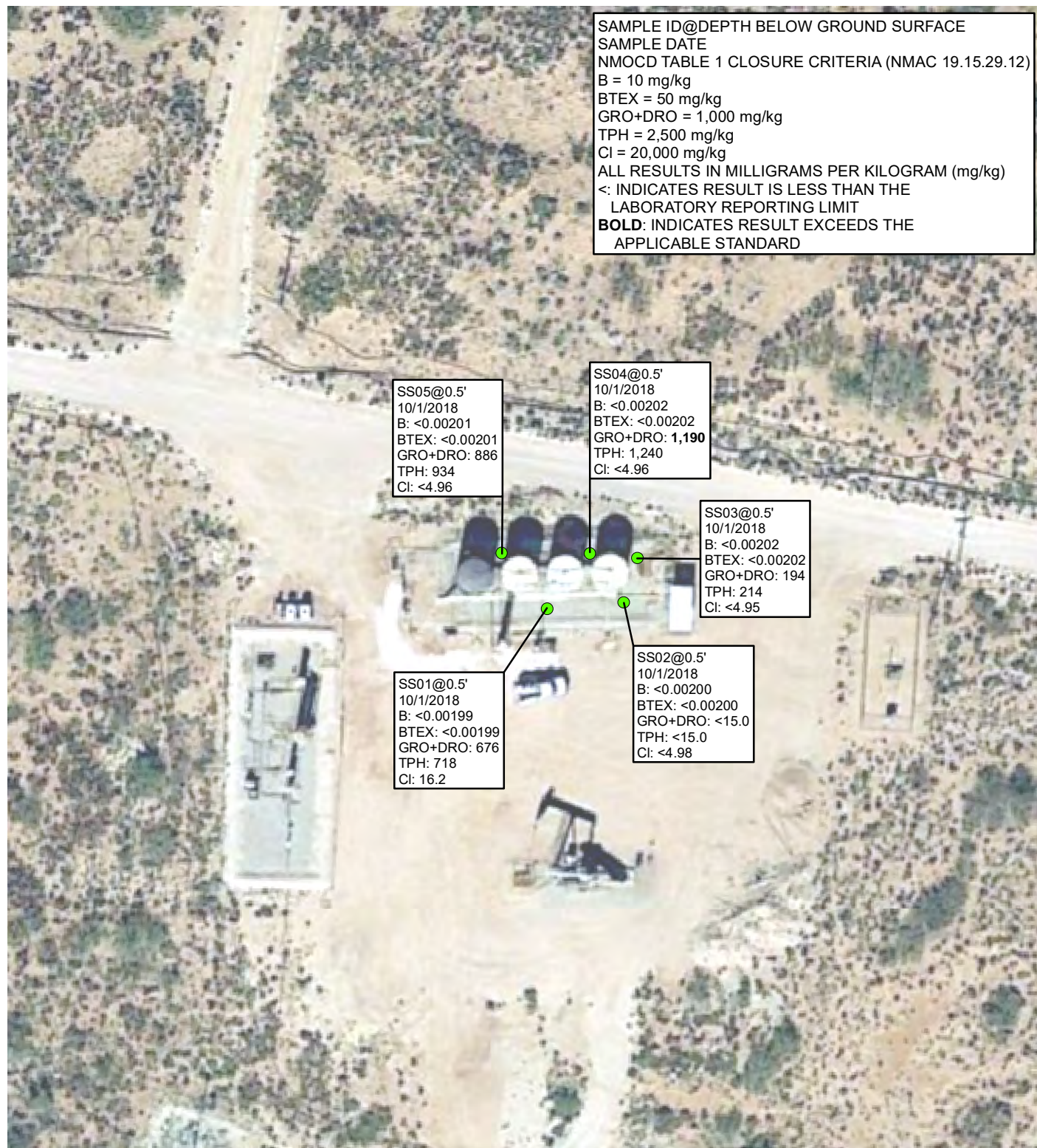
FIGURES







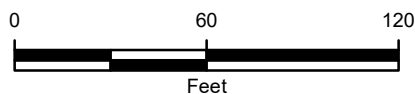
SAMPLE ID@DEPTH BELOW GROUND SURFACE  
 SAMPLE DATE  
 NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)  
 B = 10 mg/kg  
 BTEX = 50 mg/kg  
 GRO+DRO = 1,000 mg/kg  
 TPH = 2,500 mg/kg  
 Cl = 20,000 mg/kg  
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)  
 <: INDICATES RESULT IS LESS THAN THE  
 LABORATORY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

**LEGEND**

● SOIL SAMPLE

B: BENZENE  
 BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE,  
 AND TOTAL XYLENES  
 GRO – GASOLINE RANGE ORGANICS  
 DRO – DIESEL RANGE ORGANICS  
 TPH – TOTAL PETROLEUM HYDROCARBONS  
 Cl - CHLORIDE  
 NMAC – NEW MEXICO ADMINISTRATIVE CODE  
 NMOCD – NEW MEXICO OIL CONSERVATION DIVISION  
 NOTE: REMEDIATION PERMIT NUMBER 2RP-1657

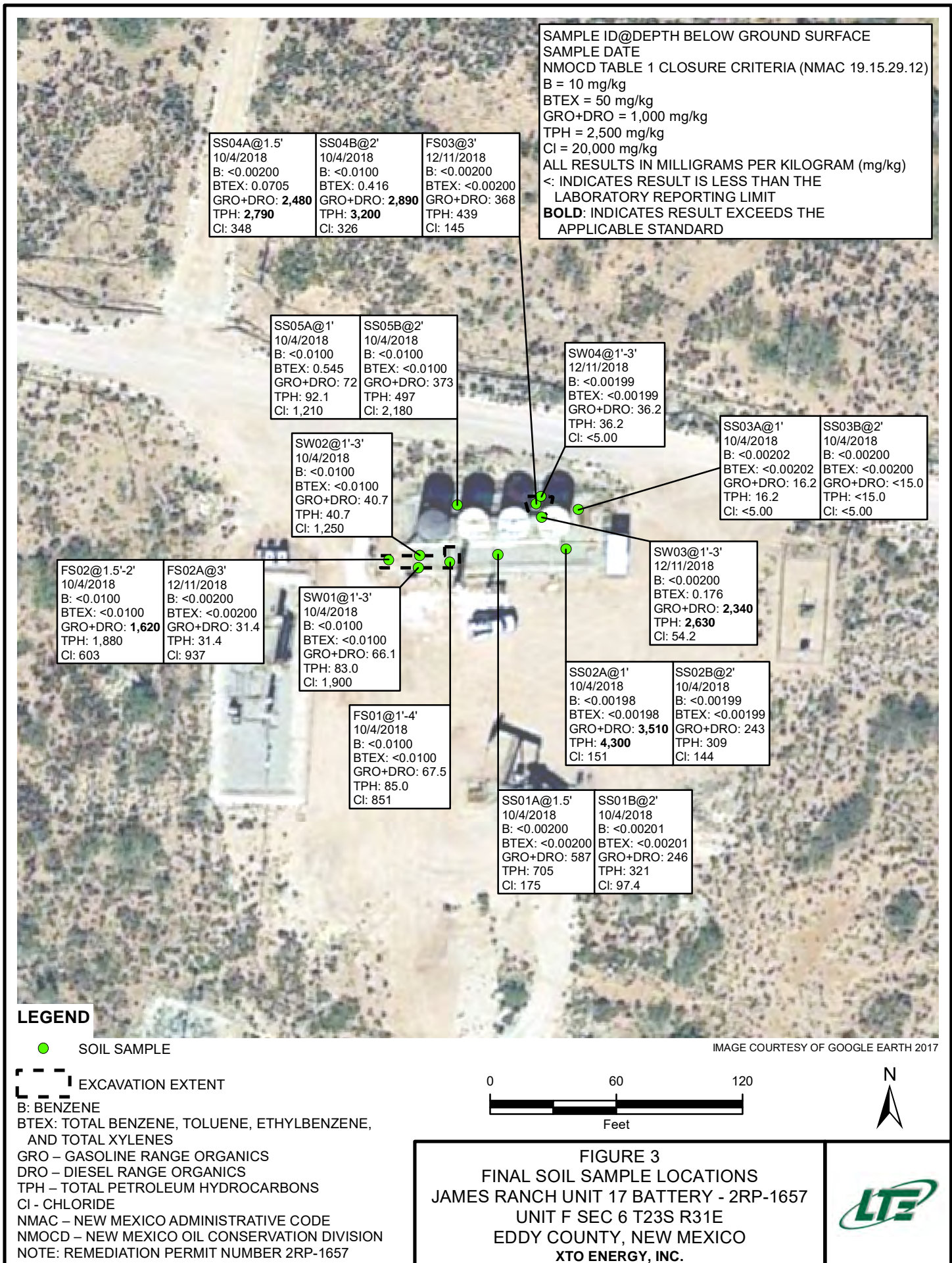
IMAGE COURTESY OF GOOGLE EARTH 2017



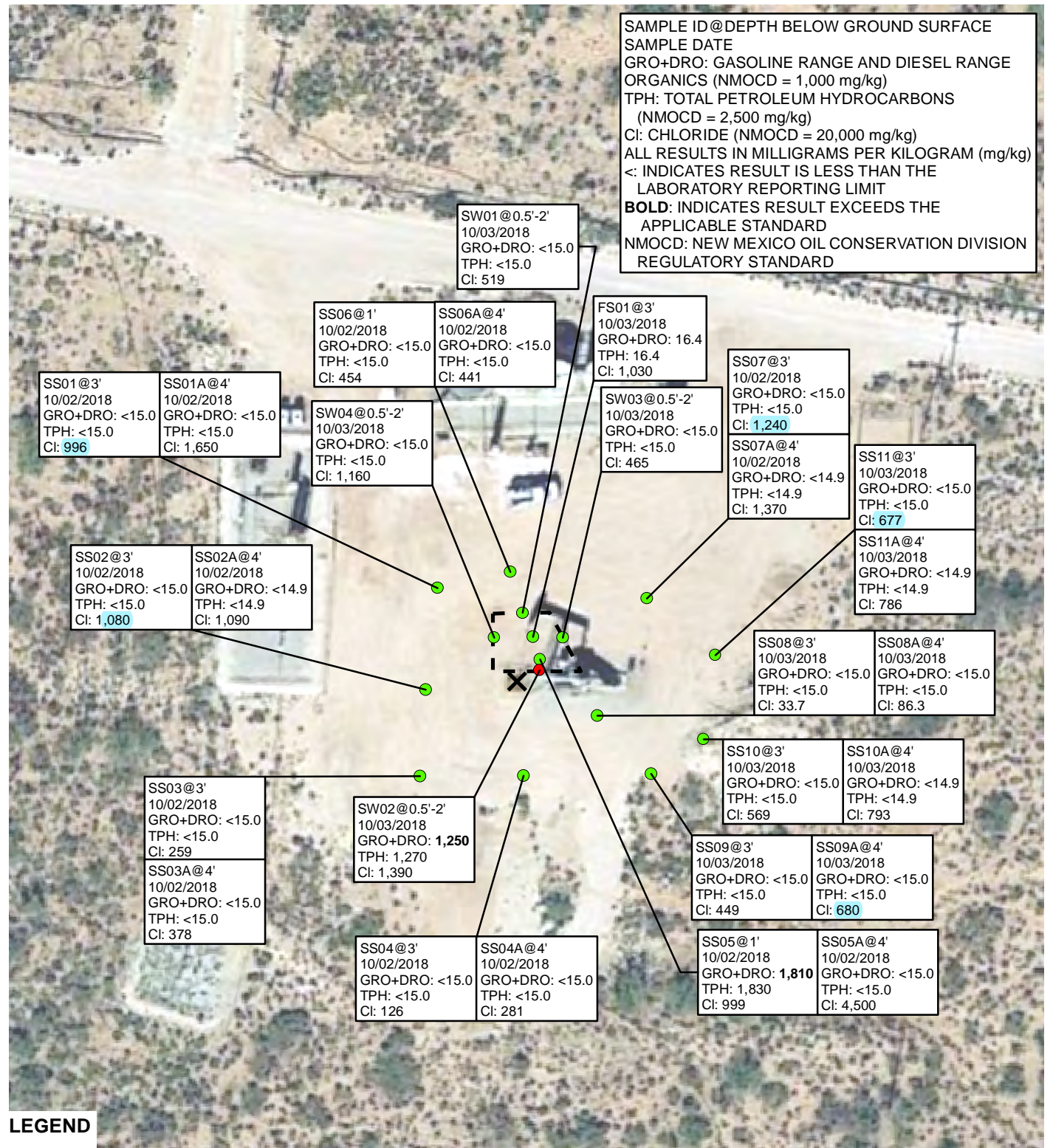
**FIGURE 2**  
**PRELIMINARY SOIL SAMPLE LOCATIONS**  
**JAMES RANCH UNIT 17 BATTERY - 2RP-1657**  
**UNIT F SEC 6 T23S R31E**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**











TABLES





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

**JAMES RANCH UNIT 17 BATTERY**  
**REMEDIATION PERMIT NUMBER 2RP-1657**  
**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)
SS01	0.5	10/01/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	676	41.7	676	718	16.2
SS02	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.98
SS03	0.5	10/01/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	194	19.5	194	214	<4.95
SS04	0.5	10/01/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	1,190	52.9	<b>1,190</b>	1,240	<4.96
SS05	0.5	10/01/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	886	48.0	886	934	<4.96
FS01	1 - 4	10/04/2018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<15.0	67.5	17.5	67.5	85.0	851
FS02	1.5 - 2	10/04/2018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<15.0	1,620	259	<b>1,620</b>	1,880	603
SW01	1 - 3	10/04/2018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<14.9	66.1	16.9	66.1	83.0	1,900
SS01A	1.5	10/04/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	587	118	587	705	175
SS01B	2	10/04/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	246	75.3	246	321	97.4
SW02	1 - 3	10/04/2018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	20.3	20.4	<15.0	40.7	40.7	1,250
SS02A	1	10/04/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<74.9	3,510	790	<b>3,510</b>	<b>4,300</b>	151
SS02B	2	10/04/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	20.2	223	66.0	243	309	144
SS03A	1	10/04/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	16.2	<15.0	16.2	16.2	<5.00
SS03B	2	10/04/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<5.00
SS04A	1.5	10/04/2018	<0.00200	0.00353	0.0138	0.0532	0.0705	95.0	2,380	313	<b>2,480</b>	<b>2,790</b>	348
SS04B	2	10/04/2018	<0.0100	0.0261	0.0817	0.308	0.416	78.1	2,810	309	<b>2,890</b>	<b>3,200</b>	326
SS05A	1	10/04/2018	<0.0100	0.0461	0.0761	0.423	0.545	<15.0	72.0	20.1	72.0	92.1	1,210
SS05B	2	10/04/2018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<15.0	373	124	373	497	2,180
FS02A	3	12/11/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	31.4	<15.0	31.4	31.4	937
FS03	3	12/11/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	368	71.1	368	439	145
SW03	1 - 3	12/11/2018	<0.00200	0.0130	0.00854	0.154	0.176	126	2,210	293	<b>2,340</b>	<b>2,630</b>	54.2
SW04	1 - 3	12/11/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	36.2	<15.0	36.2	36.2	<5.00
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

&lt; - indicates result is below laboratory reporting limits

**Bold** - indicates result exceeds the applicable regulatory standard

\* - indicates sample was collected in an area to be reclaimed after remediation is complete; closure criteria for chloride concentration in the top 4 feet of soil is 600 mg/kg

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

NMAC - New Mexico Administrative Code



**TABLE 2  
SOIL ANALYTICAL RESULTS**

**JAMES RANCH UNIT 17 BATTERY  
REMEDIATION PERMIT NUMBER 2RP-2850  
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)
SS01	3	10/02/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	996
SS01A	4	10/02/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	1,650
SS02	3	10/02/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	1,080
SS02A	4	10/02/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	1,090
SS03	3	10/02/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	259
SS03A	4	10/02/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	378
SS04	3	10/02/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	126
SS04A	4	10/02/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	281
SS05	1	10/02/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	1,810	24.8	1,810	1,830	999
SS05A	4	10/02/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	4,500
SS06	1	10/02/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	454
SS06A	4	10/02/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	441
SS07	3	10/02/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	1,240
SS07A	4	10/02/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<14.9	<14.9	<14.9	<14.9	<14.9	1,370
FS01	3	10/03/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	16.4	<15.0	16.4	16.4	1,030
SS08	3	10/03/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	33.7
SS08A	4	10/03/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	86.3
SS09	3	10/03/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	449
SS09A	4	10/03/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	680
SS10	3	10/03/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	569
SS10A	4	10/03/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	793
SS11	3	10/03/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	677
SS11A	4	10/03/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	786
SW01	0.5 - 2	10/03/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	519
SW02	0.5 - 2	10/03/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	1,250	18.2	1,250	1,270	1,390
SW03	0.5 - 2	10/03/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	465
SW04	0.5 - 2	10/03/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	1,160

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

&lt; - indicates result is below laboratory reporting limits

**Bold-** indicates result exceeds the applicable regulatory standard

\* - indicates sample was collected in an area to be reclaimed after remediation is complete; closure criteria for chloride concentration in the top 4 feet of soil is 600 mg/kg

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

NMAC - New Mexico Administrative Code



ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141 (2RP-1657 and 2RP-2850)



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

JMW 134127699

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. 260737  
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220  
Facility Name: James Ranch Unit #17 Tank Battery  
Tank Battery is on the same pad as the Well #17

Contact: Tony Savoie  
Telephone No. 575-887-7329  
Facility Type: Exploration and Production

Surface Owner: Federal

Mineral Owner: Federal

API No. 30-015-27784

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	6	23S	31E	2080	North	1980	West	Eddy

Latitude N 32.335180 Longitude W 103.819280

#### NATURE OF RELEASE

Type of Release: Crude oil and produced water	Volume of Release: 5 Bbls. oil and 15 Bbls. produced water	Volume Recovered: 5 Bbls. oil
Source of Release: 2" circulating line	Date and Hour of Occurrence: 4/26/13 Time unknown	Date and Hour of Discovery: 4/26/13 at 10:00 a.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

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MAY 17 2013

NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.\*

The circulating line on the 500 Bbl. oil production tank failed due to corrosion. The line and the tank were replaced.

Describe Area Affected and Cleanup Action Taken.\* The entire surface area of the earthen containment around the production tanks was affected by the release. The area measures approximately 3000 sq. ft. No remediation activities have taken place, new gravel was placed over the spill area inside the containment area. The affected area will be remediated in accordance to the NMOCD guidelines, the tank battery will be evaluated for re-construction inside impervious containment.

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

Signature:

*Tony Savoie*

Printed Name: Tony Savoie

Title: Waste Management and Remediation Specialist

E-mail Address: tasavoie@basspet.com

Date: 5/16/13

Phone: 432-556-8730

\* Attach Additional Sheets If Necessary

#### OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Signed By

*Mike Demaria*

MAY 21 2013

Approval Date:

Expiration Date:

Conditions of Approval:

Remediation per OCD Rule &  
Guidelines. **SUBMIT REMEDIATION  
PROPOSAL NO LATER THAN:**

Attached ☐

2RP-1657

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-1657
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 32.335180 Longitude -103.819280  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	James Ranch Unit #17 Tank Battery	Site Type	Exploration and Production
Date Release Discovered	4/26/2013	API# (if applicable)	30-015-27784

Unit Letter	Section	Township	Range	County
F	6	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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	5	Volume Recovered (bbls)	5
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls)	15	Volume Recovered (bbls)	0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Condensate	Volume Released (bbls)		Volume Recovered (bbls)	
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)		Volume Recovered (Mcf)	
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)		Volume/Weight Recovered (provide units)	

#### Cause of Release

The circulating line on the 500 bbl. Oil production tank failed due to corrosion. The line and the tank were replaced. The entire surface area of the earthen containment around the production tanks was affected by the release. The area measures approximately 3000 sq. ft. no remediation activities have taken place, new gravel was placed over the spill area inside the containment area. The affected area will be remediated in accordance to the NMOCD guidelines, the tank battery will be evaluated for re-construction inside the impervious containment.



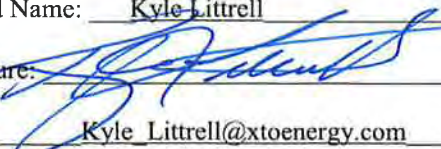
## Oil Conservation Division

Incident ID	
District RP	2RP-1657
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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*

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u>	Title: <u>SH&amp;E Coordinator</u>
Signature: 	Date: <u>02/11/2019</u>
email: <u>Kyle.Littrell@xtoenergy.com</u>	Telephone: <u>432-221-7331</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____



Incident ID	
District RP	2RP-1657
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

## Oil Conservation Division

Incident ID	
District RP	2RP-1657
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 LittrellTitle: SH&E CoordinatorSignature: Date: 02/11/2019email: Kyle\_Littrell@xtoenergy.comTelephone: 432-221-7331**OCD Only**

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

Incident ID	Page 116 of 303
District RP	2RP-1657
Facility ID	
Application ID	

## Remediation Plan

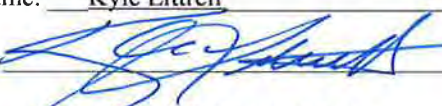
**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ 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: 02/11/2019  
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: \_\_\_\_\_

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

ARTESIA DISTRICT

MAR 03 2015

Form C-141  
Revised August 8, 2011

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

RECEIVED

## Release Notification and Corrective Action

NAB1506430295

## OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. <u>260737</u>	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: James Ranch Unit #17	Facility Type: Exploration and Production
Surface Owner: Federal	Mineral Owner: Federal
API No. 30-015-27784	

## LOCATION OF RELEASE

Unit Letter F	Section 6	Township 23S	Range 31E	Feet from the <u>2080</u>	North/South Line North	Feet from the 1980	East/West Line West	County Eddy
------------------	--------------	-----------------	--------------	------------------------------	---------------------------	-----------------------	------------------------	----------------

Latitude N 32.335048 Longitude W 103.819235

## NATURE OF RELEASE

Type of Release: Crude oil and produced water	Volume of Release: 12 bbls crude oil & 40 bbls produced water	Volume Recovered: 5 bbls crude oil & 10 bbls produced water
Source of Release: Wellhead stuffing box	Date and Hour of Occurrence: 2/20/15 at approximately 4:00 p.m.	Date and Hour of Discovery: 2/20/15 at approximately 6:00 p.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? Amy Ruth	Date and Hour: EH&S was notified about the spill at 7:00 a.m on 2/23/15, the NMOCD and BLM were notified at that time.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		

## Describe Cause of Problem and Remedial Action Taken.\*

The stuffing box packing failed; there was a pulling unit on location doing well maintenance, the E-Pot designed to shut the well down due to packing failure had been removed to work on the well. The packing was replaced.

Describe Area Affected and Cleanup Action Taken.\* The spill impacted approximately 2300 sq.ft. of caliche well pad and approximately 1500 sq. ft of pasture. All of the free standing fluid was recovered with a vacuum truck. The stained area on the pad and pasture was left as is pending response activities.

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: <u>Tony Savoie</u>		OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie		Approved by Environmental Specialist: <u>Huber</u>	
Title: Waste Management and Remediation Specialist		Approval Date: <u>3/4/15</u>	Expiration Date:
E-mail Address: <u>tasavoie@basspet.com</u>		Conditions of Approval:	Attached <input type="checkbox"/>
Date: <u>3/3/15</u>	Phone: 432-556-8730	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: <u>4/4/15</u>	

\* Attach Additional Sheets If Necessary

2RP-2850



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-2850
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 32.335048 Longitude -103.819235  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	James Ranch Unit #17	Site Type	Exploration and Production
Date Release Discovered	2/20/2015	API# (if applicable)	30-015-27784

Unit Letter	Section	Township	Range	County
F	6	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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	12	Volume Recovered (bbls)	5
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls)	40	Volume Recovered (bbls)	10
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Condensate	Volume Released (bbls)		Volume Recovered (bbls)	
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)		Volume Recovered (Mcf)	
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)		Volume/Weight Recovered (provide units)	

#### Cause of Release

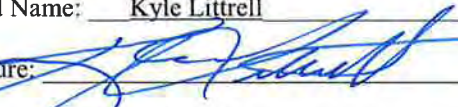
The stuffing box packing failed, there was a pulling unit on location doing well maintenance, the E-Pot designed to shut the well down due to packing failure had been removed to work on the well. The packing was replaced. The spill impacted approximately 2,300 sq. ft. of caliche well pad & approximately 1,500 sq. ft. of pasture. All the free standing fluid was recovered with a vacuum truck. The stained area on the well pad and pasture was left as is pending response activities.

Incident ID	Page 119 of 303
District RP	2RP-2850
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?  release volume > 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?  Yes, notice given by Tony Savoie to NMOCD and BLM on 2/23/15; means unknown.	

### Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:  	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u>	Title: <u>SH&amp;E Coordinator</u>
Signature: 	Date: <u>02/11/2019</u>
email: <u>Kyle_Littrell@xtoenergy.com</u>	Telephone: <u>432-221-7331</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____



Incident ID	Page 120 of 303
District RP	2RP-2850
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.*

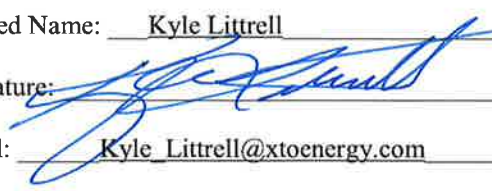
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile 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.

## Oil Conservation Division

Incident ID	
District RP	2RP-2850
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 LittrellTitle: SH&E CoordinatorSignature: Date: 02/11/2019email: Kyle\_Littrell@xtoenergy.comTelephone: 432-221-7331**OCD Only**

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

Incident ID	
District RP	2RP-2850
Facility ID	
Application ID	

## Remediation Plan

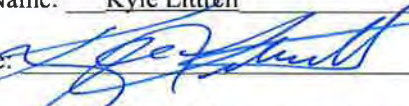
**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ 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: 02/11/2019  
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 601142

for  
LT Environmental, Inc.

Project Manager: Adrian Baker

JRU-17

15-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-18-27), 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 (T104704221-18-13)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)  
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)



15-OCT-18

Project Manager: **Adrian Baker**

**LT Environmental, Inc.**

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **601142**

**JRU-17**

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) 601142. 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. 601142 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,

A handwritten signature in black ink that reads '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 601142****LT Environmental, Inc., Arvada, CO**

JRU-17

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	10-01-18 15:35	6 In	601142-001
SS02	S	10-01-18 15:40	6 In	601142-002
SS03	S	10-01-18 15:45	6 In	601142-003
SS04	S	10-01-18 15:50	6 In	601142-004
SS05	S	10-01-18 15:55	6 In	601142-005



## CASE NARRATIVE

*Client Name: LT Environmental, Inc.*

*Project Name: JRU-17*

Project ID:  
Work Order Number(s): 601142

Report Date: 15-OCT-18  
Date Received: 10/03/2018

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**Sample receipt non conformances and comments:**

PER CLIENTS EMAIL CORRECTED SAMPLE SS010 TO SS10. NEW VERSION GENERATED. JKR 10/12/18

PER CLIENTS EMAIL CORRECTED SAMPLE NAMES 001-005. NEW VERSION GENERATED. JKR 10/15/18

---

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

None

**Analytical non conformances and comments:**

Batch: LBA-3065828 BTEX by EPA 8021B

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

Lab Sample ID 600814-015 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Ethylbenzene, Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 600814-013, -014, -015, -016, -017.

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



# Certificate of Analysis Summary 601142

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Wed Oct-03-18 10:32 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601142-001	601142-002	601142-003	601142-004	601142-005	
	<i>Field Id:</i>	SS01	SS02	SS03	SS04	SS05	
	<i>Depth:</i>	6- In	6- In	6- In	6- In	6- In	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	Oct-01-18 15:35	Oct-01-18 15:40	Oct-01-18 15:45	Oct-01-18 15:50	Oct-01-18 15:55	
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-08-18 08:30	Oct-08-18 08:30	Oct-08-18 08:30	Oct-08-18 08:30	Oct-08-18 08:30	
	<i>Analyzed:</i>	Oct-08-18 17:25	Oct-08-18 17:45	Oct-08-18 14:05	Oct-08-18 18:45	Oct-08-18 19:05	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00403 0.00403	<0.00403 0.00403	<0.00402 0.00402	
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-04-18 09:40	Oct-04-18 09:40	Oct-04-18 09:40	Oct-04-18 09:40	Oct-04-18 09:40	
	<i>Analyzed:</i>	Oct-04-18 11:38	Oct-04-18 11:43	Oct-04-18 12:00	Oct-04-18 12:06	Oct-04-18 12:12	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		16.2 5.01	<4.98 4.98	<4.95 4.95	<4.96 4.96	<4.96 4.96	
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-04-18 09:00	Oct-04-18 09:00	Oct-04-18 09:00	Oct-04-18 09:00	Oct-04-18 09:00	
	<i>Analyzed:</i>	Oct-04-18 17:51	Oct-04-18 18:10	Oct-04-18 18:29	Oct-04-18 18:48	Oct-04-18 19:06	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Diesel Range Organics (DRO)		676 15.0	<15.0 15.0	194 15.0	1190 15.0	886 15.0	
Motor Oil Range Hydrocarbons (MRO)		41.7 15.0	<15.0 15.0	19.5 15.0	52.9 15.0	48.0 15.0	
Total TPH		718 15.0	<15.0 15.0	214 15.0	1240 15.0	934 15.0	

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

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

Version: 1.9%

Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01**  
Lab Sample Id: 601142-001

Matrix: Soil  
Date Collected: 10.01.18 15.35

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3065325

Date Prep: 10.04.18 09.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.2	5.01	mg/kg	10.04.18 11.38		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065500

Date Prep: 10.04.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.04.18 17.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	676	15.0	mg/kg	10.04.18 17.51		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	41.7	15.0	mg/kg	10.04.18 17.51		1
Total TPH	PHC635	718	15.0	mg/kg	10.04.18 17.51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	10.04.18 17.51	
o-Terphenyl	84-15-1	103	%	70-135	10.04.18 17.51	



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01**  
Lab Sample Id: 601142-001

Matrix: Soil  
Date Collected: 10.01.18 15.35

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 08.30

Basis: Wet Weight

Seq Number: 3065828

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.08.18 17.25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.08.18 17.25	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	98	%	70-130	10.08.18 17.25		
1,4-Difluorobenzene	540-36-3	105	%	70-130	10.08.18 17.25		





# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02**  
Lab Sample Id: 601142-002

Matrix: Soil  
Date Collected: 10.01.18 15.40

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3065325

Date Prep: 10.04.18 09.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	10.04.18 11.43	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065500

Date Prep: 10.04.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.04.18 18.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.04.18 18.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.04.18 18.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.04.18 18.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.04.18 18.10	
o-Terphenyl	84-15-1	100	%	70-135	10.04.18 18.10	



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02**  
Lab Sample Id: 601142-002

Matrix: Soil  
Date Collected: 10.01.18 15.40

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 08.30

Basis: Wet Weight

Seq Number: 3065828

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.08.18 17.45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.08.18 17.45	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	106	%	70-130	10.08.18 17.45		
4-Bromofluorobenzene	460-00-4	95	%	70-130	10.08.18 17.45		



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03**  
Lab Sample Id: 601142-003

Matrix: Soil  
Date Collected: 10.01.18 15.45

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3065325

Date Prep: 10.04.18 09.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	10.04.18 12.00	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065500

Date Prep: 10.04.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.04.18 18.29	U	1
<b>Diesel Range Organics (DRO)</b>	C10C28DRO	<b>194</b>	15.0	mg/kg	10.04.18 18.29		1
<b>Motor Oil Range Hydrocarbons (MRO)</b>	PHCG2835	<b>19.5</b>	15.0	mg/kg	10.04.18 18.29		1
<b>Total TPH</b>	PHC635	<b>214</b>	15.0	mg/kg	10.04.18 18.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.04.18 18.29	
o-Terphenyl	84-15-1	99	%	70-135	10.04.18 18.29	



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03**  
Lab Sample Id: 601142-003

Matrix: Soil  
Date Collected: 10.01.18 15.45

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 08.30

Basis: Wet Weight

Seq Number: 3065828

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.08.18 14.05	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.08.18 14.05	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	101	%	70-130	10.08.18 14.05		
1,4-Difluorobenzene	540-36-3	102	%	70-130	10.08.18 14.05		



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04**  
Lab Sample Id: 601142-004

Matrix: Soil  
Date Collected: 10.01.18 15.50

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3065325

Date Prep: 10.04.18 09.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	10.04.18 12.06	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065500

Date Prep: 10.04.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.04.18 18.48	U	1
<b>Diesel Range Organics (DRO)</b>	C10C28DRO	<b>1190</b>	15.0	mg/kg	10.04.18 18.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<b>52.9</b>	15.0	mg/kg	10.04.18 18.48		1
<b>Total TPH</b>	PHC635	<b>1240</b>	15.0	mg/kg	10.04.18 18.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.04.18 18.48	
o-Terphenyl	84-15-1	108	%	70-135	10.04.18 18.48	





# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04**  
Lab Sample Id: 601142-004

Matrix: Soil  
Date Collected: 10.01.18 15.50

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 08.30

Basis: Wet Weight

Seq Number: 3065828

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.08.18 18.45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.08.18 18.45	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	107	%	70-130	10.08.18 18.45		
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.08.18 18.45		



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05**  
Lab Sample Id: 601142-005

Matrix: Soil  
Date Collected: 10.01.18 15.55

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3065325

Date Prep: 10.04.18 09.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	10.04.18 12.12	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065500

Date Prep: 10.04.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.04.18 19.06	U	1
<b>Diesel Range Organics (DRO)</b>	C10C28DRO	<b>886</b>	15.0	mg/kg	10.04.18 19.06		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<b>48.0</b>	15.0	mg/kg	10.04.18 19.06		1
<b>Total TPH</b>	PHC635	<b>934</b>	15.0	mg/kg	10.04.18 19.06		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	10.04.18 19.06	
o-Terphenyl	84-15-1	102	%	70-135	10.04.18 19.06	



# Certificate of Analytical Results 601142



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05**  
Lab Sample Id: 601142-005

Matrix: Soil  
Date Collected: 10.01.18 15.55

Date Received: 10.03.18 10.32  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 08.30

Basis: Wet Weight

Seq Number: 3065828

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.08.18 19.05	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.08.18 19.05	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	103	%	70-130	10.08.18 19.05		
4-Bromofluorobenzene	460-00-4	95	%	70-130	10.08.18 19.05		



## 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



## LT Environmental, Inc.

JRU-17

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065325

MB Sample Id: 7663531-1-BLK

Matrix: Solid

LCS Sample Id: 7663531-1-BKS

Prep Method: E300P

Date Prep: 10.04.18

LCSD Sample Id: 7663531-1-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	249	100	249	100	90-110	0	20	mg/kg	10.04.18 09:50	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065325

Parent Sample Id: 600987-003

Matrix: Soil

MS Sample Id: 600987-003 S

Prep Method: E300P

Date Prep: 10.04.18

MSD Sample Id: 600987-003 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	246	99	246	99	90-110	0	20	mg/kg	10.04.18 10:07	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065325

Parent Sample Id: 601153-002

Matrix: Soil

MS Sample Id: 601153-002 S

Prep Method: E300P

Date Prep: 10.04.18

MSD Sample Id: 601153-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	98.6	250	348	100	351	101	90-110	1	20	mg/kg	10.04.18 11:26	

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065500

MB Sample Id: 7663575-1-BLK

Matrix: Solid

LCS Sample Id: 7663575-1-BKS

Prep Method: TX1005P

Date Prep: 10.04.18

LCSD Sample Id: 7663575-1-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	987	99	919	92	70-135	7	20	mg/kg	10.04.18 11:20	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	943	94	70-135	8	20	mg/kg	10.04.18 11:20	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		122		114		70-135	%	10.04.18 11:20
o-Terphenyl	101		110		104		70-135	%	10.04.18 11:20

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





## LT Environmental, Inc.

JRU-17

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065500

Parent Sample Id: 600982-001

Matrix: Soil

MS Sample Id: 600982-001 S

Prep Method: TX1005P

Date Prep: 10.04.18

MSD Sample Id: 600982-001 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)	8.67	997	855	85	887	88	70-135	4	20	mg/kg	10.04.18 12:16	
Diesel Range Organics (DRO)	<8.10	997	890	89	936	94	70-135	5	20	mg/kg	10.04.18 12:16	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		121		70-135	%	10.04.18 12:16
o-Terphenyl	100		104		70-135	%	10.04.18 12:16

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3065828

MB Sample Id: 7663817-1-BLK

Matrix: Solid

LCS Sample Id: 7663817-1-BKS

Prep Method: SW5030B

Date Prep: 10.08.18

LCSD Sample Id: 7663817-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0958	96	0.0995	99	70-130	4	35	mg/kg	10.08.18 10:25	
Toluene	<0.00200	0.100	0.0985	99	0.102	101	70-130	3	35	mg/kg	10.08.18 10:25	
Ethylbenzene	<0.00200	0.100	0.0971	97	0.101	100	70-130	4	35	mg/kg	10.08.18 10:25	
m,p-Xylenes	<0.00401	0.200	0.187	94	0.194	96	70-130	4	35	mg/kg	10.08.18 10:25	
o-Xylene	<0.00200	0.100	0.0892	89	0.0930	92	70-130	4	35	mg/kg	10.08.18 10:25	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		92		93		70-130	%	10.08.18 10:25
4-Bromofluorobenzene	89		79		81		70-130	%	10.08.18 10:25

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3065828

Parent Sample Id: 600814-015

Matrix: Soil

MS Sample Id: 600814-015 S

Prep Method: SW5030B

Date Prep: 10.08.18

MSD Sample Id: 600814-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0879	88	0.0746	75	70-130	16	35	mg/kg	10.08.18 11:06	
Toluene	<0.00200	0.0998	0.0810	81	0.0663	66	70-130	20	35	mg/kg	10.08.18 11:06	X
Ethylbenzene	<0.00200	0.0998	0.0714	72	0.0563	56	70-130	24	35	mg/kg	10.08.18 11:06	X
m,p-Xylenes	<0.00399	0.200	0.138	69	0.108	54	70-130	24	35	mg/kg	10.08.18 11:06	X
o-Xylene	<0.00200	0.0998	0.0655	66	0.0508	51	70-130	25	35	mg/kg	10.08.18 11:06	X

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		95		70-130	%	10.08.18 11:06
4-Bromofluorobenzene	86		83		70-130	%	10.08.18 11:06

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



## Chain of Custody

Work Order No:

601142

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

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Page 1 of 1

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Little
Company Name:	LT Environmental	Company Name:	KTG
Address:	3300 Al Street, Building 1, #103	Address:	
City, State ZIP:	Midland, TX, 79705	City, State ZIP:	A
Phone:	(432) 704-5178	Email:	ABaker@LTEnv.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project:	
Reporting Level II <input type="checkbox"/>	Level III <input type="checkbox"/>
PST/UST <input type="checkbox"/>	TRRP <input type="checkbox"/>
Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/>	ADAPT <input type="checkbox"/>
Other:	

Project Name:	JRU-17	Turn Around	<input checked="" type="checkbox"/>
Project Number:		Routine	<input checked="" type="checkbox"/>
P.O. Number:	72P-1657	Rush:	
Sampler's Name:	Fabian Cuatrecasas	Due Date:	

Temperature (°C):	0.5	Thermometer ID:	108
Received Inact:	Yes <input checked="" type="checkbox"/> No	Correction Factor:	0.0
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No	Total Containers:	
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers											Sample Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U												
				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
F. Ulibarri		10/6/2018 18:10			
		10/31/18 10:34		Pacth-Mex cooler	10/02/2018 7:00

ORIGIN ID:CAOA (575) 887-6245		SHIP DATE: 02OCT18	
XENCO		ACTWGT: 26.00 LB	
PAC N MAIL		CAD: 101813706/NET4040	
910 W PIERCE ST		DIMS: 18x12x13 IN	
CARLSBAD, NM 88220		BILL RECIPIENT	
UNITED STATES US			
TO HOLD FOR XENCO			
FEDEX EXPRESS SHIP CENTER			
FEDEX SHIP CENTER			
3600 COUNTY RD 1276 S			
MIDLAND TX 79711			
REF: (800) 794-1296			
INV: DO DEPT			
J18211881501ur			
FedEx Express			
J18211881501ur			
WED - 03 OCT HOLD			
STANDARD OVERNIGHT			
HLD			
MAFA			
TX-US LBB			
41 MAFA			
7733 8063 2826			
TRK# 0201			
0201			

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C&G SCIENTIFIC ICE

Client/Project	STOBER STR	Sample ID	ICE
Matrix	5	Sealed By	W. G. H.
Analysis/Remarks	12.5 FD	Date	6/26/2023
	REX, TP4, chloride	Time	7:45
		Wt. Made	11.11
		Net Gm. (Net Residue)	11.11
		Wt. Residue	11.11



## Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/03/2018 10:32:00 AM

Work Order #: 601142

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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: 10/03/2018

Checklist reviewed by:

Jessica Kramer

Date: 10/03/2018



# Analytical Report 601915

for  
**LT Environmental, Inc.**

**Project Manager: Adrian Baker**

**JRU-17**

**2RP-1657**

**11-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)



11-DEC-18

Project Manager: **Adrian Baker**

**LT Environmental, Inc.**

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **601915**

**JRU-17**

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) 601915. 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. 601915 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,

A handwritten signature in black ink that reads '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*

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**Sample Cross Reference 601915****LT Environmental, Inc., Arvada, CO**

JRU-17

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01A	S	10-04-18 09:35	1.5 ft	601915-001
SS01B	S	10-04-18 09:50	2 ft	601915-002
SS02A	S	10-04-18 10:05	1 ft	601915-003
SS02B	S	10-04-18 10:30	2 ft	601915-004
SS03A	S	10-04-18 10:45	1 ft	601915-005
SS03B	S	10-04-18 11:05	2 ft	601915-006
SS04A	S	10-04-18 11:25	1.5 ft	601915-007
SS04B	S	10-04-18 11:35	2 ft	601915-008
SS05A	S	10-04-18 11:45	1 ft	601915-009
SS05B	S	10-04-18 12:05	2 ft	601915-010
SW01	S	10-04-18 14:10	1 - 3 ft	601915-011
SW02	S	10-04-18 14:20	1 - 3 ft	601915-012
FS01	S	10-04-18 14:30	1 - 4 ft	601915-013
FS02	S	10-04-18 14:35	1.5 - 2 ft	601915-014

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: JRU-17**Project ID: 2RP-1657  
Work Order Number(s): 601915Report Date: 11-DEC-18  
Date Received: 10/10/2018**Sample receipt non conformances and comments:**

PER CLIENTS EMAIL REQUEST CORRECTED SAMPLE NAMES. JKR 10/15/18  
PER CLIENTS EMAIL REQUEST CORRECTED SAMPLE NAMES FOR SAMPLE 011 & 012 JKR  
10/18/18 NEW VERSION GENERATED.

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

None

**Analytical non conformances and comments:**

Batch: LBA-3066628 BTEX by EPA 8021B

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

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601915-007,601915-004.

Batch: LBA-3066632 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601915-008 S,601915-008 SD,601915-008,601915-009.

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

Lab Sample ID 601915-008 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

o-Xylene recovered below QC limits in the Matrix Spike. Benzene recovered above QC limits in the

Matrix Spike and Matrix Spike Duplicate. m,p-Xylenes recovered above QC limits in the Matrix Spike

Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 601915-008, -009, -010, -011, -012, -013, -014.

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

o-Xylene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 601915-008, -009, -010, -011, -012, -013, -014



# Certificate of Analysis Summary 601915

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

**Project Id:** 2RP-1657  
**Contact:** Adrian Baker  
**Project Location:** Delaware Basin

**Date Received in Lab:** Wed Oct-10-18 10:45 am  
**Report Date:** 11-DEC-18  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601915-001	601915-002	601915-003	601915-004	601915-005	601915-006
	<i>Field Id:</i>	SS01A	SS01B	SS02A	SS02B	SS03A	SS03B
	<i>Depth:</i>	1.5- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-04-18 09:35	Oct-04-18 09:50	Oct-04-18 10:05	Oct-04-18 10:30	Oct-04-18 10:45	Oct-04-18 11:05
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-15-18 16:45	Oct-15-18 16:45	Oct-15-18 16:45	Oct-15-18 16:45	Oct-15-18 16:45	Oct-15-18 16:45
	<i>Analyzed:</i>	Oct-16-18 03:20	Oct-16-18 03:41	Oct-16-18 02:17	Oct-16-18 02:38	Oct-15-18 20:57	Oct-16-18 04:02
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00402 0.00402	<0.00397 0.00397	<0.00398 0.00398	<0.00403 0.00403	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-15-18 09:15	Oct-15-18 09:15	Oct-15-18 09:15	Oct-15-18 09:15	Oct-15-18 09:15	Oct-15-18 10:00
	<i>Analyzed:</i>	Oct-15-18 18:13	Oct-15-18 18:18	Oct-15-18 18:24	Oct-15-18 18:30	Oct-15-18 18:35	Oct-15-18 19:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		175 4.98	97.4 4.96	151 4.96	144 4.98	<5.00 5.00	<5.00 5.00
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00
	<i>Analyzed:</i>	Oct-14-18 20:30	Oct-14-18 21:26	Oct-14-18 21:46	Oct-14-18 22:05	Oct-14-18 22:24	Oct-14-18 22:43
	<i>Units/RL:</i>	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	<14.9 14.9	<74.9 74.9	20.2 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		587 15.0	246 14.9	3510 74.9	223 14.9	16.2 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		118 15.0	75.3 14.9	790 74.9	66.0 14.9	<15.0 15.0	<15.0 15.0
Total TPH		705 15.0	321 14.9	4300 74.9	309 14.9	16.2 15.0	<15.0 15.0

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601915

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

**Project Id:** 2RP-1657  
**Contact:** Adrian Baker  
**Project Location:** Delaware Basin

**Date Received in Lab:** Wed Oct-10-18 10:45 am  
**Report Date:** 11-DEC-18  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601915-007	601915-008	601915-009	601915-010	601915-011	601915-012
	<i>Field Id:</i>	SS04A	SS04B	SS05A	SS05B	SW01	SW02
	<i>Depth:</i>	1.5- ft	2- ft	1- ft	2- ft	1-3 ft	1-3 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-04-18 11:25	Oct-04-18 11:35	Oct-04-18 11:45	Oct-04-18 12:05	Oct-04-18 14:10	Oct-04-18 14:20
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-15-18 16:45	Oct-14-18 17:00	Oct-14-18 17:00	Oct-14-18 17:00	Oct-14-18 17:00	Oct-14-18 17:00
	<i>Analyzed:</i>	Oct-16-18 04:24	Oct-16-18 07:12	Oct-16-18 07:33	Oct-16-18 09:19	Oct-16-18 09:40	Oct-16-18 10:02
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
Toluene		0.00353 0.00200	0.0261 0.0100	0.0461 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
Ethylbenzene		0.0138 0.00200	0.0817 0.0100	0.0761 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
m,p-Xylenes		0.0408 0.00399	0.308 0.0200	0.341 0.0200	<0.0200 0.0200	<0.0200 0.0200	<0.0200 0.0200
o-Xylene		0.0124 0.00200	<0.0100 0.0100	0.0821 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
Total Xylenes		0.0532 0.00200	0.308 0.0100	0.423 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
Total BTEX		0.0705 0.00200	0.416 0.0100	0.545 0.0100	<0.0100 0.0100	<0.0100 0.0100	<0.0100 0.0100
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-15-18 10:00	Oct-15-18 10:00	Oct-15-18 10:00	Oct-15-18 10:00	Oct-15-18 10:00	Oct-15-18 10:00
	<i>Analyzed:</i>	Oct-15-18 19:27	Oct-15-18 19:32	Oct-15-18 19:38	Oct-15-18 19:44	Oct-15-18 20:01	Oct-15-18 20:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		348 4.95	326 4.96	1210 24.8	2180 25.0	1900 25.0	1250 25.0
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00	Oct-13-18 11:00
	<i>Analyzed:</i>	Oct-14-18 23:01	Oct-14-18 23:20	Oct-14-18 23:39	Oct-14-18 23:58	Oct-15-18 00:55	Oct-15-18 01:14
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		95.0 15.0	78.1 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	20.3 15.0
Diesel Range Organics (DRO)		2380 15.0	2810 15.0	72.0 15.0	373 15.0	66.1 14.9	20.4 15.0
Motor Oil Range Hydrocarbons (MRO)		313 15.0	309 15.0	20.1 15.0	124 15.0	16.9 14.9	<15.0 15.0
Total TPH		2790 15.0	3200 15.0	92.1 15.0	497 15.0	83.0 14.9	40.7 15.0

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*Jessica Kramer*

Jessica Kramer  
Project Assistant





# Certificate of Analysis Summary 601915

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

**Project Id:** 2RP-1657  
**Contact:** Adrian Baker  
**Project Location:** Delaware Basin

**Date Received in Lab:** Wed Oct-10-18 10:45 am  
**Report Date:** 11-DEC-18  
**Project Manager:** Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	601915-013	601915-014				
	<b>Field Id:</b>	FS01	FS02				
	<b>Depth:</b>	1-4 ft	1.5-2 ft				
	<b>Matrix:</b>	SOIL	SOIL				
	<b>Sampled:</b>	Oct-04-18 14:30	Oct-04-18 14:35				
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Oct-14-18 17:00	Oct-14-18 17:00				
	<b>Analyzed:</b>	Oct-16-18 10:23	Oct-16-18 10:45				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
	Benzene	<0.0100 0.0100	<0.0100 0.0100				
	Toluene	<0.0100 0.0100	<0.0100 0.0100				
	Ethylbenzene	<0.0100 0.0100	<0.0100 0.0100				
	m,p-Xylenes	<0.0200 0.0200	<0.0200 0.0200				
	o-Xylene	<0.0100 0.0100	<0.0100 0.0100				
	Total Xylenes	<0.0100 0.0100	<0.0100 0.0100				
	Total BTEX	<0.0100 0.0100	<0.0100 0.0100				
<b>Inorganic Anions by EPA 300</b>	<b>Extracted:</b>	Oct-15-18 10:00	Oct-15-18 10:00				
	<b>Analyzed:</b>	Oct-15-18 20:12	Oct-15-18 20:18				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
	Chloride	851 24.8	603 4.95				
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Oct-13-18 11:00	Oct-13-18 11:00				
	<b>Analyzed:</b>	Oct-15-18 01:33	Oct-15-18 01:52				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0	<15.0 15.0				
	Diesel Range Organics (DRO)	67.5 15.0	1620 15.0				
	Motor Oil Range Hydrocarbons (MRO)	17.5 15.0	259 15.0				
	Total TPH	85.0 15.0	1880 15.0				

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Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01A**  
Lab Sample Id: 601915-001

Matrix: Soil  
Date Collected: 10.04.18 09.35

Date Received: 10.10.18 10.45  
Sample Depth: 1.5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066429

Date Prep: 10.15.18 09.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	175	4.98	mg/kg	10.15.18 18.13		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.14.18 20.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	587	15.0	mg/kg	10.14.18 20.30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	118	15.0	mg/kg	10.14.18 20.30		1
Total TPH	PHC635	705	15.0	mg/kg	10.14.18 20.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.14.18 20.30	
o-Terphenyl	84-15-1	101	%	70-135	10.14.18 20.30	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01A**  
Lab Sample Id: 601915-001

Matrix: Soil  
Date Collected: 10.04.18 09.35

Date Received: 10.10.18 10.45  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066628

Date Prep: 10.15.18 16.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.16.18 03.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.16.18 03.20	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	102	%	70-130	10.16.18 03.20		
1,4-Difluorobenzene	540-36-3	99	%	70-130	10.16.18 03.20		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01B** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-002 Date Collected: 10.04.18 09.50 Sample Depth: 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 09.15 Basis: Wet Weight  
 Seq Number: 3066429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	97.4	4.96	mg/kg	10.15.18 18.18		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.14.18 21.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	246	14.9	mg/kg	10.14.18 21.26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	75.3	14.9	mg/kg	10.14.18 21.26		1
Total TPH	PHC635	321	14.9	mg/kg	10.14.18 21.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.14.18 21.26	
o-Terphenyl	84-15-1	94	%	70-135	10.14.18 21.26	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01B**  
Lab Sample Id: 601915-002

Matrix: Soil  
Date Collected: 10.04.18 09.50

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 16.45

Basis: Wet Weight

Seq Number: 3066628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.16.18 03.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.16.18 03.41	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.16.18 03.41		
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.16.18 03.41		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02A** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-003 Date Collected: 10.04.18 10.05 Sample Depth: 1 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 09.15 Basis: Wet Weight  
 Seq Number: 3066429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	151	4.96	mg/kg	10.15.18 18.24		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.9	74.9	mg/kg	10.14.18 21.46	U	5
Diesel Range Organics (DRO)	C10C28DRO	3510	74.9	mg/kg	10.14.18 21.46		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	790	74.9	mg/kg	10.14.18 21.46		5
Total TPH	PHC635	4300	74.9	mg/kg	10.14.18 21.46		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.14.18 21.46	
o-Terphenyl	84-15-1	109	%	70-135	10.14.18 21.46	





# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02A**  
Lab Sample Id: 601915-003

Matrix: Soil  
Date Collected: 10.04.18 10.05

Date Received: 10.10.18 10.45  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066628

Date Prep: 10.15.18 16.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.16.18 02.17	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.16.18 02.17	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	88	%	70-130	10.16.18 02.17		
4-Bromofluorobenzene	460-00-4	101	%	70-130	10.16.18 02.17		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02B**  
Lab Sample Id: 601915-004

Matrix: Soil  
Date Collected: 10.04.18 10.30

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066429

Date Prep: 10.15.18 09.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	144	4.98	mg/kg	10.15.18 18.30		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	20.2	14.9	mg/kg	10.14.18 22.05		1
Diesel Range Organics (DRO)	C10C28DRO	223	14.9	mg/kg	10.14.18 22.05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	66.0	14.9	mg/kg	10.14.18 22.05		1
Total TPH	PHC635	309	14.9	mg/kg	10.14.18 22.05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.14.18 22.05	
o-Terphenyl	84-15-1	92	%	70-135	10.14.18 22.05	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02B**  
Lab Sample Id: 601915-004

Matrix: Soil  
Date Collected: 10.04.18 10.30

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 16.45

Basis: Wet Weight

Seq Number: 3066628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.16.18 02.38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.16.18 02.38	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	86	%	70-130	10.16.18 02.38		
4-Bromofluorobenzene	460-00-4	141	%	70-130	10.16.18 02.38	**	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03A**  
Lab Sample Id: 601915-005

Matrix: Soil  
Date Collected: 10.04.18 10.45

Date Received: 10.10.18 10.45  
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066429

Date Prep: 10.15.18 09.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	10.15.18 18.35	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.14.18 22.24	U	1
<b>Diesel Range Organics (DRO)</b>	C10C28DRO	<b>16.2</b>	15.0	mg/kg	10.14.18 22.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.14.18 22.24	U	1
<b>Total TPH</b>	PHC635	<b>16.2</b>	15.0	mg/kg	10.14.18 22.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.14.18 22.24	
o-Terphenyl	84-15-1	94	%	70-135	10.14.18 22.24	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03A**  
Lab Sample Id: 601915-005

Matrix: Soil  
Date Collected: 10.04.18 10.45

Date Received: 10.10.18 10.45  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 16.45

Basis: Wet Weight

Seq Number: 3066628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.15.18 20.57	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.15.18 20.57	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	84	%	70-130	10.15.18 20.57		
4-Bromofluorobenzene	460-00-4	94	%	70-130	10.15.18 20.57		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03B**  
Lab Sample Id: 601915-006

Matrix: Soil  
Date Collected: 10.04.18 11.05

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066431

Date Prep: 10.15.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	10.15.18 19.09	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.14.18 22.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.14.18 22.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.14.18 22.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.14.18 22.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.14.18 22.43	
o-Terphenyl	84-15-1	91	%	70-135	10.14.18 22.43	





# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03B**  
Lab Sample Id: 601915-006

Matrix: Soil  
Date Collected: 10.04.18 11.05

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 16.45

Basis: Wet Weight

Seq Number: 3066628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.16.18 04.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.16.18 04.02	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	96	%	70-130	10.16.18 04.02		
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.16.18 04.02		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04A**  
Lab Sample Id: 601915-007

Matrix: Soil  
Date Collected: 10.04.18 11.25

Date Received: 10.10.18 10.45  
Sample Depth: 1.5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066431

Date Prep: 10.15.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	348	4.95	mg/kg	10.15.18 19.27		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	95.0	15.0	mg/kg	10.14.18 23.01		1
Diesel Range Organics (DRO)	C10C28DRO	2380	15.0	mg/kg	10.14.18 23.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	313	15.0	mg/kg	10.14.18 23.01		1
Total TPH	PHC635	2790	15.0	mg/kg	10.14.18 23.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.14.18 23.01	
o-Terphenyl	84-15-1	122	%	70-135	10.14.18 23.01	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04A**  
Lab Sample Id: 601915-007

Matrix: Soil  
Date Collected: 10.04.18 11.25

Date Received: 10.10.18 10.45  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066628

Date Prep: 10.15.18 16.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.16.18 04.24	U	1
Toluene	108-88-3	<b>0.00353</b>	0.00200	mg/kg	10.16.18 04.24		1
Ethylbenzene	100-41-4	<b>0.0138</b>	0.00200	mg/kg	10.16.18 04.24		1
m,p-Xylenes	179601-23-1	<b>0.0408</b>	0.00399	mg/kg	10.16.18 04.24		1
o-Xylene	95-47-6	<b>0.0124</b>	0.00200	mg/kg	10.16.18 04.24		1
Total Xylenes	1330-20-7	<b>0.0532</b>	0.00200	mg/kg	10.16.18 04.24		1
Total BTEX		<b>0.0705</b>	0.00200	mg/kg	10.16.18 04.24		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	160		%	70-130	10.16.18 04.24	**
1,4-Difluorobenzene	540-36-3	120		%	70-130	10.16.18 04.24	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04B**  
Lab Sample Id: 601915-008

Matrix: Soil  
Date Collected: 10.04.18 11.35

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066431

Date Prep: 10.15.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	326	4.96	mg/kg	10.15.18 19.32		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	78.1	15.0	mg/kg	10.14.18 23.20		1
Diesel Range Organics (DRO)	C10C28DRO	2810	15.0	mg/kg	10.14.18 23.20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	309	15.0	mg/kg	10.14.18 23.20		1
Total TPH	PHC635	3200	15.0	mg/kg	10.14.18 23.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.14.18 23.20	
o-Terphenyl	84-15-1	115	%	70-135	10.14.18 23.20	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04B**  
Lab Sample Id: 601915-008

Matrix: Soil  
Date Collected: 10.04.18 11.35

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066632

Date Prep: 10.14.18 17.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 07.12	U	1
<b>Toluene</b>	108-88-3	<b>0.0261</b>	0.0100	mg/kg	10.16.18 07.12		1
<b>Ethylbenzene</b>	100-41-4	<b>0.0817</b>	0.0100	mg/kg	10.16.18 07.12		1
<b>m,p-Xylenes</b>	179601-23-1	<b>0.308</b>	0.0200	mg/kg	10.16.18 07.12		1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 07.12	U	1
<b>Total Xylenes</b>	1330-20-7	<b>0.308</b>	0.0100	mg/kg	10.16.18 07.12		1
<b>Total BTEX</b>		<b>0.416</b>	0.0100	mg/kg	10.16.18 07.12		1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	199	%	70-130	10.16.18 07.12	**	
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.16.18 07.12		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05A**  
Lab Sample Id: 601915-009

Matrix: Soil  
Date Collected: 10.04.18 11.45

Date Received: 10.10.18 10.45  
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066431

Date Prep: 10.15.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1210	24.8	mg/kg	10.15.18 19.38		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.14.18 23.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	72.0	15.0	mg/kg	10.14.18 23.39		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	20.1	15.0	mg/kg	10.14.18 23.39		1
Total TPH	PHC635	92.1	15.0	mg/kg	10.14.18 23.39		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.14.18 23.39	
o-Terphenyl	84-15-1	90	%	70-135	10.14.18 23.39	





# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05A**  
Lab Sample Id: 601915-009

Matrix: Soil  
Date Collected: 10.04.18 11.45

Date Received: 10.10.18 10.45  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066632

Date Prep: 10.14.18 17.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 07.33	U	1
Toluene	108-88-3	<b>0.0461</b>	0.0100	mg/kg	10.16.18 07.33		1
Ethylbenzene	100-41-4	<b>0.0761</b>	0.0100	mg/kg	10.16.18 07.33		1
m,p-Xylenes	179601-23-1	<b>0.341</b>	0.0200	mg/kg	10.16.18 07.33		1
o-Xylene	95-47-6	<b>0.0821</b>	0.0100	mg/kg	10.16.18 07.33		1
Total Xylenes	1330-20-7	<b>0.423</b>	0.0100	mg/kg	10.16.18 07.33		1
Total BTEX		<b>0.545</b>	0.0100	mg/kg	10.16.18 07.33		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	141		%	70-130	10.16.18 07.33	**
1,4-Difluorobenzene	540-36-3	99		%	70-130	10.16.18 07.33	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05B**  
Lab Sample Id: 601915-010

Matrix: Soil  
Date Collected: 10.04.18 12.05

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3066431

Date Prep: 10.15.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2180	25.0	mg/kg	10.15.18 19.44		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066664

Date Prep: 10.13.18 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.14.18 23.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	373	15.0	mg/kg	10.14.18 23.58		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	124	15.0	mg/kg	10.14.18 23.58		1
Total TPH	PHC635	497	15.0	mg/kg	10.14.18 23.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.14.18 23.58	
o-Terphenyl	84-15-1	92	%	70-135	10.14.18 23.58	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05B**  
Lab Sample Id: 601915-010

Matrix: Soil  
Date Collected: 10.04.18 12.05

Date Received: 10.10.18 10.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 17.00

Basis: Wet Weight

Seq Number: 3066632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	10.16.18 09.19	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
Total BTEX		<0.0100	0.0100	mg/kg	10.16.18 09.19	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	113	%	70-130	10.16.18 09.19		
4-Bromofluorobenzene	460-00-4	73	%	70-130	10.16.18 09.19		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW01** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-011 Date Collected: 10.04.18 14.10 Sample Depth: 1 - 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 10.00 Basis: Wet Weight  
 Seq Number: 3066431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1900	25.0	mg/kg	10.15.18 20.01		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.15.18 00.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	66.1	14.9	mg/kg	10.15.18 00.55		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	16.9	14.9	mg/kg	10.15.18 00.55		1
Total TPH	PHC635	83.0	14.9	mg/kg	10.15.18 00.55		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.15.18 00.55	
o-Terphenyl	84-15-1	90	%	70-135	10.15.18 00.55	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW01**  
Lab Sample Id: 601915-011

Matrix: Soil  
Date Collected: 10.04.18 14.10

Date Received: 10.10.18 10.45  
Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 17.00

Basis: Wet Weight

Seq Number: 3066632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	10.16.18 09.40	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
Total BTEX		<0.0100	0.0100	mg/kg	10.16.18 09.40	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	103	%	70-130	10.16.18 09.40		
1,4-Difluorobenzene	540-36-3	120	%	70-130	10.16.18 09.40		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW02** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-012 Date Collected: 10.04.18 14.20 Sample Depth: 1 - 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 10.00 Basis: Wet Weight  
 Seq Number: 3066431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1250	25.0	mg/kg	10.15.18 20.06		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	20.3	15.0	mg/kg	10.15.18 01.14		1
Diesel Range Organics (DRO)	C10C28DRO	20.4	15.0	mg/kg	10.15.18 01.14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.15.18 01.14	U	1
Total TPH	PHC635	40.7	15.0	mg/kg	10.15.18 01.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.15.18 01.14	
o-Terphenyl	84-15-1	90	%	70-135	10.15.18 01.14	





# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW02**  
Lab Sample Id: 601915-012

Matrix: Soil  
Date Collected: 10.04.18 14.20

Date Received: 10.10.18 10.45  
Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 17.00

Basis: Wet Weight

Seq Number: 3066632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	10.16.18 10.02	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
Total BTEX		<0.0100	0.0100	mg/kg	10.16.18 10.02	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	81	%	70-130	10.16.18 10.02		
1,4-Difluorobenzene	540-36-3	122	%	70-130	10.16.18 10.02		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS01** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-013 Date Collected: 10.04.18 14.30 Sample Depth: 1 - 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 10.00 Basis: Wet Weight  
 Seq Number: 3066431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	851	24.8	mg/kg	10.15.18 20.12		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.15.18 01.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	67.5	15.0	mg/kg	10.15.18 01.33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	17.5	15.0	mg/kg	10.15.18 01.33		1
Total TPH	PHC635	85.0	15.0	mg/kg	10.15.18 01.33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.15.18 01.33	
o-Terphenyl	84-15-1	91	%	70-135	10.15.18 01.33	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS01**  
Lab Sample Id: 601915-013

Matrix: Soil  
Date Collected: 10.04.18 14.30

Date Received: 10.10.18 10.45  
Sample Depth: 1 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 17.00

Basis: Wet Weight

Seq Number: 3066632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	10.16.18 10.23	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
Total BTEX		<0.0100	0.0100	mg/kg	10.16.18 10.23	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	80	%	70-130	10.16.18 10.23		
1,4-Difluorobenzene	540-36-3	122	%	70-130	10.16.18 10.23		



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS02** Matrix: Soil Date Received: 10.10.18 10.45  
 Lab Sample Id: 601915-014 Date Collected: 10.04.18 14.35 Sample Depth: 1.5 - 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.15.18 10.00 Basis: Wet Weight  
 Seq Number: 3066431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>603</b>	4.95	mg/kg	10.15.18 20.18		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.13.18 11.00 Basis: Wet Weight  
 Seq Number: 3066664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.15.18 01.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<b>1620</b>	15.0	mg/kg	10.15.18 01.52		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<b>259</b>	15.0	mg/kg	10.15.18 01.52		1
Total TPH	PHC635	<b>1880</b>	15.0	mg/kg	10.15.18 01.52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.15.18 01.52	
o-Terphenyl	84-15-1	108	%	70-135	10.15.18 01.52	



# Certificate of Analytical Results 601915



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS02**  
 Lab Sample Id: 601915-014

Matrix: Soil  
 Date Collected: 10.04.18 14.35

Date Received: 10.10.18 10.45  
 Sample Depth: 1.5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 17.00

Basis: Wet Weight

Seq Number: 3066632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	10.16.18 10.45	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
Total BTEX		<0.0100	0.0100	mg/kg	10.16.18 10.45	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	77	%	70-130	10.16.18 10.45		
1,4-Difluorobenzene	540-36-3	118	%	70-130	10.16.18 10.45		



## 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





## LT Environmental, Inc.

JRU-17

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066429

MB Sample Id: 7664172-1-BLK

Matrix: Solid

LCS Sample Id: 7664172-1-BKS

Prep Method: E300P

Date Prep: 10.15.18

LCSD Sample Id: 7664172-1-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	252	101	250	100	90-110	1	20	mg/kg	10.15.18 15:51	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066431

MB Sample Id: 7664174-1-BLK

Matrix: Solid

LCS Sample Id: 7664174-1-BKS

Prep Method: E300P

Date Prep: 10.15.18

LCSD Sample Id: 7664174-1-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	260	104	251	100	90-110	4	20	mg/kg	10.15.18 18:58	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066429

Parent Sample Id: 601913-007

Matrix: Soil

MS Sample Id: 601913-007 S

Prep Method: E300P

Date Prep: 10.15.18

MSD Sample Id: 601913-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	174	250	429	102	434	104	90-110	1	20	mg/kg	10.15.18 16:08	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066429

Parent Sample Id: 601914-005

Matrix: Soil

MS Sample Id: 601914-005 S

Prep Method: E300P

Date Prep: 10.15.18

MSD Sample Id: 601914-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	423	248	684	105	661	96	90-110	3	20	mg/kg	10.15.18 17:27	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066431

Parent Sample Id: 601915-006

Matrix: Soil

MS Sample Id: 601915-006 S

Prep Method: E300P

Date Prep: 10.15.18

MSD Sample Id: 601915-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	248	99	249	100	90-110	0	20	mg/kg	10.15.18 19:15	

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

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

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

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



## LT Environmental, Inc.

JRU-17

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066431

Parent Sample Id: 601916-002

Matrix: Soil

MS Sample Id: 601916-002 S

Prep Method: E300P

Date Prep: 10.15.18

MSD Sample Id: 601916-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	392	250	639	99	639	99	90-110	0	20	mg/kg	10.15.18 20:35	

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3066664

MB Sample Id: 7664109-1-BLK

Matrix: Solid

LCS Sample Id: 7664109-1-BKS

Prep Method: TX1005P

Date Prep: 10.13.18

LCSD Sample Id: 7664109-1-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	1040	104	1040	104	70-135	0	20	mg/kg	10.14.18 19:51	
Diesel Range Organics (DRO)	<8.13	1000	1070	107	1090	109	70-135	2	20	mg/kg	10.14.18 19:51	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		130		126		70-135	%	10.14.18 19:51
o-Terphenyl	102		127		108		70-135	%	10.14.18 19:51

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3066664

Parent Sample Id: 601915-001

Matrix: Soil

MS Sample Id: 601915-001 S

Prep Method: TX1005P

Date Prep: 10.13.18

MSD Sample Id: 601915-001 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)	13.1	999	854	84	887	87	70-135	4	20	mg/kg	10.14.18 20:49	
Diesel Range Organics (DRO)	587	999	1610	102	1610	102	70-135	0	20	mg/kg	10.14.18 20:49	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		123		70-135	%	10.14.18 20:49
o-Terphenyl	105		103		70-135	%	10.14.18 20:49

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



## LT Environmental, Inc.

JRU-17

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066632

MB Sample Id: 7664300-1-BLK

Matrix: Solid

LCS Sample Id: 7664300-1-BKS

Prep Method: SW5030B

Date Prep: 10.14.18

LCSD Sample Id: 7664300-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0100	0.500	0.601	120	0.600	120	70-130	0	35	mg/kg	10.16.18 05:07	
Toluene	<0.00228	0.500	0.487	97	0.490	98	70-130	1	35	mg/kg	10.16.18 05:07	
Ethylbenzene	<0.0100	0.500	0.574	115	0.569	114	70-130	1	35	mg/kg	10.16.18 05:07	
m,p-Xylenes	<0.0200	1.00	1.22	122	1.18	118	70-130	3	35	mg/kg	10.16.18 05:07	
o-Xylene	<0.0100	0.500	0.586	117	0.563	113	70-130	4	35	mg/kg	10.16.18 05:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		93		90		70-130	%	10.16.18 05:07
4-Bromofluorobenzene	88		113		110		70-130	%	10.16.18 05:07

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066628

MB Sample Id: 7664298-1-BLK

Matrix: Solid

LCS Sample Id: 7664298-1-BKS

Prep Method: SW5030B

Date Prep: 10.15.18

LCSD Sample Id: 7664298-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0925	93	0.114	113	70-130	21	35	mg/kg	10.15.18 18:49	
Toluene	<0.00201	0.100	0.0798	80	0.102	101	70-130	24	35	mg/kg	10.15.18 18:49	
Ethylbenzene	<0.00201	0.100	0.0929	93	0.108	107	70-130	15	35	mg/kg	10.15.18 18:49	
m,p-Xylenes	<0.00402	0.201	0.189	94	0.232	115	70-130	20	35	mg/kg	10.15.18 18:49	
o-Xylene	<0.00201	0.100	0.0926	93	0.120	119	70-130	26	35	mg/kg	10.15.18 18:49	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		73		88		70-130	%	10.15.18 18:49
4-Bromofluorobenzene	98		84		112		70-130	%	10.15.18 18:49

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066632

Parent Sample Id: 601915-008

Matrix: Soil

MS Sample Id: 601915-008 S

Prep Method: SW5030B

Date Prep: 10.14.18

MSD Sample Id: 601915-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0100	0.500	0.891	178	0.870	174	70-130	2	35	mg/kg	10.16.18 05:49	X
Toluene	0.0261	0.500	0.576	110	0.475	90	70-130	19	35	mg/kg	10.16.18 05:49	
Ethylbenzene	0.0817	0.500	0.680	120	0.552	94	70-130	21	35	mg/kg	10.16.18 05:49	
m,p-Xylenes	0.308	1.00	1.53	122	1.73	142	70-130	12	35	mg/kg	10.16.18 05:49	X
o-Xylene	<0.0100	0.500	0.0181	4	0.422	84	70-130	184	35	mg/kg	10.16.18 05:49	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		108		70-130	%	10.16.18 05:49
4-Bromofluorobenzene	174	**	537	**	70-130	%	10.16.18 05:49

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



## LT Environmental, Inc.

JRU-17

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066628

Parent Sample Id: 601915-005

Matrix: Soil

MS Sample Id: 601915-005 S

Prep Method: SW5030B

Date Prep: 10.15.18

MSD Sample Id: 601915-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.104	104	0.0976	98	70-130	6	35	mg/kg	10.15.18 19:32	
Toluene	<0.00201	0.100	0.0883	88	0.0765	77	70-130	14	35	mg/kg	10.15.18 19:32	
Ethylbenzene	<0.00201	0.100	0.0954	95	0.0828	83	70-130	14	35	mg/kg	10.15.18 19:32	
m,p-Xylenes	<0.00402	0.201	0.190	95	0.162	81	70-130	16	35	mg/kg	10.15.18 19:32	
o-Xylene	<0.00201	0.100	0.0925	93	0.0798	80	70-130	15	35	mg/kg	10.15.18 19:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		86		70-130	%	10.15.18 19:32
4-Bromofluorobenzene	100		103		70-130	%	10.15.18 19:32

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



## Chain of Custody

Work Order No: 601915

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 2

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Little
Company Name:	LT Environmental	Company Name:	XTO
Address:	3300 A Street, Building #1, #103	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 704-5178	Email:	ABaker@LTEnv.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project:	
Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	JBU-17	Turn Around	<input checked="" type="checkbox"/>
Project Number:	22P-11057	Routine	<input checked="" type="checkbox"/>
P.O. Number:	22P-1057	Rush:	
Sampler's Name:	Fabian Lumbani	Due Date:	

SAMPLE RECEIPT Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temperature (°C): <u>31</u> Received Intact: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cooler Custody Seals: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Sample Custody Seals: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Correction Factor: <u>1.00</u> Total Containers:		ANALYSIS REQUEST Number of Containers BTEX (only BTEX) TPH (DRO) (GRO) (MRO) Chloride (300.00)	
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Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Work Order Notes
5506A	S	10/4/18	0935	1.5'	X	
5506B	S	10/4/18	0950	2'	X	
5507A	S	10/4/18	1005	1'	X	
5507B	S	10/4/18	1030	2'	X	
5508A	S	10/4/18	1045	1'	X	
5508B	S	10/4/18	1105	2'	X	
5509A	S	10/4/18	1125	1.5'	X	
5509B	S	10/4/18	1135	2'	X	
5510A	S	10/4/18	1145	1'	X	
5510B	S	10/4/18	1205	2'	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 AI Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 Circle Method(s) and Metal(s) to be analyzed TCIP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to 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
<u>[Signature]</u>	<u>[Signature]</u>	10/5/18 1710	<u>[Signature]</u>	<u>[Signature]</u>	10/10/18 1045
3			4		
5			6		

7734 24301590





## Chain of Custody

Work Order No:

601915

Houston, TX (281) 240-4200 Dallas, TX (214) 302-0300 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)	Kyle Little
Company Name:	LT Environmental	Company Name:	XTC
Address:	3300 'A' Street, Building 1, #103	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 704-5178	Email:	ABaker@LTEnv.com

Program: <input type="checkbox"/> UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: <input type="checkbox"/> EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

Project Name:	JLU-17	Turn Around	<input checked="" type="checkbox"/>
Project Number:		Routine	<input checked="" type="checkbox"/>
P.O. Number:	2LP-1657	Push:	
Sampler's Name:	Fabian Urbarr	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Temperature (°C):	3.1	Thermometer ID		
Received In tact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Total Containers:		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	0.0		

Sample Identification					Matrix	Date Sampled	Time Sampled	Depth	Number	BTEX	TPH	Chl											Sample Comments
SW01					S	10/4/18	1410	1'-3'	1	X	X	X											Composite sample
SW02					S	10/4/18	1420	1'-3'	1	X	X	X											Composite sample
FS01					S	10/4/18	1430	1'-4'	1	X	X	X											Composite sample
FS02					S	10/4/18	1435	4'	1	X	X	X											Composite sample
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Total 200.7 / 6010 200.8 / 6020:

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

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti 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. <i>[Signature]</i>	2. <i>[Signature]</i>	10/5/18 17:0	3. <i>[Signature]</i>	4. <i>[Signature]</i>	10/10/18 1045
5.			6.		





## Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/10/2018 10:45:00 AM

Work Order #: 601915

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)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 10/10/2018

Checklist reviewed by:

Jessica Kramer

Date: 10/10/2018

# Analytical Report 608833

for  
**LT Environmental, Inc.**

**Project Manager: Adrian Baker**

**JRU 17 Battery**

**2RP-1657**

**20-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)



20-DEC-18

Project Manager: **Adrian Baker**

**LT Environmental, Inc.**

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **608833**

**JRU 17 Battery**

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) 608833. 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. 608833 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,

A handwritten signature in black ink that reads '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 608833****LT Environmental, Inc., Arvada, CO**

JRU 17 Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS03	S	12-11-18 13:00	3 ft	608833-001
SW04	S	12-11-18 13:30	1 - 3 ft	608833-002
FS02A	S	12-11-18 14:30	3 ft	608833-003
SW03	S	12-11-18 13:20	1 - 3 ft	608833-004



## CASE NARRATIVE

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

**Project Name:** *JRU 17 Battery*

Project ID: *2RP-1657*

Work Order Number(s): *608833*

Report Date: *20-DEC-18*

Date Received: *12/15/2018*

---

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3073331 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 608833

LT Environmental, Inc., Arvada, CO

Project Name: JRU 17 Battery

**Project Id:** 2RP-1657  
**Contact:** Adrian Baker  
**Project Location:** Delaware Basin

**Date Received in Lab:** Sat Dec-15-18 09:30 am  
**Report Date:** 20-DEC-18  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	608833-001	608833-002	608833-003	608833-004		
	<i>Field Id:</i>	FS03	SW04	FS02A	SW03		
	<i>Depth:</i>	3- ft	1-3 ft	3- ft	1-3 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Dec-11-18 13:00	Dec-11-18 13:30	Dec-11-18 14:30	Dec-11-18 13:20		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Dec-18-18 16:30	Dec-18-18 16:30	Dec-18-18 16:30	Dec-18-18 16:30		
	<i>Analyzed:</i>	Dec-19-18 07:10	Dec-19-18 07:29	Dec-19-18 07:48	Dec-19-18 08:45		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	0.0130 0.00200		
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	0.00854 0.00200		
m,p-Xylenes		<0.00401 0.00401	<0.00398 0.00398	<0.00400 0.00400	0.0143 0.00400		
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	0.140 0.00200		
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	0.154 0.00200		
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	0.176 0.00200		
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Dec-17-18 16:00	Dec-17-18 16:00	Dec-17-18 16:00	Dec-17-18 16:00		
	<i>Analyzed:</i>	Dec-18-18 04:02	Dec-18-18 04:08	Dec-18-18 04:14	Dec-18-18 04:21		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		145 5.00	<5.00 5.00	937 25.0	54.2 5.00		
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Dec-19-18 18:00	Dec-19-18 18:00	Dec-19-18 18:00	Dec-19-18 18:00		
	<i>Analyzed:</i>	Dec-20-18 01:48	Dec-20-18 02:53	Dec-20-18 03:14	Dec-20-18 03:36		
	<i>Units/RL:</i>	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	126 14.9		
Diesel Range Organics (DRO)		368 15.0	36.2 15.0	31.4 15.0	2210 14.9		
Motor Oil Range Hydrocarbons (MRO)		71.1 15.0	<15.0 15.0	<15.0 15.0	293 14.9		
Total TPH		439 15.0	36.2 15.0	31.4 15.0	2630 14.9		

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

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

Jessica Kramer  
Project Assistant





# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **FS03** Matrix: Soil Date Received: 12.15.18 09.30  
 Lab Sample Id: 608833-001 Date Collected: 12.11.18 13.00 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 12.17.18 16.00 Basis: Wet Weight  
 Seq Number: 3073190

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	145	5.00	mg/kg	12.18.18 04.02		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 12.19.18 18.00 Basis: Wet Weight  
 Seq Number: 3073493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.20.18 01.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	368	15.0	mg/kg	12.20.18 01.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	71.1	15.0	mg/kg	12.20.18 01.48		1
Total TPH	PHC635	439	15.0	mg/kg	12.20.18 01.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	12.20.18 01.48	
o-Terphenyl	84-15-1	103	%	70-135	12.20.18 01.48	



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **FS03**  
Lab Sample Id: 608833-001

Matrix: Soil  
Date Collected: 12.11.18 13.00

Date Received: 12.15.18 09.30  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3073331

Date Prep: 12.18.18 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.19.18 07.10	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.19.18 07.10	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	107	%	70-130	12.19.18 07.10		
4-Bromofluorobenzene	460-00-4	92	%	70-130	12.19.18 07.10		



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **SW04**  
Lab Sample Id: 608833-002

Matrix: Soil  
Date Collected: 12.11.18 13.30

Date Received: 12.15.18 09.30  
Sample Depth: 1 - 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3073190

Date Prep: 12.17.18 16.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	12.18.18 04.08	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3073493

Date Prep: 12.19.18 18.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.20.18 02.53	U	1
<b>Diesel Range Organics (DRO)</b>	C10C28DRO	<b>36.2</b>	15.0	mg/kg	12.20.18 02.53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	12.20.18 02.53	U	1
<b>Total TPH</b>	PHC635	<b>36.2</b>	15.0	mg/kg	12.20.18 02.53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	12.20.18 02.53	
o-Terphenyl	84-15-1	98	%	70-135	12.20.18 02.53	



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **SW04**  
Lab Sample Id: 608833-002

Matrix: Soil  
Date Collected: 12.11.18 13.30

Date Received: 12.15.18 09.30  
Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 12.18.18 16.30

Basis: Wet Weight

Seq Number: 3073331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.19.18 07.29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.19.18 07.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	95	%	70-130	12.19.18 07.29		
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.19.18 07.29		



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **FS02A**  
Lab Sample Id: 608833-003

Matrix: Soil  
Date Collected: 12.11.18 14.30

Date Received: 12.15.18 09.30  
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3073190

Date Prep: 12.17.18 16.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	937	25.0	mg/kg	12.18.18 04.14		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3073493

Date Prep: 12.19.18 18.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.20.18 03.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	31.4	15.0	mg/kg	12.20.18 03.14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	12.20.18 03.14	U	1
Total TPH	PHC635	31.4	15.0	mg/kg	12.20.18 03.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.20.18 03.14	
o-Terphenyl	84-15-1	95	%	70-135	12.20.18 03.14	



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **FS02A**  
Lab Sample Id: 608833-003

Matrix: Soil  
Date Collected: 12.11.18 14.30

Date Received: 12.15.18 09.30  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3073331

Date Prep: 12.18.18 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.19.18 07.48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.19.18 07.48	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	109	%	70-130	12.19.18 07.48		
4-Bromofluorobenzene	460-00-4	92	%	70-130	12.19.18 07.48		





# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **SW03** Matrix: Soil Date Received: 12.15.18 09.30  
 Lab Sample Id: 608833-004 Date Collected: 12.11.18 13.20 Sample Depth: 1 - 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 12.17.18 16.00 Basis: Wet Weight  
 Seq Number: 3073190

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	54.2	5.00	mg/kg	12.18.18 04.21		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 12.19.18 18.00 Basis: Wet Weight  
 Seq Number: 3073493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	126	14.9	mg/kg	12.20.18 03.36		1
Diesel Range Organics (DRO)	C10C28DRO	2210	14.9	mg/kg	12.20.18 03.36		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	293	14.9	mg/kg	12.20.18 03.36		1
Total TPH	PHC635	2630	14.9	mg/kg	12.20.18 03.36		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	12.20.18 03.36		
o-Terphenyl	84-15-1	111	%	70-135	12.20.18 03.36		



# Certificate of Analytical Results 608833



## LT Environmental, Inc., Arvada, CO

### JRU 17 Battery

Sample Id: **SW03**  
Lab Sample Id: 608833-004

Matrix: Soil  
Date Collected: 12.11.18 13.20

Date Received: 12.15.18 09.30  
Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3073331

Date Prep: 12.18.18 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.19.18 08.45	U	1
Toluene	108-88-3	<b>0.0130</b>	0.00200	mg/kg	12.19.18 08.45		1
Ethylbenzene	100-41-4	<b>0.00854</b>	0.00200	mg/kg	12.19.18 08.45		1
m,p-Xylenes	179601-23-1	<b>0.0143</b>	0.00400	mg/kg	12.19.18 08.45		1
o-Xylene	95-47-6	<b>0.140</b>	0.00200	mg/kg	12.19.18 08.45		1
Total Xylenes	1330-20-7	<b>0.154</b>	0.00200	mg/kg	12.19.18 08.45		1
Total BTEX		<b>0.176</b>	0.00200	mg/kg	12.19.18 08.45		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86		%	70-130	12.19.18 08.45	
4-Bromofluorobenzene	460-00-4	109		%	70-130	12.19.18 08.45	



## 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



## LT Environmental, Inc.

JRU 17 Battery

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3073190

MB Sample Id: 7668220-1-BLK

Matrix: Solid

LCS Sample Id: 7668220-1-BKS

Prep Method: E300P

Date Prep: 12.17.18

LCSD Sample Id: 7668220-1-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	274	110	90-110	0	20	mg/kg	12.18.18 01:30	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3073190

Parent Sample Id: 608832-003

Matrix: Soil

MS Sample Id: 608832-003 S

Prep Method: E300P

Date Prep: 12.17.18

MSD Sample Id: 608832-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	53.1	250	289	94	291	95	90-110	1	20	mg/kg	12.18.18 03:20	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3073190

Parent Sample Id: 608888-004

Matrix: Soil

MS Sample Id: 608888-004 S

Prep Method: E300P

Date Prep: 12.17.18

MSD Sample Id: 608888-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	248	100	254	102	90-110	2	20	mg/kg	12.18.18 01:48	

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3073493

MB Sample Id: 7668405-1-BLK

Matrix: Solid

LCS Sample Id: 7668405-1-BKS

Prep Method: TX1005P

Date Prep: 12.19.18

LCSD Sample Id: 7668405-1-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	932	93	921	92	70-135	1	20	mg/kg	12.19.18 21:18	
Diesel Range Organics (DRO)	<8.13	1000	973	97	965	97	70-135	1	20	mg/kg	12.19.18 21:18	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		125		121		70-135	%	12.19.18 21:18
o-Terphenyl	109		106		106		70-135	%	12.19.18 21:18

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



## LT Environmental, Inc.

JRU 17 Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3073493

Parent Sample Id: 608832-001

Matrix: Soil

MS Sample Id: 608832-001 S

Prep Method: TX1005P

Date Prep: 12.19.18

MSD Sample Id: 608832-001 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)	<7.97	996	853	86	868	87	70-135	2	20	mg/kg	12.19.18 22:19	
Diesel Range Organics (DRO)	89.1	996	940	85	954	87	70-135	1	20	mg/kg	12.19.18 22:19	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		107		70-135	%	12.19.18 22:19
o-Terphenyl	96		95		70-135	%	12.19.18 22:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3073331

MB Sample Id: 7668320-1-BLK

Matrix: Solid

LCS Sample Id: 7668320-1-BKS

Prep Method: SW5030B

Date Prep: 12.18.18

LCSD Sample Id: 7668320-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000384	0.0998	0.0887	89	0.0848	85	70-130	4	35	mg/kg	12.19.18 04:02	
Toluene	<0.000455	0.0998	0.0839	84	0.0803	80	70-130	4	35	mg/kg	12.19.18 04:02	
Ethylbenzene	<0.000564	0.0998	0.0897	90	0.0857	86	70-130	5	35	mg/kg	12.19.18 04:02	
m,p-Xylenes	<0.00101	0.200	0.162	81	0.155	78	70-130	4	35	mg/kg	12.19.18 04:02	
o-Xylene	<0.00200	0.0998	0.0811	81	0.0775	78	70-130	5	35	mg/kg	12.19.18 04:02	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		101		101		70-130	%	12.19.18 04:02
4-Bromofluorobenzene	81		86		86		70-130	%	12.19.18 04:02

Analytical Method: BTEX by EPA 8021B

Seq Number: 3073331

Parent Sample Id: 608832-003

Matrix: Soil

MS Sample Id: 608832-003 S

Prep Method: SW5030B

Date Prep: 12.18.18

MSD Sample Id: 608832-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.0523	52	0.0615	61	70-130	16	35	mg/kg	12.19.18 04:40	X
Toluene	<0.000456	0.100	0.0541	54	0.0634	63	70-130	16	35	mg/kg	12.19.18 04:40	X
Ethylbenzene	<0.000565	0.100	0.0620	62	0.0708	70	70-130	13	35	mg/kg	12.19.18 04:40	X
m,p-Xylenes	<0.00101	0.200	0.123	62	0.137	68	70-130	11	35	mg/kg	12.19.18 04:40	X
o-Xylene	<0.000344	0.100	0.0626	63	0.0700	69	70-130	11	35	mg/kg	12.19.18 04:40	X

## Surrogate

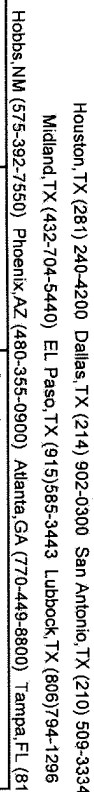
	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		100		70-130	%	12.19.18 04:40
4-Bromofluorobenzene	85		87		70-130	%	12.19.18 04:40

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



## Chain of Custody

Work Order No: 100033

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

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: <input type="checkbox"/>	

[illegible]

**Notwithstanding to whom bills are rendered, 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 service. Xenco will be applied to each project and a charge of \$76.00 will be applied to each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.**

Total 200.7 / 6010		200.8 / 6020:		8RCRA 13PPM Texas 11		Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn	
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U		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		12/11/10 1400			12/14/1400		
3			4				
5			6				





## Chain of Custody

Work Order No: 608833

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 2 of 2

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

Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

Project Name:	TRU 17 Buttery	Turn Around	
Project Number:	28P-1657	Routine	<input checked="" type="checkbox"/>
P.O. Number:		Rush:	
Sampler's Name:	BaBe/N	Due Date:	

<b>SAMPLE RECEIPT</b>		Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Well Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Temperature (°C):	3.8/3.7	Thermometer ID	P8		
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.1		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Total Containers:	N/A		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA (8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes
SW03	S	12/11/18	1320	1'-3'	1	X	X	X											TAI starts the day received by the lab, if received by 4:30pm
															Sample Comments				
															Compare site				

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 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
		12/11/18 1400			12/14/14 00

ORIGIN ID:CAOA (5/5) 887-6245 XENCO SATURDAY PAC N MAIL 910 W PIERCE ST CARLSBAD NM 88220 UNITED STATES US		SHIP DATE: 14DEC18 ACTWGT: 35.00 LB CAD: 101813706NMT4040 DIMS: 19x13x16 IN BILL RECIPIENT	
<b>TO HOLD FOR XENCO</b> <b>FEDEX OFFICE PRINT &amp; SHIP CENTER</b> <b>FEDEX OFFICE PRINT &amp; SHIP CENTER</b> <b>200 W INTERSTATE 20</b>			
<b>MIDLAND TX 79701</b> (800) 674-0639 INV: REF: XENCO PO: DEPT:		552J2/E4AF/DCA5	

TRK# 7739 8211 8173 0201	SATURDAY HOLD PRIORITY OVERNIGHT HLD MAFKI TX-US LBB
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**After printing this label:**

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

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

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## Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 12/15/2018 09:30:00 AM

Work Order #: 608833

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)?	3.7
#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)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 12/17/2018

Checklist reviewed by:

Jessica Kramer

Date: 12/18/2018

# Analytical Report 601524

for  
**LT Environmental, Inc.**

**Project Manager: Adrian Baker**

**JRU-17**

**15-OCT-18**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-18-27), 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 (T104704221-18-13)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)  
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)



15-OCT-18

Project Manager: **Adrian Baker**

**LT Environmental, Inc.**

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **601524**

**JRU-17**

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) 601524. 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. 601524 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,

A handwritten signature in black ink that reads '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 601524

LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	10-02-18 12:10	3 ft	601524-001
SS01A	S	10-02-18 12:15	4 ft	601524-002
SS02	S	10-02-18 12:30	3 ft	601524-003
SS02A	S	10-02-18 12:45	4 ft	601524-004
SS03	S	10-02-18 13:10	3 ft	601524-005
SS03A	S	10-02-18 13:15	4 ft	601524-006
SS04	S	10-02-18 13:35	3 ft	601524-007
SS04A	S	10-02-18 13:40	4 ft	601524-008
SS05	S	10-02-18 13:55	1 ft	601524-009
SS05A	S	10-02-18 14:10	4 ft	601524-010
SS06	S	10-02-18 14:20	1 ft	601524-011
SS06A	S	10-02-18 14:35	4 ft	601524-012
SS07	S	10-02-18 15:10	3 ft	601524-013
SS07A	S	10-02-18 15:15	4 ft	601524-014
SS08	S	10-03-18 09:05	3 ft	601524-015
SS08A	S	10-03-18 09:10	4 ft	601524-016
SS09	S	10-03-18 09:30	3 ft	601524-017
SS09A	S	10-03-18 09:35	4 ft	601524-018
SS10	S	10-03-18 09:50	3 ft	601524-019
SS10A	S	10-03-18 09:55	4 ft	601524-020
SS11	S	10-03-18 10:15	3 ft	601524-021
SS11A	S	10-03-18 10:20	4 ft	601524-022
SW01	S	10-03-18 14:30	.5 - 2 ft	601524-023
SW02	S	10-03-18 14:40	.5 - 2 ft	601524-024
SW03	S	10-03-18 14:45	.5 - 2 ft	601524-025
SW04	S	10-03-18 14:20	.5 - 2 ft	601524-026
FS01	S	10-03-18 09:05	3 ft	601524-027



**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: JRU-17**Project ID:  
Work Order Number(s): 601524Report Date: 15-OCT-18  
Date Received: 10/05/2018**Sample receipt non conformances and comments:**

PER CLIENTS EMAIL REQUEST CORRECTED SAMPLE NAMES. JKR 10/15/18

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

None

**Analytical non conformances and comments:**

Batch: LBA-3066331 BTEX by EPA 8021B

o-Xylene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 601524-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020

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

Lab Sample ID 601524-009 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and

Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch

are: 601524-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

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

Batch: LBA-3066343 BTEX by EPA 8021B

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

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601524-026.



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17



Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-001	601524-002	601524-003	601524-004	601524-005	601524-006
	<i>Field Id:</i>	SS01	SS01A	SS02	SS02A	SS03	SS03A
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	3- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 12:10	Oct-02-18 12:15	Oct-02-18 12:30	Oct-02-18 12:45	Oct-02-18 13:10	Oct-02-18 13:15
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00
	<i>Analyzed:</i>	Oct-12-18 21:29	Oct-12-18 21:49	Oct-12-18 22:09	Oct-12-18 22:29	Oct-12-18 22:49	Oct-12-18 23:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00404 0.00404	<0.00398 0.00398	<0.00399 0.00399	<0.00403 0.00403	<0.00401 0.00401
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200

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

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Version: 1.9%

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-001	601524-002	601524-003	601524-004	601524-005	601524-006
	<i>Field Id:</i>	SS01	SS01A	SS02	SS02A	SS03	SS03A
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	3- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 12:10	Oct-02-18 12:15	Oct-02-18 12:30	Oct-02-18 12:45	Oct-02-18 13:10	Oct-02-18 13:15
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-09-18 12:30	Oct-09-18 12:30	Oct-09-18 12:30	Oct-09-18 12:30	Oct-09-18 12:30	Oct-09-18 12:30
	<i>Analyzed:</i>	Oct-09-18 21:10	Oct-09-18 21:27	Oct-09-18 21:33	Oct-09-18 21:39	Oct-09-18 21:44	Oct-09-18 21:50
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		996 4.96	1650 24.8	1080 4.97	1090 4.95	259 4.95	378 4.95
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00
	<i>Analyzed:</i>	Oct-09-18 14:44	Oct-09-18 15:40	Oct-09-18 15:58	Oct-09-18 16:17	Oct-09-18 16:35	Oct-09-18 16:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0

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

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Version: 1.9%

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17



Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-007	601524-008	601524-009	601524-010	601524-011	601524-012
	<i>Field Id:</i>	SS04	SS04A	SS05	SS05A	SS06	SS06A
	<i>Depth:</i>	3- ft	4- ft	1- ft	4- ft	1- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 13:35	Oct-02-18 13:40	Oct-02-18 13:55	Oct-02-18 14:10	Oct-02-18 14:20	Oct-02-18 14:35
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00
	<i>Analyzed:</i>	Oct-12-18 23:29	Oct-12-18 23:50	Oct-13-18 00:10	Oct-13-18 00:30	Oct-13-18 01:49	Oct-13-18 02:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00397 0.00397	<0.00402 0.00402	<0.00404 0.00404	<0.00398 0.00398	<0.00399 0.00399	<0.00402 0.00402
o-Xylene		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201

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*Jessica Kramer*

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-007	601524-008	601524-009	601524-010	601524-011	601524-012
	<i>Field Id:</i>	SS04	SS04A	SS05	SS05A	SS06	SS06A
	<i>Depth:</i>	3- ft	4- ft	1- ft	4- ft	1- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 13:35	Oct-02-18 13:40	Oct-02-18 13:55	Oct-02-18 14:10	Oct-02-18 14:20	Oct-02-18 14:35
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-09-18 12:30	Oct-09-18 12:30	Oct-09-18 17:15	Oct-09-18 17:15	Oct-09-18 17:15	Oct-09-18 17:15
	<i>Analyzed:</i>	Oct-09-18 21:56	Oct-09-18 22:01	Oct-10-18 03:48	Oct-10-18 03:54	Oct-10-18 03:59	Oct-10-18 04:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		126 5.00	281 4.96	999 4.97	4500 50.2	454 4.96	441 4.95
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00
	<i>Analyzed:</i>	Oct-09-18 17:12	Oct-09-18 17:31	Oct-09-18 17:49	Oct-09-18 18:08	Oct-09-18 19:04	Oct-09-18 19:23
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	1810 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	24.8 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	1830 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17



Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-013	601524-014	601524-015	601524-016	601524-017	601524-018
	<i>Field Id:</i>	SS07	SS07A	SS08	SS08A	SS09	SS09A
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	3- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 15:10	Oct-02-18 15:15	Oct-03-18 09:05	Oct-03-18 09:10	Oct-03-18 09:30	Oct-03-18 09:35
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 12:00
	<i>Analyzed:</i>	Oct-13-18 02:29	Oct-13-18 02:49	Oct-13-18 03:09	Oct-13-18 03:29	Oct-13-18 03:49	Oct-13-18 04:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
m,p-Xylenes		<0.00402 0.00402	<0.00397 0.00397	<0.00399 0.00399	<0.00401 0.00401	<0.00402 0.00402	<0.00398 0.00398
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199

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Jessica Kramer  
Project Assistant





# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-013	601524-014	601524-015	601524-016	601524-017	601524-018
	<i>Field Id:</i>	SS07	SS07A	SS08	SS08A	SS09	SS09A
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	3- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 15:10	Oct-02-18 15:15	Oct-03-18 09:05	Oct-03-18 09:10	Oct-03-18 09:30	Oct-03-18 09:35
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-09-18 17:15	Oct-09-18 17:15	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00
	<i>Analyzed:</i>	Oct-10-18 04:11	Oct-10-18 04:16	Oct-10-18 10:39	Oct-10-18 10:45	Oct-10-18 10:50	Oct-10-18 10:56
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1240 5.02	1370 25.0	33.7 4.99	86.3 4.95	449 4.96	680 25.0
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00	Oct-09-18 09:00
	<i>Analyzed:</i>	Oct-09-18 19:41	Oct-09-18 20:00	Oct-09-18 20:19	Oct-09-18 20:38	Oct-09-18 20:56	Oct-09-18 21:15
	<i>Units/RL:</i>	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	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-019	601524-020	601524-021	601524-022	601524-023	601524-024
	<i>Field Id:</i>	SS10	SS10A	SS11	SS11A	SW01	SW02
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	.5-2 ft	.5-2 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-03-18 09:50	Oct-03-18 09:55	Oct-03-18 10:15	Oct-03-18 10:20	Oct-03-18 14:30	Oct-03-18 14:40
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-12-18 12:00	Oct-12-18 12:00	Oct-12-18 16:20	Oct-12-18 16:20	Oct-12-18 16:20	Oct-12-18 16:20
	<i>Analyzed:</i>	Oct-13-18 04:29	Oct-13-18 04:49	Oct-13-18 07:48	Oct-13-18 08:09	Oct-13-18 08:29	Oct-13-18 08:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00399 0.00399	<0.00403 0.00403	<0.00401 0.00401	<0.00398 0.00398	<0.00399 0.00399
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-019	601524-020	601524-021	601524-022	601524-023	601524-024
	<i>Field Id:</i>	SS10	SS10A	SS11	SS11A	SW01	SW02
	<i>Depth:</i>	3- ft	4- ft	3- ft	4- ft	.5-2 ft	.5-2 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-03-18 09:50	Oct-03-18 09:55	Oct-03-18 10:15	Oct-03-18 10:20	Oct-03-18 14:30	Oct-03-18 14:40
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-09-18 12:30	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00
	<i>Analyzed:</i>	Oct-09-18 21:05	Oct-10-18 11:13	Oct-10-18 11:19	Oct-10-18 11:24	Oct-10-18 11:30	Oct-10-18 11:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		569 4.95	793 24.9	677 4.97	786 4.95	519 4.99	1390 4.98
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-18 09:00	Oct-09-18 09:00	Oct-08-18 08:00	Oct-08-18 08:00	Oct-08-18 08:00	Oct-08-18 08:00
	<i>Analyzed:</i>	Oct-09-18 21:34	Oct-09-18 21:52	Oct-08-18 11:59	Oct-08-18 12:54	Oct-08-18 13:13	Oct-08-18 13:32
	<i>Units/RL:</i>	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	<14.9 14.9	<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9	<15.0 15.0	1250 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9	<15.0 15.0	18.2 14.9
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9	<15.0 15.0	1270 14.9

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 601524

LT Environmental, Inc., Arvada, CO

Project Name: JRU-17

Project Id:

Contact: Adrian Baker

Project Location: Delaware Basin

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 15-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601524-025	601524-026	601524-027			
	<i>Field Id:</i>	SW03	SW04	FS01			
	<i>Depth:</i>	.5-2 ft	.5-2 ft	3- ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Oct-03-18 14:45	Oct-03-18 14:20	Oct-03-18 09:05			
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Oct-12-18 16:20	Oct-12-18 16:20	Oct-12-18 16:20			
	<i>Analyzed:</i>	Oct-13-18 09:09	Oct-13-18 09:29	Oct-13-18 09:49			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
Toluene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
Ethylbenzene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
m,p-Xylenes		<0.00402 0.00402	<0.00402 0.00402	<0.00398 0.00398			
o-Xylene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
Total Xylenes		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
Total BTEX		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199			
<b>Inorganic Anions by EPA 300</b>	<i>Extracted:</i>	Oct-10-18 09:00	Oct-10-18 09:00	Oct-10-18 09:00			
	<i>Analyzed:</i>	Oct-10-18 11:58	Oct-10-18 12:04	Oct-10-18 12:21			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		465 4.97	1160 4.98	1030 4.95			
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-08-18 08:00	Oct-08-18 08:00	Oct-08-18 08:00			
	<i>Analyzed:</i>	Oct-09-18 07:21	Oct-08-18 14:09	Oct-08-18 14:27			
	<i>Units/RL:</i>	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			
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	16.4 15.0			
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0			
Total TPH		<15.0 15.0	<15.0 15.0	16.4 15.0			

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Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-001 Date Collected: 10.02.18 12.10 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.09.18 12.30 Basis: Wet Weight  
 Seq Number: 3065903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	996	4.96	mg/kg	10.09.18 21.10		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 14.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 14.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 14.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 14.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 14.44	
o-Terphenyl	84-15-1	91	%	70-135	10.09.18 14.44	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01**  
Lab Sample Id: 601524-001

Matrix: Soil  
Date Collected: 10.02.18 12.10

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.12.18 21.29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.12.18 21.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	108	%	70-130	10.12.18 21.29		
4-Bromofluorobenzene	460-00-4	102	%	70-130	10.12.18 21.29		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01A**  
Lab Sample Id: 601524-002

Matrix: Soil  
Date Collected: 10.02.18 12.15

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3065903

Date Prep: 10.09.18 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1650	24.8	mg/kg	10.09.18 21.27		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 15.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 15.40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 15.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 15.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.09.18 15.40	
o-Terphenyl	84-15-1	94	%	70-135	10.09.18 15.40	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS01A**  
Lab Sample Id: 601524-002

Matrix: Soil  
Date Collected: 10.02.18 12.15

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	10.12.18 21.49	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.12.18 21.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.12.18 21.49		
4-Bromofluorobenzene	460-00-4	123	%	70-130	10.12.18 21.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-003 Date Collected: 10.02.18 12.30 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.09.18 12.30 Basis: Wet Weight  
 Seq Number: 3065903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>1080</b>	4.97	mg/kg	10.09.18 21.33		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 15.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 15.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 15.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 15.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.09.18 15.58	
o-Terphenyl	84-15-1	93	%	70-135	10.09.18 15.58	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02**  
Lab Sample Id: 601524-003

Matrix: Soil  
Date Collected: 10.02.18 12.30

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.12.18 22.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.12.18 22.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.12.18 22.09		
4-Bromofluorobenzene	460-00-4	93	%	70-130	10.12.18 22.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02A**  
Lab Sample Id: 601524-004

Matrix: Soil  
Date Collected: 10.02.18 12.45

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3065903

Date Prep: 10.09.18 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>1090</b>	4.95	mg/kg	10.09.18 21.39		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.09.18 16.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.09.18 16.17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.09.18 16.17	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.09.18 16.17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 16.17	
o-Terphenyl	84-15-1	92	%	70-135	10.09.18 16.17	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS02A**  
Lab Sample Id: 601524-004

Matrix: Soil  
Date Collected: 10.02.18 12.45

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.12.18 22.29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.12.18 22.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.12.18 22.29		
4-Bromofluorobenzene	460-00-4	113	%	70-130	10.12.18 22.29		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03**  
Lab Sample Id: 601524-005

Matrix: Soil  
Date Collected: 10.02.18 13.10

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3065903

Date Prep: 10.09.18 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	259	4.95	mg/kg	10.09.18 21.44		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 16.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 16.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 16.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 16.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	10.09.18 16.35	
o-Terphenyl	84-15-1	87	%	70-135	10.09.18 16.35	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03**  
Lab Sample Id: 601524-005

Matrix: Soil  
Date Collected: 10.02.18 13.10

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.12.18 22.49	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.12.18 22.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.12.18 22.49		
4-Bromofluorobenzene	460-00-4	113	%	70-130	10.12.18 22.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03A**  
Lab Sample Id: 601524-006

Matrix: Soil  
Date Collected: 10.02.18 13.15

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3065903

Date Prep: 10.09.18 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	378	4.95	mg/kg	10.09.18 21.50		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 16.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 16.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 16.54	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 16.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.09.18 16.54	
o-Terphenyl	84-15-1	94	%	70-135	10.09.18 16.54	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS03A**  
Lab Sample Id: 601524-006

Matrix: Soil  
Date Collected: 10.02.18 13.15

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.12.18 23.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.12.18 23.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	113	%	70-130	10.12.18 23.09		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.12.18 23.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-007 Date Collected: 10.02.18 13.35 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.09.18 12.30 Basis: Wet Weight  
 Seq Number: 3065903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	126	5.00	mg/kg	10.09.18 21.56		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 17.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 17.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 17.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 17.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.09.18 17.12	
o-Terphenyl	84-15-1	90	%	70-135	10.09.18 17.12	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04**  
Lab Sample Id: 601524-007

Matrix: Soil  
Date Collected: 10.02.18 13.35

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.12.18 23.29	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.12.18 23.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	112	%	70-130	10.12.18 23.29		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.12.18 23.29		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04A** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-008 Date Collected: 10.02.18 13.40 Sample Depth: 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.09.18 12.30 Basis: Wet Weight  
 Seq Number: 3065903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	281	4.96	mg/kg	10.09.18 22.01		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 17.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 17.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 17.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 17.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	10.09.18 17.31	
o-Terphenyl	84-15-1	86	%	70-135	10.09.18 17.31	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS04A**  
Lab Sample Id: 601524-008

Matrix: Soil  
Date Collected: 10.02.18 13.40

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.12.18 23.50	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.12.18 23.50	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.12.18 23.50		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.12.18 23.50		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-009 Date Collected: 10.02.18 13.55 Sample Depth: 1 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	999	4.97	mg/kg	10.10.18 03.48		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 17.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	1810	15.0	mg/kg	10.09.18 17.49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	24.8	15.0	mg/kg	10.09.18 17.49		1
Total TPH	PHC635	1830	15.0	mg/kg	10.09.18 17.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	10.09.18 17.49	
o-Terphenyl	84-15-1	99	%	70-135	10.09.18 17.49	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05**  
Lab Sample Id: 601524-009

Matrix: Soil  
Date Collected: 10.02.18 13.55

Date Received: 10.05.18 10.50  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	10.13.18 00.10	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.13.18 00.10	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	125	%	70-130	10.13.18 00.10		
1,4-Difluorobenzene	540-36-3	101	%	70-130	10.13.18 00.10		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05A** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-010 Date Collected: 10.02.18 14.10 Sample Depth: 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4500	50.2	mg/kg	10.10.18 03.54		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 18.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 18.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 18.08	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 18.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	10.09.18 18.08	
o-Terphenyl	84-15-1	91	%	70-135	10.09.18 18.08	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS05A**  
Lab Sample Id: 601524-010

Matrix: Soil  
Date Collected: 10.02.18 14.10

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.13.18 00.30	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.13.18 00.30	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	102	%	70-130	10.13.18 00.30		
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.13.18 00.30		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS06** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-011 Date Collected: 10.02.18 14.20 Sample Depth: 1 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	454	4.96	mg/kg	10.10.18 03.59		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 19.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 19.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 19.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 19.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.09.18 19.04	
o-Terphenyl	84-15-1	89	%	70-135	10.09.18 19.04	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS06**  
Lab Sample Id: 601524-011

Matrix: Soil  
Date Collected: 10.02.18 14.20

Date Received: 10.05.18 10.50  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.13.18 01.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 01.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	92	%	70-130	10.13.18 01.49		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.13.18 01.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS06A** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-012 Date Collected: 10.02.18 14.35 Sample Depth: 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	441	4.95	mg/kg	10.10.18 04.05		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 19.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 19.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 19.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 19.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.09.18 19.23	
o-Terphenyl	84-15-1	91	%	70-135	10.09.18 19.23	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS06A**  
Lab Sample Id: 601524-012

Matrix: Soil  
Date Collected: 10.02.18 14.35

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 02.09	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 02.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.13.18 02.09		
1,4-Difluorobenzene	540-36-3	108	%	70-130	10.13.18 02.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS07** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-013 Date Collected: 10.02.18 15.10 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1240	5.02	mg/kg	10.10.18 04.11		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 19.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 19.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 19.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 19.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.09.18 19.41	
o-Terphenyl	84-15-1	103	%	70-135	10.09.18 19.41	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS07**  
Lab Sample Id: 601524-013

Matrix: Soil  
Date Collected: 10.02.18 15.10

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 02.29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 02.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.13.18 02.29		
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.13.18 02.29		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS07A** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-014 Date Collected: 10.02.18 15.15 Sample Depth: 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.09.18 17.15 Basis: Wet Weight  
 Seq Number: 3065911

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1370	25.0	mg/kg	10.10.18 04.16		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.09.18 20.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.09.18 20.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.09.18 20.00	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.09.18 20.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.09.18 20.00	
o-Terphenyl	84-15-1	93	%	70-135	10.09.18 20.00	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS07A**  
Lab Sample Id: 601524-014

Matrix: Soil  
Date Collected: 10.02.18 15.15

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.13.18 02.49	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.13.18 02.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.13.18 02.49		
4-Bromofluorobenzene	460-00-4	109	%	70-130	10.13.18 02.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS08**  
Lab Sample Id: 601524-015

Matrix: Soil  
Date Collected: 10.03.18 09.05

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066048

Date Prep: 10.10.18 09.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.7	4.99	mg/kg	10.10.18 10.39		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 20.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 20.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 20.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 20.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 20.19	
o-Terphenyl	84-15-1	92	%	70-135	10.09.18 20.19	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS08**  
Lab Sample Id: 601524-015

Matrix: Soil  
Date Collected: 10.03.18 09.05

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.13.18 03.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 03.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.13.18 03.09		
4-Bromofluorobenzene	460-00-4	112	%	70-130	10.13.18 03.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS08A**  
Lab Sample Id: 601524-016

Matrix: Soil  
Date Collected: 10.03.18 09.10

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066048

Date Prep: 10.10.18 09.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	86.3	4.95	mg/kg	10.10.18 10.45		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 20.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 20.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 20.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 20.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.09.18 20.38	
o-Terphenyl	84-15-1	96	%	70-135	10.09.18 20.38	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS08A**  
Lab Sample Id: 601524-016

Matrix: Soil  
Date Collected: 10.03.18 09.10

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.13.18 03.29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 03.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.13.18 03.29		
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.13.18 03.29		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS09** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-017 Date Collected: 10.03.18 09.30 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	449	4.96	mg/kg	10.10.18 10.50		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 20.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 20.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 20.56	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 20.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	10.09.18 20.56	
o-Terphenyl	84-15-1	91	%	70-135	10.09.18 20.56	





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS09**  
Lab Sample Id: 601524-017

Matrix: Soil  
Date Collected: 10.03.18 09.30

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 03.49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 03.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	118	%	70-130	10.13.18 03.49		
1,4-Difluorobenzene	540-36-3	110	%	70-130	10.13.18 03.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS09A**  
Lab Sample Id: 601524-018

Matrix: Soil  
Date Collected: 10.03.18 09.35

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066048

Date Prep: 10.10.18 09.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	680	25.0	mg/kg	10.10.18 10.56		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 21.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 21.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 21.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 21.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.09.18 21.15	
o-Terphenyl	84-15-1	89	%	70-135	10.09.18 21.15	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS09A**  
Lab Sample Id: 601524-018

Matrix: Soil  
Date Collected: 10.03.18 09.35

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.13.18 04.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.13.18 04.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.13.18 04.09		
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.13.18 04.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS10** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-019 Date Collected: 10.03.18 09.50 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: CHE % Moisture:  
 Analyst: CHE Date Prep: 10.09.18 12.30 Basis: Wet Weight  
 Seq Number: 3065903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	569	4.95	mg/kg	10.09.18 21.05		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.09.18 09.00 Basis: Wet Weight  
 Seq Number: 3065914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 21.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 21.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 21.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 21.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 21.34	
o-Terphenyl	84-15-1	94	%	70-135	10.09.18 21.34	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS10**  
Lab Sample Id: 601524-019

Matrix: Soil  
Date Collected: 10.03.18 09.50

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 04.29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 04.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.13.18 04.29		
1,4-Difluorobenzene	540-36-3	83	%	70-130	10.13.18 04.29		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS10A**  
Lab Sample Id: 601524-020

Matrix: Soil  
Date Collected: 10.03.18 09.55

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066048

Date Prep: 10.10.18 09.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	793	24.9	mg/kg	10.10.18 11.13		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065914

Date Prep: 10.09.18 09.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.09.18 21.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.09.18 21.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.09.18 21.52	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.09.18 21.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.09.18 21.52	
o-Terphenyl	84-15-1	90	%	70-135	10.09.18 21.52	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS10A**  
Lab Sample Id: 601524-020

Matrix: Soil  
Date Collected: 10.03.18 09.55

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 12.00

Basis: Wet Weight

Seq Number: 3066331

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.13.18 04.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 04.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	124	%	70-130	10.13.18 04.49		
1,4-Difluorobenzene	540-36-3	130	%	70-130	10.13.18 04.49		





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS11**  
Lab Sample Id: 601524-021

Matrix: Soil  
Date Collected: 10.03.18 10.15

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066048

Date Prep: 10.10.18 09.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	677	4.97	mg/kg	10.10.18 11.19		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065804

Date Prep: 10.08.18 08.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.08.18 11.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 11.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 11.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 11.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.08.18 11.59	
o-Terphenyl	84-15-1	93	%	70-135	10.08.18 11.59	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS11**  
Lab Sample Id: 601524-021

Matrix: Soil  
Date Collected: 10.03.18 10.15

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.13.18 07.48	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.13.18 07.48	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	119	%	70-130	10.13.18 07.48		
1,4-Difluorobenzene	540-36-3	125	%	70-130	10.13.18 07.48		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS11A** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-022 Date Collected: 10.03.18 10.20 Sample Depth: 4 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	786	4.95	mg/kg	10.10.18 11.24		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.08.18 12.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.08.18 12.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.08.18 12.54	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.08.18 12.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.08.18 12.54	
o-Terphenyl	84-15-1	97	%	70-135	10.08.18 12.54	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SS11A**  
Lab Sample Id: 601524-022

Matrix: Soil  
Date Collected: 10.03.18 10.20

Date Received: 10.05.18 10.50  
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3066343

Date Prep: 10.12.18 16.20

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.13.18 08.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 08.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	121	%	70-130	10.13.18 08.09		
1,4-Difluorobenzene	540-36-3	126	%	70-130	10.13.18 08.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW01** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-023 Date Collected: 10.03.18 14.30 Sample Depth: .5 - 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	519	4.99	mg/kg	10.10.18 11.30		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.08.18 13.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 13.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 13.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 13.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.08.18 13.13	
o-Terphenyl	84-15-1	90	%	70-135	10.08.18 13.13	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW01**  
Lab Sample Id: 601524-023

Matrix: Soil  
Date Collected: 10.03.18 14.30

Date Received: 10.05.18 10.50  
Sample Depth: .5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.13.18 08.29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.13.18 08.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	122	%	70-130	10.13.18 08.29		
1,4-Difluorobenzene	540-36-3	128	%	70-130	10.13.18 08.29		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW02** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-024 Date Collected: 10.03.18 14.40 Sample Depth: .5 - 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1390	4.98	mg/kg	10.10.18 11.36		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.08.18 13.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	1250	14.9	mg/kg	10.08.18 13.32		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	18.2	14.9	mg/kg	10.08.18 13.32		1
Total TPH	PHC635	1270	14.9	mg/kg	10.08.18 13.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.08.18 13.32	
o-Terphenyl	84-15-1	103	%	70-135	10.08.18 13.32	





# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW02**  
Lab Sample Id: 601524-024

Matrix: Soil  
Date Collected: 10.03.18 14.40

Date Received: 10.05.18 10.50  
Sample Depth: .5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.13.18 08.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.18 08.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	121	%	70-130	10.13.18 08.49		
4-Bromofluorobenzene	460-00-4	129	%	70-130	10.13.18 08.49		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW03** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-025 Date Collected: 10.03.18 14.45 Sample Depth: .5 - 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	465	4.97	mg/kg	10.10.18 11.58		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.09.18 07.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 07.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 07.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 07.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	10.09.18 07.21	
o-Terphenyl	84-15-1	100	%	70-135	10.09.18 07.21	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW03**  
Lab Sample Id: 601524-025

Matrix: Soil  
Date Collected: 10.03.18 14.45

Date Received: 10.05.18 10.50  
Sample Depth: .5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 09.09	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 09.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	127	%	70-130	10.13.18 09.09		
4-Bromofluorobenzene	460-00-4	124	%	70-130	10.13.18 09.09		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW04** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-026 Date Collected: 10.03.18 14.20 Sample Depth: .5 - 2 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1160	4.98	mg/kg	10.10.18 12.04		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.08.18 14.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 14.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 14.09	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 14.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.08.18 14.09	
o-Terphenyl	84-15-1	87	%	70-135	10.08.18 14.09	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **SW04**  
Lab Sample Id: 601524-026

Matrix: Soil  
Date Collected: 10.03.18 14.20

Date Received: 10.05.18 10.50  
Sample Depth: .5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.13.18 09.29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.13.18 09.29	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	152	%	70-130	10.13.18 09.29	**	
1,4-Difluorobenzene	540-36-3	124	%	70-130	10.13.18 09.29		



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS01** Matrix: Soil Date Received: 10.05.18 10.50  
 Lab Sample Id: 601524-027 Date Collected: 10.03.18 09.05 Sample Depth: 3 ft  
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P  
 Tech: SCM % Moisture:  
 Analyst: SCM Date Prep: 10.10.18 09.00 Basis: Wet Weight  
 Seq Number: 3066048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1030	4.95	mg/kg	10.10.18 12.21		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P  
 Tech: ARM % Moisture:  
 Analyst: ARM Date Prep: 10.08.18 08.00 Basis: Wet Weight  
 Seq Number: 3065804

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.08.18 14.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	16.4	15.0	mg/kg	10.08.18 14.27		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 14.27	U	1
Total TPH	PHC635	16.4	15.0	mg/kg	10.08.18 14.27		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	10.08.18 14.27	
o-Terphenyl	84-15-1	98	%	70-135	10.08.18 14.27	



# Certificate of Analytical Results 601524



## LT Environmental, Inc., Arvada, CO

JRU-17

Sample Id: **FS01**  
Lab Sample Id: 601524-027

Matrix: Soil  
Date Collected: 10.03.18 09.05

Date Received: 10.05.18 10.50  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.12.18 16.20

Basis: Wet Weight

Seq Number: 3066343

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.13.18 09.49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.13.18 09.49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	128	%	70-130	10.13.18 09.49		
1,4-Difluorobenzene	540-36-3	125	%	70-130	10.13.18 09.49		





## 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



## LT Environmental, Inc.

JRU-17

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065903

MB Sample Id: 7663790-1-BLK

Matrix: Solid

LCS Sample Id: 7663790-1-BKS

Prep Method: E300P

Date Prep: 10.09.18

LCSD Sample Id: 7663790-1-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	250	100	90-110	0	20	mg/kg	10.09.18 19:17	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065911

MB Sample Id: 7663857-1-BLK

Matrix: Solid

LCS Sample Id: 7663857-1-BKS

Prep Method: E300P

Date Prep: 10.09.18

LCSD Sample Id: 7663857-1-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	262	105	90-110	3	20	mg/kg	10.10.18 01:37	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066048

MB Sample Id: 7663866-1-BLK

Matrix: Solid

LCS Sample Id: 7663866-1-BKS

Prep Method: E300P

Date Prep: 10.10.18

LCSD Sample Id: 7663866-1-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	254	102	254	102	90-110	0	20	mg/kg	10.10.18 10:11	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065903

Parent Sample Id: 601518-028

Matrix: Soil

MS Sample Id: 601518-028 S

Prep Method: E300P

Date Prep: 10.09.18

MSD Sample Id: 601518-028 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	634	248	851	88	852	88	90-110	0	20	mg/kg	10.09.18 19:34	X

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065903

Parent Sample Id: 601518-037

Matrix: Soil

MS Sample Id: 601518-037 S

Prep Method: E300P

Date Prep: 10.09.18

MSD Sample Id: 601518-037 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	259	248	499	97	497	96	90-110	0	20	mg/kg	10.09.18 20:53	

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



## LT Environmental, Inc.

JRU-17

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065911

Parent Sample Id: 601779-001

Matrix: Soil

MS Sample Id: 601779-001 S

Prep Method: E300P

Date Prep: 10.09.18

MSD Sample Id: 601779-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	265	107	262	106	90-110	1	20	mg/kg	10.10.18 01:54	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3065911

Parent Sample Id: 601780-001

Matrix: Soil

MS Sample Id: 601780-001 S

Prep Method: E300P

Date Prep: 10.09.18

MSD Sample Id: 601780-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.853	249	256	103	254	102	90-110	1	20	mg/kg	10.10.18 03:08	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066048

Parent Sample Id: 601538-003

Matrix: Soil

MS Sample Id: 601538-003 S

Prep Method: E300P

Date Prep: 10.10.18

MSD Sample Id: 601538-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	804	250	1060	102	1060	102	90-110	0	20	mg/kg	10.10.18 10:28	

## Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066048

Parent Sample Id: 601546-001

Matrix: Soil

MS Sample Id: 601546-001 S

Prep Method: E300P

Date Prep: 10.10.18

MSD Sample Id: 601546-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	261	105	264	106	90-110	1	20	mg/kg	10.10.18 11:47	

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065804

MB Sample Id: 7663747-1-BLK

Matrix: Solid

LCS Sample Id: 7663747-1-BKS

Prep Method: TX1005P

Date Prep: 10.08.18

LCSD Sample Id: 7663747-1-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	936	94	948	95	70-135	1	20	mg/kg	10.08.18 11:22	
Diesel Range Organics (DRO)	<8.13	1000	983	98	966	97	70-135	2	20	mg/kg	10.08.18 11:22	

## Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		97		128		70-135	%	10.08.18 11:22
o-Terphenyl	97		101		104		70-135	%	10.08.18 11:22

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



## LT Environmental, Inc.

JRU-17

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065914

MB Sample Id: 7663874-1-BLK

Matrix: Solid

LCS Sample Id: 7663874-1-BKS

Prep Method: TX1005P

Date Prep: 10.09.18

LCSD Sample Id: 7663874-1-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	995	100	933	93	70-135	6	20	mg/kg	10.09.18 14:07	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	939	94	70-135	8	20	mg/kg	10.09.18 14:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		107		124		70-135	%	10.09.18 14:07
o-Terphenyl	110		98		100		70-135	%	10.09.18 14:07

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065804

Parent Sample Id: 601524-021

Matrix: Soil

MS Sample Id: 601524-021 S

Prep Method: TX1005P

Date Prep: 10.08.18

MSD Sample Id: 601524-021 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)	<7.98	997	903	91	915	92	70-135	1	20	mg/kg	10.08.18 12:17	
Diesel Range Organics (DRO)	<8.10	997	947	95	957	96	70-135	1	20	mg/kg	10.08.18 12:17	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		126		70-135	%	10.08.18 12:17
o-Terphenyl	96		96		70-135	%	10.08.18 12:17

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3065914

Parent Sample Id: 601524-001

Matrix: Soil

MS Sample Id: 601524-001 S

Prep Method: TX1005P

Date Prep: 10.09.18

MSD Sample Id: 601524-001 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)	8.88	999	884	88	886	88	70-135	0	20	mg/kg	10.09.18 15:02	
Diesel Range Organics (DRO)	<8.12	999	916	92	923	93	70-135	1	20	mg/kg	10.09.18 15:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		114		70-135	%	10.09.18 15:02
o-Terphenyl	91		90		70-135	%	10.09.18 15:02

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



## LT Environmental, Inc.

JRU-17

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066331

MB Sample Id: 7664143-1-BLK

Matrix: Solid

LCS Sample Id: 7664143-1-BKS

Prep Method: SW5030B

Date Prep: 10.12.18

LCSD Sample Id: 7664143-1-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	0.0950	95	0.0976	98	70-130	3	35	mg/kg	10.12.18 19:29	
Toluene	<0.00200	0.0998	0.0952	95	0.0978	98	70-130	3	35	mg/kg	10.12.18 19:29	
Ethylbenzene	<0.00200	0.0998	0.0970	97	0.100	100	70-130	3	35	mg/kg	10.12.18 19:29	
m,p-Xylenes	<0.00399	0.200	0.193	97	0.200	100	70-130	4	35	mg/kg	10.12.18 19:29	
o-Xylene	<0.00200	0.0998	0.0974	98	0.101	101	70-130	4	35	mg/kg	10.12.18 19:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		96		98		70-130	%	10.12.18 19:29
4-Bromofluorobenzene	99		97		100		70-130	%	10.12.18 19:29

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066343

MB Sample Id: 7664149-1-BLK

Matrix: Solid

LCS Sample Id: 7664149-1-BKS

Prep Method: SW5030B

Date Prep: 10.12.18

LCSD Sample Id: 7664149-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0990	99	0.0968	97	70-130	2	35	mg/kg	10.13.18 05:49	
Toluene	<0.00200	0.100	0.0966	97	0.0898	90	70-130	7	35	mg/kg	10.13.18 05:49	
Ethylbenzene	<0.00200	0.100	0.0902	90	0.0827	83	70-130	9	35	mg/kg	10.13.18 05:49	
m,p-Xylenes	<0.00400	0.200	0.180	90	0.166	83	70-130	8	35	mg/kg	10.13.18 05:49	
o-Xylene	<0.00200	0.100	0.0924	92	0.0861	86	70-130	7	35	mg/kg	10.13.18 05:49	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	122		97		105		70-130	%	10.13.18 05:49
4-Bromofluorobenzene	114		87		90		70-130	%	10.13.18 05:49

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3066331

Parent Sample Id: 601524-009

Matrix: Soil

MS Sample Id: 601524-009 S

Prep Method: SW5030B

Date Prep: 10.12.18

MSD Sample Id: 601524-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0954	94	0.0826	82	70-130	14	35	mg/kg	10.12.18 20:09	
Toluene	<0.00202	0.101	0.0615	61	0.0507	50	70-130	19	35	mg/kg	10.12.18 20:09	X
Ethylbenzene	<0.00202	0.101	0.0413	41	0.0304	30	70-130	30	35	mg/kg	10.12.18 20:09	X
m,p-Xylenes	<0.00404	0.202	0.0804	40	0.0599	30	70-130	29	35	mg/kg	10.12.18 20:09	X
o-Xylene	<0.00202	0.101	0.0418	41	0.0659	65	70-130	45	35	mg/kg	10.12.18 20:09	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		109		70-130	%	10.12.18 20:09
4-Bromofluorobenzene	110		107		70-130	%	10.12.18 20:09

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

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

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

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



## LT Environmental, Inc.

JRU-17

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066343

Parent Sample Id: 601524-021

Matrix: Soil

MS Sample Id: 601524-021 S

Prep Method: SW5030B

Date Prep: 10.12.18

MSD Sample Id: 601524-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0916	92	0.0924	91	70-130	1	35	mg/kg	10.13.18 06:29	
Toluene	<0.00201	0.100	0.0873	87	0.0859	85	70-130	2	35	mg/kg	10.13.18 06:29	
Ethylbenzene	<0.00201	0.100	0.0784	78	0.0784	78	70-130	0	35	mg/kg	10.13.18 06:29	
m,p-Xylenes	<0.00402	0.201	0.157	78	0.158	79	70-130	1	35	mg/kg	10.13.18 06:29	
o-Xylene	<0.00201	0.100	0.0798	80	0.0805	80	70-130	1	35	mg/kg	10.13.18 06:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		70-130	%	10.13.18 06:29
4-Bromofluorobenzene	97		94		70-130	%	10.13.18 06:29

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









## Chain of Custody

**Work Order No:**

601524

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  
Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 888-8888  
Hobbs, NM (575) 392-7550

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Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental	Company Name:	X770
Address:	3300 'A' street, Building 1, #103 Arlington, Tx 76010	Address:	
City, State ZIP:		City, State ZIP:	
Phone:	(432) 704-5178	Email:	ABaker@LTenv.com

Work Order Comments
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

<b>SAMPLE RECEIPT</b>	Temp Blank:	Yes No	Wet Ice Yes No
Temperature (°C):	4:1		Thermometer ID
Received Intact:	(Yes) No		R8
Cooler Custody Seals:	Yes No	N/A	Correction Factor: O.C.
Sample Custody Seals:	Yes No	N/A	Total Containers:





**ANALYSIS REQUEST**

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

[illegible]

Total	200.7 / 6010	200.8 / 6020:	Circle Method(s) and Metal(s) to be analyzed																											
8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO <sub>2</sub>	Na	Sr	Ti	Sn	U	V	Zn
TCLP / SPLP 6010:			8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U											
			1631 / 245.1 / 7470 / 7471 : Hg																											

notice, signature or this document and reimbursement 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
		10/3/2018 / 1715			10/5/18 / 1550



## Chain of Custody

Work Order No:

601524

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)	Kyle Littrell
Company Name:	CT Environmental	Company Name:	XTO
Address:	3300 'A' Street, Building #103	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 704-5178	Email:	A.Baker@ctenvi.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project:	
Reporting Level II <input type="checkbox"/>	Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD <input type="checkbox"/>	ADAPT <input type="checkbox"/> Other: <input type="checkbox"/>

Project Name:	UBU-17	Turn Around	<input checked="" type="checkbox"/>
Project Number:		Routine	
P.O. Number:	2 RRP-2550	Rush:	
Sampler's Name:	Fabian Urbani	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wet Ice:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Temperature (°C):	41	Thermometer ID		
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:		
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Total Containers:		
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	0.0		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	BTE	TPH	Ch												Sample Comments
5513	S	10/3/18	1015	3'	1	X	X	X												
5513A	S	10/3/18	1020	4'	1	X	X	X												
5501	S	10/3/18	1430	5.5-2'	1	X	X	X												Composite sample
5502	S	10/3/18	1435	5.5-2'	1	X	X	X												Composite sample
5503	S	10/3/18	1440	5.5-2'	1	X	X	X												"
5504	S	10/3/18	1445	5.5-2'	1	X	X	X												"
5501	S	10/3/18	1420	3'	1	X	X	X												"
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Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 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. <i>[Signature]</i>	<i>[Signature]</i>	10/3/2018 / 1715	2. <i>[Signature]</i>	<i>[Signature]</i>	10/5/18 / 105
3. <i>[Signature]</i>			4. <i>[Signature]</i>		
5. <i>[Signature]</i>			6. <i>[Signature]</i>		



## Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/05/2018 10:50:00 AM

Work Order #: 601524

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)?	4.1
#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)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 10/05/2018

Checklist reviewed by:

Jessica Kramer

Date: 10/05/2018


ATTACHMENT 3: PHOTOGRAPHIC LOG (2RP-1657 and 2RP-2850)





2RP-1657


**View facing east of smaller, eastern excavation on north side of the tank battery.**

Project: 012918011	XTO Energy, Inc. James Ranch Unit 17 Battery	 Advancing Opportunity
December 11, 2018	Photographic Log	



2RP-1657

**View facing east of western excavation facing tank battery.**


Project: 012918011	XTO Energy, Inc. James Ranch Unit 17 Battery	 Advancing Opportunity
December 11, 2018	Photographic Log	





2RP-2850


View of area around pumpjack prior to excavation.

Project: 012918011	XTO Energy, Inc. James Ranch Unit 17 Battery	 Advancing Opportunity
February 6, 2018	Photographic Log	








2RP-2850  
View of excavation facing south toward pumpjack.


Project: 012918011	XTO Energy, Inc. James Ranch Unit 17 Battery	 Advancing Opportunity
October 3, 2018	Photographic Log	


ATTACHMENT 4: SOIL SAMPLE LOGS (2RP-1657 and 2RP-2850)

 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS01	Date: 10/4/2018					
		Project Name: JRU 17	RP Number: 2RP-1657					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 2 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
		62.3		SS01	0			GRAVEL, berm fill, 20% sand, m-fine grained, grayish brown, moderate odor, staining  SAND, moist, brown/gray, poorly graded, m-f sand, staining, moderate odor
				SS01A	1			
		3.4		SS01B	2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			


 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS02	Date: 10/4/2018					
		Project Name: JRU 17	RP Number: 2RP-1657					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 2 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
		115.2		SS02	0			GRAVEL, berm fill, 20% sand, m-fine grained, grayish brown strong odor, staining  SAND, reddish brown, poorly graded, m-fine grained, strong odor, stain
				SS02A	1			
		4.7		SS02B	2			
					3			
					4			
					5			
					6			
					7			
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					10			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation</p>		Identifier: SS03	Date: 10/4/2018					
		Project Name: JRU 17	RP Number: 2RP-1657					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 2 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
				SS03	0		GP	GRAVEL, berm fill, 20% sand, m-fine grained, grayish brown strong odor, staining
	0.6	3.6		SS03A	1		SP	SAND, reddish brown, poorly graded, m-fine grained, strong odor, stain
	0.6	1.5		SS03B	2			
					3			
					4			
					5			
					6			
					7			
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					10			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS04	Date: 10/4/2018					
		Project Name: JRU 17	RP Number: 2RP-1657					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 2 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
				SS04	0		GP	GRAVEL, berm fill, 20% sand, m-fine grained, grayish brown strong odor, staining
		860.1		SS04A	1			
		843.3		SS04B	2		SP	SAND, reddish brown, poorly graded, m-fine grained, strong odor, stain
					3			
					4			
					5			
					6			
					7			
					8			
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					10			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation</p>		Identifier: SS05	Date: 10/4/2018					
		Project Name: JRU 17	RP Number: 2RP-1657					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 2 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
		875.1		SS05	0		GP	GRAVEL, berm fill, 20% sand, m-fine grained, grayish brown, moderate odor, staining
				SS05A	1		SP	dark gray staining visible
		17.9		SS05B	2			SAND, moist, brown/gray, poorly graded, m-f sand, staining, strong odor
					3			
					4			
					5			
					6			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS06	Date: 10/2/2018					
		Project Name: JRU 17	RP Number: 2RP-2850					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 4 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
	0.9	5.4		SS06	0			SAND/PEA GRAVEL
					1			
					2			
					3			
	6.2	2.6		SS06A	4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: SS07		Date: 10/2/2018		
				Project Name: JRU 17		RP Number: 2RP-2850		
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>				Logged By:		Method:		
Lat/Long: 32.33518, -103.81928		Field Screening: PID		Hole Diameter: NA		Total Depth: 4 feet bgs		
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
		5.0			0			SAND/PEA GRAVEL
					1			
					2			
	2.0	4.1		SS07	3			
	3.1	3.6		SS07A	4			
					5			
					6			
					7			
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					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: SS08		Date: 10/3/2018		
				Project Name: JRU 17		RP Number: 2RP-2850		
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>				Logged By:		Method:		
Lat/Long: 32.33518, -103.81928		Field Screening: PID		Hole Diameter: NA		Total Depth: 4 feet bgs		
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
	0.6	4.7		0.5	0			SAND/PEA GRAVEL
					1			
					2			
	4.6	153.8		SS08	3			
	3.1	3.6		SS08A	4			
					5			
					6			
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					10			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation</p>		Identifier: SS09	Date: 10/3/2018					
		Project Name: JRU 17	RP Number: 2RP-2850					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 4 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
		3.6			0			
					1			
					2			
	5.7	4.5		SS09	3			
	6.0	2.2		SS09A	4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS10	Date: 10/3/2018					
		Project Name: JRU 17	RP Number: 2RP-2850					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 4 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
	0.4	6.9			0			SAND/PEA GRAVEL
					1			
					2			
	1.8	2.6		SS010	3			
	1.7	3.1		SS10A	4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
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 <p>LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220</p> <p>Compliance · Engineering · Remediation</p>		Identifier: SS11	Date: 10/3/2018					
		Project Name: JRU 17	RP Number: 2RP-2850					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By:	Method:					
Lat/Long: 32.33518, -103.81928		Field Screening: PID	Hole Diameter: NA					
Total Depth: 4 feet bgs								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
					1			
					2			
	2.7	3.9		SS11	3			
	5.7	4.2		SS11A	4			
					5			
					6			
					7			
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					10			
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					12			

**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 233374

**CONDITIONS**

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 233374
	Action Type: [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