



**LT Environmental, Inc.**

3300 North "A" Street  
Building 1, Unit 103  
Midland, Texas 79705  
432.704.5178

March 25, 2020

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

**RE: Closure Request  
Thriller BWL Federal 001H  
Remediation Permit Number 2RP-4915  
Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing site assessment, soil sampling, and excavation activities at the Thriller BWL Federal 001H (Site) in Unit A, Section 32, Township 25 South, Range 29 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil after a release of crude oil and produced water at the Site.

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

## **RELEASE BACKGROUND**

On July 25, 2018, a flex pipe flow line was damaged from rubbing and flexing against a rock, resulting in the release of crude oil and produced water. Approximately 3 barrels (bbls) of crude oil and 51 bbls of produced water were released onto the surface of the well pad. A vacuum truck recovered 3 bbls of crude oil and 47 bbls of produced water; approximately 4 bbls of released fluids were unrecovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on August 3, 2018, and was assigned Remediation Permit (RP) Number 2RP-4915 (Attachment 1). The location referenced on the initial C-141 of Unit P, Section 30, Township 25 South, Range 29 East is the location of the well associated with release. However, the surface location of the release is in Unit A, Section 32, Township 25 South, Range 29 East, which is the location referenced on the final C-141 and



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

## SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of 19.15.29.12 of the NMAC. Depth to groundwater at the Site is estimated to be between 51 feet and 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 320532104001701, located approximately 2,056 feet west of the Site. The water well has a depth to groundwater of 98 feet and a total depth 128 feet. Ground surface elevation at the water well location is 2,988 feet above mean sea level (AMSL), which is approximately 4 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an unnamed dry wash located approximately 1,930 feet southeast of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a medium-potential karst area.

## CLOSURE CRITERIA

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

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

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

On June 26, 2019, LTE personnel arrived at the Site to evaluate the release extent. Site inspection and remediation efforts were postponed due to ongoing operations and drilling activities at the Site, near the release area. Remediation activity restrictions were imposed due to safety concerns at the Site.

LTE returned to the Site during February 2020, upon completion of drilling and operations activities. Due to the recent drilling and construction activities, no visible indications of the



release were identified. Potholes were advanced via backhoe at six locations within and around the documented release area to assess for potential soil impacts. Potholes PH01 through PH06 were advanced to a depth of 5 feet bgs. Three delineation soil samples were collected from each pothole from depths ranging from 1 foot to 5 feet bgs. Soil from the potholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for each pothole were logged on lithologic/soil sampling logs, which are included in Attachment 2. The pothole delineation soil sample locations are depicted on Figure 2.

Impacted soil was excavated from the release area as indicated by field screening activities for the delineation soil samples. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. Impacted soil was excavated to a depth of 5 feet bgs, in the area around pothole PH01. Following removal of impacted soil, LTE collected 5-point composite soil samples every 200 square feet from the sidewalls and floors of the excavation. The 5-point composite samples were collected by depositing five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 and SW02 were collected from the sidewalls of the excavation from depths ranging from the ground surface to 5 feet bgs. Composite soil samples FS01 and FS02 were collected from the floor of the excavation from a depth of 5 feet bgs. The excavation extent and excavation soil sample locations are depicted on Figure 3.

The delineation and excavation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were shipped at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of for analysis of BTEX following United States Environmental Protection Agency (USEPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following USEPA Method 8015M/D; and chloride following USEPA Method 300.0. Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 3.

The excavation measured approximately 400 square feet in area and was completed to a depth of 5 feet bgs. A total of approximately 80 cubic yards of impacted soil were removed from the excavations. The impacted soil was transported and properly disposed of at the R360 Landfill located in Hobbs, New Mexico.

## **ANALYTICAL RESULTS**

Laboratory analytical results for the delineation soil samples, collected from potholes PH02 through PH06, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results indicated that TPH and/or GRO/DRO concentrations exceeded the Closure Criteria in delineation soil samples PH01 and PH01A,



Billings, B.  
Page 4

collected at depths of 1 foot and 3 feet bgs, respectively. Subsequent delineation sample PH01B, collected at 5 feet bgs, was compliant with the Closure Criteria.

Impacted soil was excavated from the area around pothole PH01. Laboratory analytical results for excavation soil samples SW01, SW02, FS01, and FS02 indicated that BTEX, GRP/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the laboratory analytical results for the delineation and excavation soil samples, no further remediation was required. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

### CLOSURE REQUEST

Site assessment and soil sampling activities were completed within the release area, to assess for soil impacts resulting from the July 25, 2018, release of crude oil and produced water at the Site. Based on field screening activities and soil sample laboratory analytical results from the site assessment activities, impacted soil was excavated. Laboratory analytical results for the excavation soil samples indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria, and no further remediation was required.

The majority of the release was recovered during initial response activities. Initial response efforts, natural attenuation, and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Number 2RP-4915. XTO backfilled the excavation with material purchased locally and recontoured the Site to match pre-existing site conditions. An updated NMOCD Form C-141 is included in Attachment 1.

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

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink that reads 'Aimee Cole'.

Aimee Cole  
Project Environmental Scientist

A handwritten signature in black ink that reads 'Ashley L. Ager'.

Ashley L. Ager, P.G.  
Senior Geologist

cc: Kyle Littrell, XTO  
Ryan Mann, State Land Office  
Mike Bratcher, NMOCD



Billings, B.  
Page 5

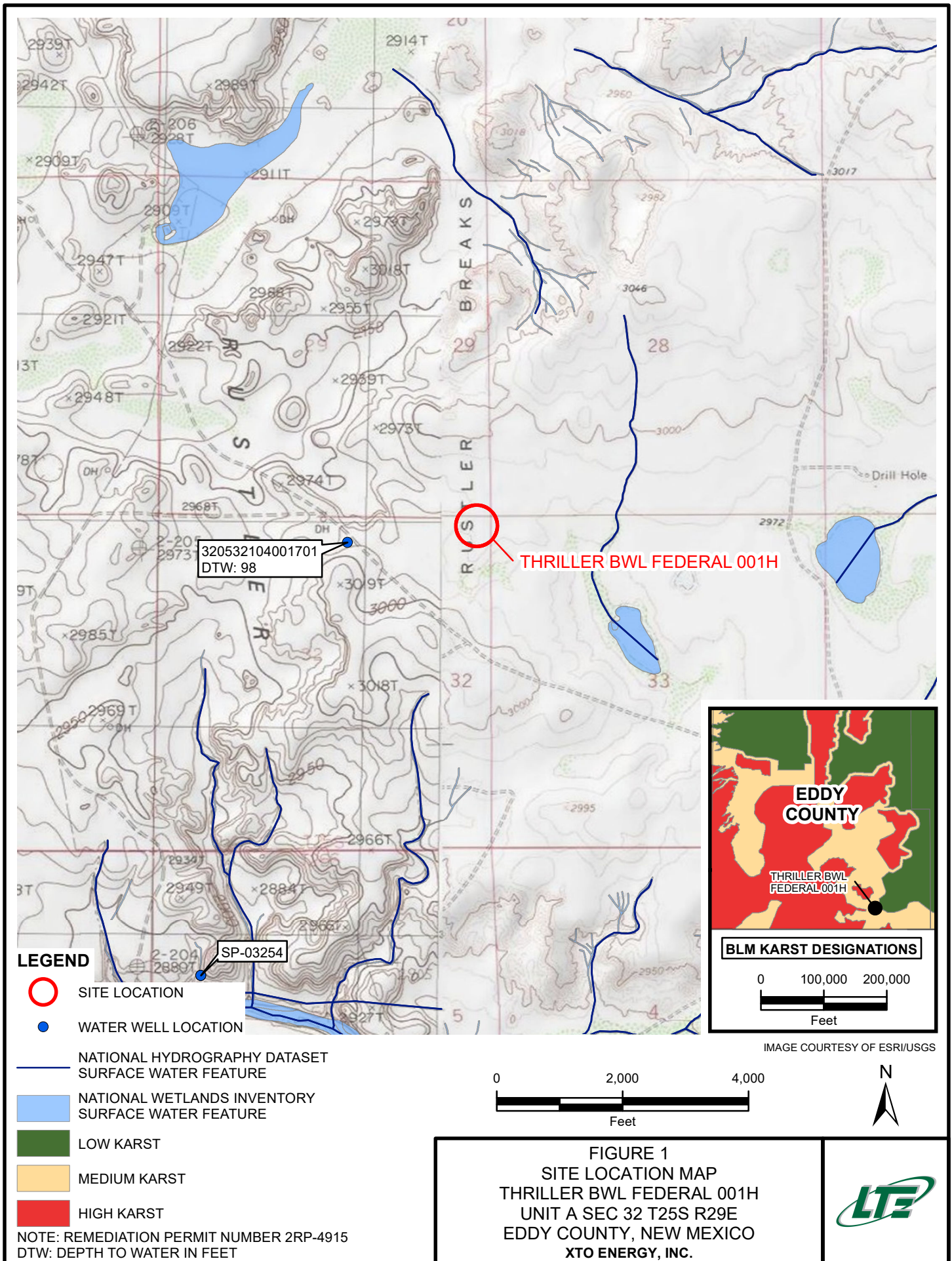
Attachments:

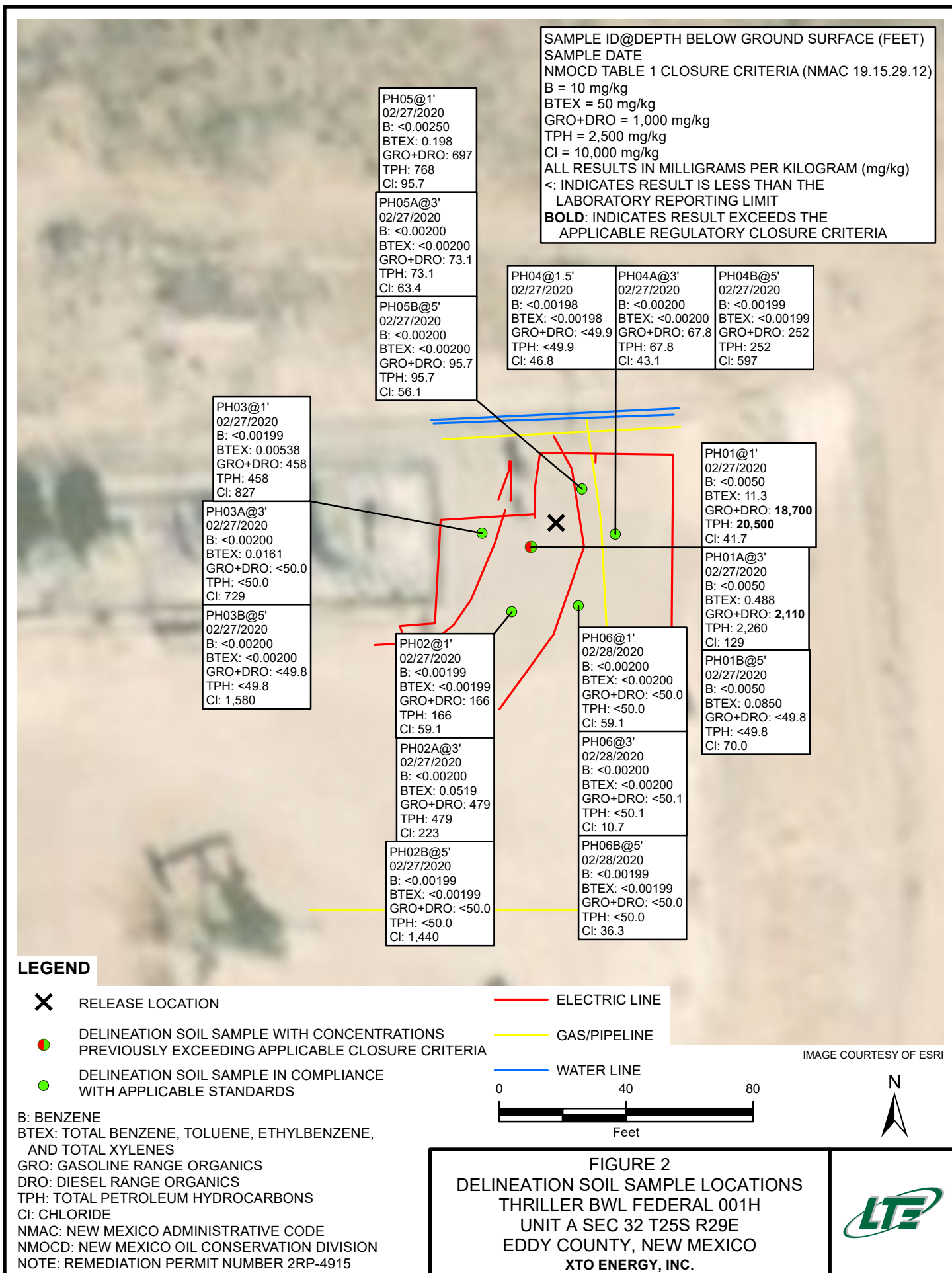
- Figure 1 Site Location Map
- Figure 2 Delineation Soil Sample Locations
- Figure 3 Excavation Soil Sample Locations
- Table 1 Soil Analytical Results
- Attachment 1 Initial/Final NMOCD Form C-141 (2RP-4915)
- Attachment 2 Lithologic / Soil Sample Logs
- Attachment 3 Photographic Log
- Attachment 4 Laboratory Analytical Reports

FIGURES



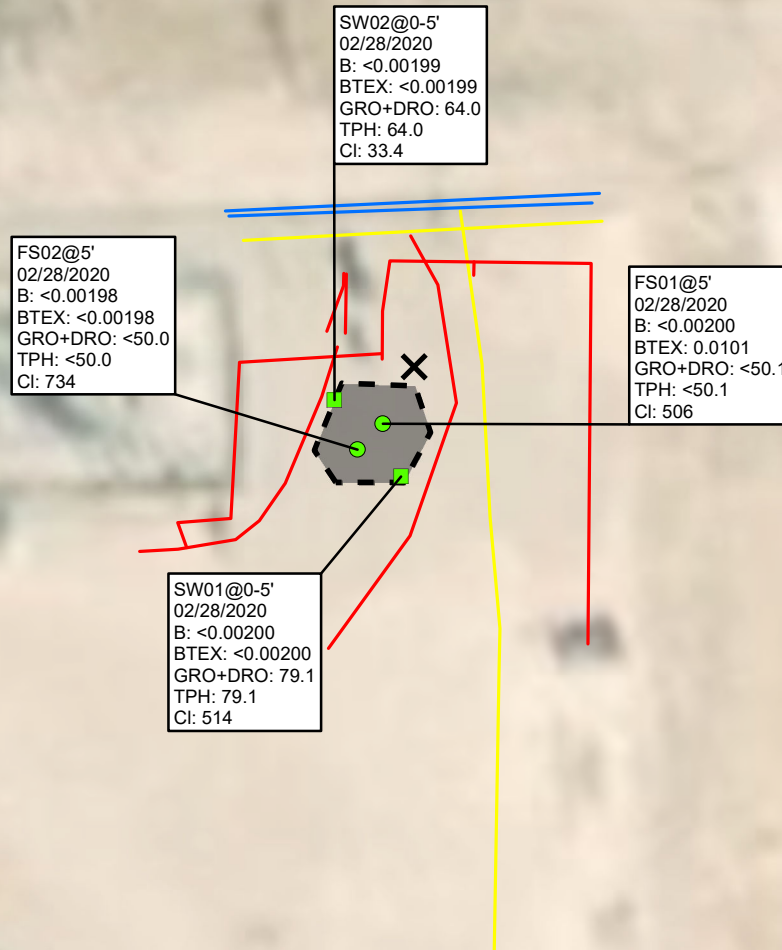








SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)  
 SAMPLE DATE  
 NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)  
 B = 10 mg/kg  
 BTEX = 50 mg/kg  
 GRO+DRO = 1,000 mg/kg  
 TPH = 2,500 mg/kg  
 Cl = 10,000 mg/kg  
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)  
 <: INDICATES RESULT IS LESS THAN THE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

**LEGEND**

- X** RELEASE LOCATION
- EXCAVATION FLOOR SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- EXCAVATION SIDEWALL SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- ELECTRIC LINE
- GAS/PIPELINE
- WATER LINE

**■** EXCAVATION EXTENT

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-4915

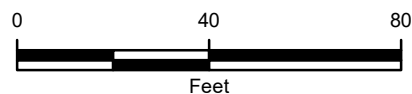


IMAGE COURTESY OF ESRI



**FIGURE 3**  
**EXCAVATION SOIL SAMPLE LOCATIONS**  
**THRILLER BWL FEDERAL 001H**  
**UNIT A SEC 32 T25S R29E**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**



TABLES



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

**THRILLER BWL FEDERAL 001H**  
**REMEDATION PERMIT NUMBER 2RP-4915**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
<b>NMOCD Table 1 Closure Criteria</b>			<b>10</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>1,000</b>	<b>2,500</b>	<b>10,000</b>
PH01	1	02/27/2020	<0.00500	0.424	1.63	9.23	11.3	2,310	16,400	1,740	<b>18,700</b>	<b>20,500</b>	41.7
PH01A	3	02/27/2020	<0.00500	0.00950	0.0705	0.408	0.488	115	1,990	151	<b>2,110</b>	2,260	129
PH01B	5	02/27/2020	<0.00500	<0.00500	<0.00500	0.0850	0.0850	<49.8	<49.8	<49.8	<49.8	<49.8	70.0
PH02	1	02/27/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	166	<50.1	166	166	59.1
PH02A	3	02/27/2020	<0.00200	<0.00200	0.0112	0.0407	0.0519	<50.1	479	<50.1	479	479	223
PH02B	5	02/27/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	1,440
PH03	1	02/27/2020	<0.00199	<0.00199	<0.00199	0.00538	0.00538	<50.0	458	<50.0	458	458	827
PH03A	3	02/27/2020	<0.00200	<0.00200	<0.00200	0.0161	0.0161	<50.0	<50.0	<50.0	<50.0	<50.0	729
PH03B	5	02/27/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	1,580
PH04	1.5	02/27/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	46.8
PH04A	3	02/27/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	67.8	<50.0	67.8	67.8	43.1
PH04B	5	02/27/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	252	<49.9	252	252	597
PH05	1	02/27/2020	<0.00250	<0.00250	0.0181	0.180	0.198	<50.1	697	71.2	697	768	95.7
PH05A	3	02/27/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	73.1	<50.2	73.1	73.1	63.4
PH05B	5	02/27/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	95.7	<49.9	95.7	95.7	56.1
PH06	1	02/28/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	59.1
PH06A	3	02/28/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	10.7
PH06B	5	02/28/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	36.3

**TABLE 1  
SOIL ANALYTICAL RESULTS**

**THRILLER BWL FEDERAL 001H  
REMEDATION PERMIT NUMBER 2RP-4915  
EDDY COUNTY, NEW MEXICO  
XTO ENERGY, INC.**

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
<b>NMOCD Table 1 Closure Criteria</b>			<b>10</b>	NE	NE	NE	<b>50</b>	NE	NE	NE	<b>1,000</b>	<b>2,500</b>	<b>10,000</b>
FS01	5	02/28/2020	<0.00200	<0.00200	<0.00200	0.0101	0.0101	<50.1	<50.1	<50.1	<50.1	<50.1	506
FS02	5	02/28/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	734
SW01	0 - 5	02/28/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	79.1	<50.1	79.1	79.1	514
SW02	0 - 5	02/28/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	64.0	<50.1	64.0	64.0	33.4

**Notes:**

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

ORO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

NE - not established

TPH - total petroleum hydrocarbons

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

< - indicates result is below laboratory reporting limits

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





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 April 3, 2017

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

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: XTO Energy OGRID: 5380	Contact: Kyle Littrell
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No: 432-221-7331
Facility Name: Thriller BWL Federal 001H	Facility Type: Exploration and Production
Surface Owner: Federal	Mineral Owner: Federal
Surface location of release is on State land. See attached email.	
API No: 30-015-43909	

### LOCATION OF RELEASE

Unit Letter P	Section 30	Township 25S	Range 29E	Feet from the 354	North/South Line South	Feet from the 660	East/West Line East	County Eddy
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Surface location of release is in  
Unit A, Sec 32, T25S, R29E

Latitude 32.093055 Longitude -103.998609 NAD83

### NATURE OF RELEASE

Type of Release Oil and produced water	Volume of Release 51bbl produced water, 3bbl oil	Volume Recovered 47bbl produced water, 3bbl oil
Source of Release Flow line	Date and Hour of Occurrence 7/25/2018, AM	Date and Hour of Discovery 7/25/2018, 8:00 AM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher and Maria Pruett (NMOCD), Jim Amos and Shelly Tucker (BLM), Ryan Mann (SLO)	
By Whom? Jake Foust	Date and Hour: 7/26/2018, 1:24 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

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

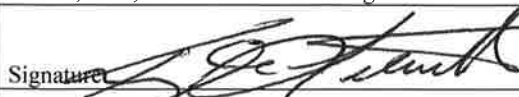
Describe Cause of Problem and Remedial Action Taken.\*

Release was from a flex pipe flowline rubbing and flexing against a rock. The flowline was repaired and is scheduled to be buried to prevent further damage.

Describe Area Affected and Cleanup Action Taken.\*

Fluid impacted pad surface, flowing south toward the center of the location. All fluid stayed on pad and there was no impact to the pasture. Vacuum trucks were dispatched and recovered 50bbl of standing fluid. An environmental contractor has been retained to assist with remediation efforts.

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>OIL CONSERVATION DIVISION</u>	
Printed Name: Kyle Littrell		Approved by Environmental Specialist: Maria Pruett	
Title: Environmental Coordinator	Approval Date: 08/11/18	Expiration Date: N/A	
E-mail Address: Kyle.Littrell@xtoenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 08-03-18 Phone: 432-221-7331	Confirm location		2RP-4915

\* Attach Additional Sheets If Necessary

A#: pMAP1822341664  
I#: nMAP1822341832

**Littrell, Kyle**

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**From:** Ruth, Amy  
**Sent:** Monday, August 13, 2018 5:14 PM  
**To:** Pruett, Maria, EMNRD; Bratcher, Mike, EMNRD; Mann, Ryan; Jim Amos; Tucker, Shelly (stucker@blm.gov)  
**Cc:** Littrell, Kyle; Sanders, Toady; McSpadden, Wes; Foust, Bryan  
**Subject:** RE: 2RP-4915 Initial C-141 - Thriller BWL Federal 1H (API 30-015-43909)

Good afternoon, Ms. Pruett,

Per our conversation this afternoon, we are confirming that the referenced release point occurred at the provided GPS coordinates (32.093055 N, -103.998609 W), though the released fluids came from the referenced well and API.

Again, please call me with any questions and have a good week.

Respectfully,

*Amy C. Ruth*

Delaware Basin Division

Environmental Coordinator

3104 E. Greene Street | Carlsbad, NM 88220 | M: 432.661.0571 | O: 575.689.3380



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**From:** Pruett, Maria, EMNRD [mailto:Maria.Pruett@state.nm.us]  
**Sent:** Saturday, August 11, 2018 11:46 AM  
**To:** Ruth, Amy; Bratcher, Mike, EMNRD; Mann, Ryan; Jim Amos; Tucker, Shelly (stucker@blm.gov)  
**Cc:** Littrell, Kyle; Sanders, Toady; McSpadden, Wes; Foust, Bryan  
**Subject:** 2RP-4915 Initial C-141 - Thriller BWL Federal 1H (API 30-015-43909)

Hello Ms. Ruth,

OCD has received your initial C-141, thank you! This has been assigned:2RP-4915.

Note there is an action item: this permit will expire Tuesday, August 14 without confirmation of location. Please let me know if you have any questions.

Best Regards,

*Maria Pruett*

Environmental Specialist

N.M. Oil Conservation Division  
District 2  
811 S. 1<sup>st</sup> Street  
Artesia, NM 88210  
Desk: 575 748-1283 X 101  
Cell: 575 840-5963  
Fax: 575748-9720

---

**From:** Ruth, Amy <Amy\_Ruth@xtoenergy.com>  
**Sent:** Wednesday, August 8, 2018 1:38 PM  
**To:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Pruett, Maria, EMNRD <Maria.Pruett@state.nm.us>; Mann, Ryan <rmann@slo.state.nm.us>; Jim Amos <jamos@blm.gov>; Tucker, Shelly (stucker@blm.gov) <stucker@blm.gov>  
**Cc:** Littrell, Kyle <Kyle\_Littrell@xtoenergy.com>; Sanders, Toady <Toady\_Sanders@xtoenergy.com>; McSpadden, Wes <Wes\_McSpadden@xtoenergy.com>; Foust, Bryan <Bryan\_Foust@xtoenergy.com>  
**Subject:** Initial C-141 - Thriller BWL Federal 1H (API 30-015-43909)

Good Afternoon,

Attached is the initial form C-141 detailing the release from the referenced facility. Please call us with any questions or concerns. Thank you.

Respectfully,

*Amy C. Ruth*  
Delaware Basin Division  
Environmental Coordinator  
3104 E. Greene Street | Carlsbad, NM 88220 | M: 432.661.0571 | O: 575.689.3380



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**From:** Foust, Bryan  
**Sent:** Thursday, July 26, 2018 1:24 PM  
**To:** Bratcher, Mike, EMNRD; [maria.pruett@state.nm.us](mailto:maria.pruett@state.nm.us); Mann, Ryan; Jim Amos; Tucker, Shelly ([stucker@blm.gov](mailto:stucker@blm.gov))  
**Cc:** Littrell, Kyle; Ruth, Amy; Sanders, Toady; McSpadden, Wes  
**Subject:** Release notification - Thriller BWL Federal 1H (API 30-015-43909)

Good afternoon, this is sent as notification of a release of fluids in an amount greater than 25 barrels. The associated well is on federal land, but the release originated from a flowline on the pad at the Shocker 32 battery, which is on state land. Details will be provided with an initial form C-141. Please contact us with any questions.

Thank you,  
Jake Foust  
XTO Energy  
432-266-2663

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-4915
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-4915
Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

### Location of Release Source

Latitude N 32.093055 Longitude W -103.998609  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Thriller BWL Federal 001H	Site Type: Exploration and Production
Date Release Discovered: 7/25/2018	API# (if applicable): 30-015-43909

Unit Letter	Section	Township	Range	County
A	32	25S	29E	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): 3	Volume Recovered (bbls): 3
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls): 51	Volume Recovered (bbls): 47
	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

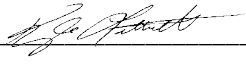
The release was a result of a flex pipe flowline rubbing and flexing against a rock. The flowline was repaired and buried.

Incident ID	
District RP	2RP-4915
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 was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notice was given by Jake Foust to Mike Bratcher/Maria Pruett (NMOCD), Jim Amos/Shelly Tucker (BLM), and Ryan Mann (SLO) on July 26, 2018, at 1:24 PM.	

## 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>Kyle Littrell</u>	Title: <u>SH&amp;E Supervisor</u>
Signature: 	Date: <u>3-23-2020</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-4915
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>51-100</u> (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.

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	
District RP	2RP-4915
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: \_\_\_\_\_ Date: 3-23-2020

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

**OCD Only**

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

Incident ID	NMAP1822341832
District RP	2RP-4915
Facility ID	
Application ID	

## Closure

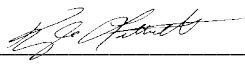
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 3-23-2020

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

### OCD Only

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

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

Closure Approved by: Bradford Billings Date: 02/01/2021

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

ATTACHMENT 2: LITHOLOGIC / SOIL SAMPLE LOGS



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of WSP**

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

BH or PH Name:	
----------------	--

PH01

Date:

2.27.20

Site Name: Thriller

RP or Incident Number: 2RP-4915

LTE Job Number:

## LITHOLOGIC / SOIL SAMPLING LOG

Logged By: SL

Method:	Backhoe
---------	---------

Hole Diameter:	
----------------	--

Total Depth:	5'
--------------	----

Lat/Long:

Field Screening:


Chloride, PID

Comments:

TD @ 5

[illegible]



 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name: <b>PH02</b>		Date: <b>2.27.20</b>				
		Site Name: <b>Thriller</b>						
		RP or Incident Number: <b>2KP-4915</b>						
		LTE Job Number:						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Lat/Long:		Field Screening: Chloride, PID		Logged By: <b>SL</b>				
				Method: <b>Backhoe</b>				
				Hole Diameter: <b>—</b>				
				Total Depth: <b>5'</b>				
Comments: <b>TDC 5'</b>								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D 1186	56.5	N	PH02	1	0	SP	0-5 Sand w/ caliche, tan/brown, odor, no stain, m-f, poorly graded, tan caliche	
					1			
					2			
D 1896	116.6	N	PH02A	3	3		-4- increase caliche, white-tan	
					4			
					5			
D 1651	11.4	N	PH03A	5	5		<b>TDC 5'</b>	
					6			
					7			
					8			
					9			
					10			
					11			
					12			



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

BH or PH Name:	
----------------	--

2403

Date:

2.27.20

Site Name: *Thriller*

RP or Incident Number: 2RP-4915

LTE Job Number:

## LITHOLOGIC / SOIL SAMPLING LOG

Logged By: *SL*

52

**Method:**

## Backhoe

Hole Diameter:	
----------------	--

Total Depth:	
--------------	--

54

Lat/Long:

Field Screening:

Chloride, PID

Comments:

TD @ 5'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	896	213.6	N	PH03	1	1		0-5
						2	CCH	Caliche, tan, white, odor, no stain, -
						3		m-f, poorly graded, tan sand
D	1156	5.0	N	PH03A	3	3		
						4		4- increase in sand
D	1483	3.5	N	PH03B	5	5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		



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of WSP**

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

BH or PH Name:	
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୧୫୭୫

Date:

2.27.20

Site Name: Thriller

RP or Incident Number: 2RP-4915

LTE Job Number:

Logged By: SL

Method: Backhoe

Total Depth:	5'
--------------	----

## LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening:	
------------------	--

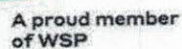
Chloride, PID

Comments:

TD @ 5'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	2896	4.7	N	PH04	1.5	1	CHE	0-5 Caliche, tan-white, odor, no stain, w/ Sand, tan, m-f, poorly graded
D	2896	8.6	N	PH04A	3	2		
						3		
						4		
D	2896	51.1	N	PH04B	5	5		
						6		TD C5'
						7		
						8		
						9		
						10		
						11		
						12		





Date:

2-27-20

LTE Job Number:

Method:	Backhoe
---------	---------

Total Depth:	5'
--------------	----

## Lat/Long:

Field Screening:  
Chloride, PID

Comments:

TD @ 5'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	2896	121	N	PH05	1	0	CCH	0-5  Caliche w/ sand, no stain, odor, white-tan, poorly graded, m-f, Brown-tan sand
					2			
D	2896	47.6	N	PH05A	3			
					4			
D	2896	46.8	N	PH05B	5			
					6			TD @ 5'
					7			
					8			
					9			
					10			
					11			
					12			



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of WSP**

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

BH or PH Name:	
----------------	--

PH06

Date:

2.28.20

Site Name: Thriller

RP or Incident Number: 2RP-4915

LTE Job Number:

## LITHOLOGIC / SOIL SAMPLING LOG

Logged By: SL

Method:	Track hoe
---------	-----------

Lat/Long:

Field Screening:

Hole Diameter:	
----------------	--

Total Depth: 5'

Comments:

TB @ 5'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	2896	2.1	N	PH06	1	0 1 2 3 4 5	ccltE	0-5 Caliche w/ sand, tan, brown, no odor, no stain, c-m. poorly graded
D	2896	1.6	N	PH06A	3			
D	2896	2.4	N	PH06B	5			
						6 7 8 9 10 11 12		To @ 5'



ATTACHMENT 3: PHOTOGRAPHIC LOG



## PHOTOGRAPHIC LOG



**Photograph 1:** West facing view of the release area.



**Photograph 2:** South facing view of the release area.



**Photograph 3:** West facing view of open excavation.



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

## PHOTOGRAPHIC LOG



**Photograph 5:** View of backfilled excavation.



**Photograph 6:** View of backfilled excavation.

ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS







# Analytical Report 654041

for

**LT Environmental, Inc.**

**Project Manager: Dan Moir**

**Thriller**

**012918162**

**03.02.2020**

Collected By: Client

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

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

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

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



03.02.2020

Project Manager: **Dan Moir**

**LT Environmental, Inc.**

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **654041**

**Thriller**

Project Address:

**Dan Moir:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 654041. 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. 654041 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

*A Small Business and Minority Company*

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



**Sample Cross Reference 654041****LT Environmental, Inc., Arvada, CO**

Thriller

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
PH01	S	02.27.2020 12:20	1 ft	654041-001
PH01A	S	02.27.2020 12:40	3 ft	654041-002
PH01B	S	02.27.2020 13:00	5 ft	654041-003
PH02	S	02.27.2020 13:10	1 ft	654041-004
PH02A	S	02.27.2020 13:20	3 ft	654041-005
PH02B	S	02.27.2020 13:30	5 ft	654041-006
PH03	S	02.27.2020 13:40	1 ft	654041-007
PH03A	S	02.27.2020 13:50	3 ft	654041-008
PH03B	S	02.27.2020 14:00	5 ft	654041-009
PH04	S	02.27.2020 14:10	1.5 ft	654041-010
PH04A	S	02.27.2020 14:20	3 ft	654041-011
PH04B	S	02.27.2020 14:35	5 ft	654041-012
PH05	S	02.27.2020 15:00	1 ft	654041-013
PH05A	S	02.27.2020 15:15	3 ft	654041-014
PH05B	S	02.27.2020 15:30	5 ft	654041-015



## CASE NARRATIVE

*Client Name: LT Environmental, Inc.*

*Project Name: Thriller*

Project ID: 012918162  
Work Order Number(s): 654041

Report Date: 03.02.2020  
Date Received: 02.28.2020

---

### **Sample receipt non conformances and comments:**

---

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

None

### **Analytical non conformances and comments:**

Batch: LBA-3118140 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 654041

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 02.28.2020 08:35

Report Date: 03.02.2020 12:22

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	654041-001	654041-002	654041-003	654041-004	654041-005	654041-006
	<i>Field Id:</i>	PH01	PH01A	PH01B	PH02	PH02A	PH02B
	<i>Depth:</i>	1- ft	3- ft	5- ft	1- ft	3- ft	5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	02.27.2020 12:20	02.27.2020 12:40	02.27.2020 13:00	02.27.2020 13:10	02.27.2020 13:20	02.27.2020 13:30
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34
	<i>Analyzed:</i>	02.28.2020 13:12	02.28.2020 13:32	02.28.2020 13:52	02.28.2020 14:13	02.28.2020 14:33	02.29.2020 07:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00500 0.00500	<0.00500 0.00500	<0.00500 0.00500	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199
Toluene		0.424 0.0200	0.00950 0.00500	<0.00500 0.00500	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		1.63 0.0200	0.0705 0.0200	<0.00500 0.00500	<0.00199 0.00199	0.0112 0.00200	<0.00199 0.00199
m,p-Xylenes		5.34 0.0400	0.169 0.0400	0.0590 0.0400	<0.00398 0.00398	0.0203 0.00400	<0.00398 0.00398
o-Xylene		3.89 0.0200	0.239 0.0200	0.0260 0.0200	<0.00199 0.00199	0.0204 0.00200	<0.00199 0.00199
Total Xylenes		9.23 0.0200	0.408 0.0200	0.0850 0.0200	<0.00199 0.00199	0.0407 0.00200	<0.00199 0.00199
Total BTEX		11.3 0.00500	0.488 0.00500	0.0850 0.00500	<0.00199 0.00199	0.0519 0.00200	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30
	<i>Analyzed:</i>	02.28.2020 10:56	02.28.2020 11:13	02.28.2020 11:19	02.28.2020 11:25	02.28.2020 11:30	02.28.2020 11:47
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		41.7 9.98	129 50.3	70.0 10.1	59.1 9.98	223 9.98	1440 49.6
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00
	<i>Analyzed:</i>	03.02.2020 10:48	02.28.2020 15:11	02.28.2020 13:51	02.28.2020 14:11	02.28.2020 14:11	02.28.2020 14:31
	<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)		2310 250	115 50.0	<49.8 49.8	<50.1 50.1	<50.1 50.1	<50.0 50.0
Diesel Range Organics (DRO)		16400 250	1990 50.0	<49.8 49.8	166 50.1	479 50.1	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		1740 250	151 50.0	<49.8 49.8	<50.1 50.1	<50.1 50.1	<50.0 50.0
Total GRO-DRO		18700 250	2110 50.0	<49.8 49.8	166 50.1	479 50.1	<50.0 50.0
Total TPH		20500 250	2260 50.0	<49.8 49.8	166 50.1	479 50.1	<50.0 50.0

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 654041

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 02.28.2020 08:35

Report Date: 03.02.2020 12:22

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	654041-007	654041-008	654041-009	654041-010	654041-011	654041-012
	<i>Field Id:</i>	PH03	PH03A	PH03B	PH04	PH04A	PH04B
	<i>Depth:</i>	1- ft	3- ft	5- ft	1.5- ft	3- ft	5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	02.27.2020 13:40	02.27.2020 13:50	02.27.2020 14:00	02.27.2020 14:10	02.27.2020 14:20	02.27.2020 14:35
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34
	<i>Analyzed:</i>	02.28.2020 15:14	02.28.2020 15:34	02.28.2020 15:55	02.28.2020 17:37	02.28.2020 17:57	02.28.2020 18:18
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	0.0161 0.00399	<0.00399 0.00399	<0.00397 0.00397	<0.00400 0.00400	<0.00398 0.00398
o-Xylene		0.00538 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		0.00538 0.00199	0.0161 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		0.00538 0.00199	0.0161 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30
	<i>Analyzed:</i>	02.28.2020 11:53	02.28.2020 11:59	02.28.2020 12:04	02.28.2020 12:10	02.28.2020 12:16	02.28.2020 12:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		827 50.4	729 49.7	1580 50.1	46.8 10.1	43.1 9.92	597 49.8
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00
	<i>Analyzed:</i>	02.28.2020 14:31	02.28.2020 14:51	02.28.2020 14:51	02.28.2020 16:20	02.28.2020 16:20	02.28.2020 16:40
	<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)		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.9 49.9
Diesel Range Organics (DRO)		458 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	67.8 50.0	252 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.9 49.9
Total GRO-DRO		458 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	67.8 50.0	252 49.9
Total TPH		458 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	67.8 50.0	252 49.9

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Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 654041

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 02.28.2020 08:35

Report Date: 03.02.2020 12:22

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	654041-013	654041-014	654041-015			
	<i>Field Id:</i>	PH05	PH05A	PH05B			
	<i>Depth:</i>	1- ft	3- ft	5- ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	02.27.2020 15:00	02.27.2020 15:15	02.27.2020 15:30			
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	02.28.2020 10:34	02.28.2020 10:34	02.28.2020 10:34			
	<i>Analyzed:</i>	02.28.2020 18:38	02.28.2020 18:58	02.28.2020 16:15			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00250 0.00250	<0.00200 0.00200	<0.00200 0.00200			
Toluene		<0.00250 0.00250	<0.00200 0.00200	<0.00200 0.00200			
Ethylbenzene		0.0181 0.0100	<0.00200 0.00200	<0.00200 0.00200			
m,p-Xylenes		0.107 0.0200	<0.00400 0.00400	<0.00401 0.00401			
o-Xylene		0.0729 0.0100	<0.00200 0.00200	<0.00200 0.00200			
Total Xylenes		0.180 0.0100	<0.00200 0.00200	<0.00200 0.00200			
Total BTEX		0.198 0.00250	<0.00200 0.00200	<0.00200 0.00200			
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	02.28.2020 10:30	02.28.2020 10:30	02.28.2020 10:30			
	<i>Analyzed:</i>	02.28.2020 12:39	02.28.2020 12:56	02.28.2020 13:01			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		95.7 49.9	63.4 50.1	56.1 9.94			
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	02.28.2020 10:00	02.28.2020 10:00	02.28.2020 10:00			
	<i>Analyzed:</i>	02.28.2020 16:40	02.28.2020 17:00	02.28.2020 13:31			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<50.2 50.2	<49.9 49.9			
Diesel Range Organics (DRO)		697 50.1	73.1 50.2	95.7 49.9			
Motor Oil Range Hydrocarbons (MRO)		71.2 50.1	<50.2 50.2	<49.9 49.9			
Total GRO-DRO		697 50.1	73.1 50.2	95.7 49.9			
Total TPH		768 50.1	73.1 50.2	95.7 49.9			

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Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-001 Date Collected: 02.27.2020 12:20 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	41.7	9.98	mg/kg	02.28.2020 10:56		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2310	250	mg/kg	03.02.2020 10:48		5
Diesel Range Organics (DRO)	C10C28DRO	16400	250	mg/kg	03.02.2020 10:48		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1740	250	mg/kg	03.02.2020 10:48		5
Total GRO-DRO	PHC628	18700	250	mg/kg	03.02.2020 10:48		5
Total TPH	PHC635	20500	250	mg/kg	03.02.2020 10:48		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	132	%	70-135	03.02.2020 10:48	
o-Terphenyl	84-15-1	129	%	70-135	03.02.2020 10:48	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01**  
 Lab Sample Id: 654041-001

Matrix: Soil  
 Date Collected: 02.27.2020 12:20

Date Received: 02.28.2020 08:35  
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00500	0.00500	mg/kg	02.28.2020 13:12	U	1
Toluene	108-88-3	<b>0.424</b>	0.0200	mg/kg	02.28.2020 13:12		1
Ethylbenzene	100-41-4	<b>1.63</b>	0.0200	mg/kg	02.28.2020 13:12		1
m,p-Xylenes	179601-23-1	<b>5.34</b>	0.0400	mg/kg	02.28.2020 13:12		1
o-Xylene	95-47-6	<b>3.89</b>	0.0200	mg/kg	02.28.2020 13:12		1
Total Xylenes	1330-20-7	<b>9.23</b>	0.0200	mg/kg	02.28.2020 13:12		1
Total BTEX		<b>11.3</b>	0.00500	mg/kg	02.28.2020 13:12		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	126	%	70-130	02.28.2020 13:12		
1,4-Difluorobenzene	540-36-3	94	%	70-130	02.28.2020 13:12		





# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01A** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-002 Date Collected: 02.27.2020 12:40 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	129	50.3	mg/kg	02.28.2020 11:13		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	115	50.0	mg/kg	02.28.2020 15:11		1
Diesel Range Organics (DRO)	C10C28DRO	1990	50.0	mg/kg	02.28.2020 15:11		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	151	50.0	mg/kg	02.28.2020 15:11		1
Total GRO-DRO	PHC628	2110	50.0	mg/kg	02.28.2020 15:11		1
Total TPH	PHC635	2260	50.0	mg/kg	02.28.2020 15:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	02.28.2020 15:11	
o-Terphenyl	84-15-1	131	%	70-135	02.28.2020 15:11	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01A**  
 Lab Sample Id: 654041-002

Matrix: Soil  
 Date Collected: 02.27.2020 12:40

Date Received: 02.28.2020 08:35  
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00500	0.00500	mg/kg	02.28.2020 13:32	U	1
Toluene	108-88-3	<b>0.00950</b>	0.00500	mg/kg	02.28.2020 13:32		1
Ethylbenzene	100-41-4	<b>0.0705</b>	0.0200	mg/kg	02.28.2020 13:32		1
m,p-Xylenes	179601-23-1	<b>0.169</b>	0.0400	mg/kg	02.28.2020 13:32		1
o-Xylene	95-47-6	<b>0.239</b>	0.0200	mg/kg	02.28.2020 13:32		1
Total Xylenes	1330-20-7	<b>0.408</b>	0.0200	mg/kg	02.28.2020 13:32		1
Total BTEX		<b>0.488</b>	0.00500	mg/kg	02.28.2020 13:32		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	70-130	02.28.2020 13:32		
1,4-Difluorobenzene	540-36-3	100	%	70-130	02.28.2020 13:32		



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01B** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-003 Date Collected: 02.27.2020 13:00 Sample Depth: 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.0	10.1	mg/kg	02.28.2020 11:19		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	02.28.2020 13:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	02.28.2020 13:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	02.28.2020 13:51	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	02.28.2020 13:51	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	02.28.2020 13:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	02.28.2020 13:51	
o-Terphenyl	84-15-1	102	%	70-135	02.28.2020 13:51	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH01B**  
 Lab Sample Id: 654041-003

Matrix: Soil  
 Date Collected: 02.27.2020 13:00

Date Received: 02.28.2020 08:35  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00500	0.00500	mg/kg	02.28.2020 13:52	U	1
Toluene	108-88-3	<0.00500	0.00500	mg/kg	02.28.2020 13:52	U	1
Ethylbenzene	100-41-4	<0.00500	0.00500	mg/kg	02.28.2020 13:52	U	1
<b>m,p-Xylenes</b>	179601-23-1	<b>0.0590</b>	0.0400	mg/kg	02.28.2020 13:52		1
<b>o-Xylene</b>	95-47-6	<b>0.0260</b>	0.0200	mg/kg	02.28.2020 13:52		1
<b>Total Xylenes</b>	1330-20-7	<b>0.0850</b>	0.0200	mg/kg	02.28.2020 13:52		1
<b>Total BTEX</b>		<b>0.0850</b>	0.00500	mg/kg	02.28.2020 13:52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.28.2020 13:52	
4-Bromofluorobenzene	460-00-4	122	%	70-130	02.28.2020 13:52	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-004 Date Collected: 02.27.2020 13:10 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	59.1	9.98	mg/kg	02.28.2020 11:25		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.28.2020 14:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	166	50.1	mg/kg	02.28.2020 14:11		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.28.2020 14:11	U	1
Total GRO-DRO	PHC628	166	50.1	mg/kg	02.28.2020 14:11		1
Total TPH	PHC635	166	50.1	mg/kg	02.28.2020 14:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.28.2020 14:11	
o-Terphenyl	84-15-1	120	%	70-135	02.28.2020 14:11	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02**  
 Lab Sample Id: 654041-004

Matrix: Soil  
 Date Collected: 02.27.2020 13:10

Date Received: 02.28.2020 08:35  
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.28.2020 14:13	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.28.2020 14:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	02.28.2020 14:13	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.28.2020 14:13	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02A** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-005 Date Collected: 02.27.2020 13:20 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	223	9.98	mg/kg	02.28.2020 11:30		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.28.2020 14:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	479	50.1	mg/kg	02.28.2020 14:11		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.28.2020 14:11	U	1
Total GRO-DRO	PHC628	479	50.1	mg/kg	02.28.2020 14:11		1
Total TPH	PHC635	479	50.1	mg/kg	02.28.2020 14:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	02.28.2020 14:11	
o-Terphenyl	84-15-1	116	%	70-135	02.28.2020 14:11	





# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02A**  
 Lab Sample Id: 654041-005

Matrix: Soil  
 Date Collected: 02.27.2020 13:20

Date Received: 02.28.2020 08:35  
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 14:33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 14:33	U	1
Ethylbenzene	100-41-4	<b>0.0112</b>	0.00200	mg/kg	02.28.2020 14:33		1
m,p-Xylenes	179601-23-1	<b>0.0203</b>	0.00400	mg/kg	02.28.2020 14:33		1
o-Xylene	95-47-6	<b>0.0204</b>	0.00200	mg/kg	02.28.2020 14:33		1
Total Xylenes	1330-20-7	<b>0.0407</b>	0.00200	mg/kg	02.28.2020 14:33		1
Total BTEX		<b>0.0519</b>	0.00200	mg/kg	02.28.2020 14:33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	02.28.2020 14:33	
1,4-Difluorobenzene	540-36-3	100	%	70-130	02.28.2020 14:33	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02B** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-006 Date Collected: 02.27.2020 13:30 Sample Depth: 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1440	49.6	mg/kg	02.28.2020 11:47		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	02.28.2020 14:31	
o-Terphenyl	84-15-1	116	%	70-135	02.28.2020 14:31	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH02B**  
 Lab Sample Id: 654041-006

Matrix: Soil  
 Date Collected: 02.27.2020 13:30

Date Received: 02.28.2020 08:35  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.29.2020 07:33	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.29.2020 07:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.29.2020 07:33	
1,4-Difluorobenzene	540-36-3	103	%	70-130	02.29.2020 07:33	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-007 Date Collected: 02.27.2020 13:40 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	827	50.4	mg/kg	02.28.2020 11:53		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	458	50.0	mg/kg	02.28.2020 14:31		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.28.2020 14:31	U	1
Total GRO-DRO	PHC628	458	50.0	mg/kg	02.28.2020 14:31		1
Total TPH	PHC635	458	50.0	mg/kg	02.28.2020 14:31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	02.28.2020 14:31	
o-Terphenyl	84-15-1	105	%	70-135	02.28.2020 14:31	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03**  
Lab Sample Id: 654041-007

Matrix: Soil  
Date Collected: 02.27.2020 13:40

Date Received: 02.28.2020 08:35  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.28.2020 15:14	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.28.2020 15:14	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.28.2020 15:14	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.28.2020 15:14	U	1
<b>o-Xylene</b>	95-47-6	<b>0.00538</b>	0.00199	mg/kg	02.28.2020 15:14		1
<b>Total Xylenes</b>	1330-20-7	<b>0.00538</b>	0.00199	mg/kg	02.28.2020 15:14		1
<b>Total BTEX</b>		<b>0.00538</b>	0.00199	mg/kg	02.28.2020 15:14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	02.28.2020 15:14	
4-Bromofluorobenzene	460-00-4	97	%	70-130	02.28.2020 15:14	





# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03A** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-008 Date Collected: 02.27.2020 13:50 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	729	49.7	mg/kg	02.28.2020 11:59		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.28.2020 14:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.28.2020 14:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.28.2020 14:51	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.28.2020 14:51	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.28.2020 14:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.28.2020 14:51	
o-Terphenyl	84-15-1	118	%	70-135	02.28.2020 14:51	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03A**  
 Lab Sample Id: 654041-008

Matrix: Soil  
 Date Collected: 02.27.2020 13:50

Date Received: 02.28.2020 08:35  
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 15:34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 15:34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.28.2020 15:34	U	1
<b>m,p-Xylenes</b>	179601-23-1	<b>0.0161</b>	0.00399	mg/kg	02.28.2020 15:34		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.28.2020 15:34	U	1
<b>Total Xylenes</b>	1330-20-7	<b>0.0161</b>	0.00200	mg/kg	02.28.2020 15:34		1
<b>Total BTEX</b>		<b>0.0161</b>	0.00200	mg/kg	02.28.2020 15:34		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	116	%	70-130	02.28.2020 15:34		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.28.2020 15:34		



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03B** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-009 Date Collected: 02.27.2020 14:00 Sample Depth: 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1580	50.1	mg/kg	02.28.2020 12:04		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	02.28.2020 14:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	02.28.2020 14:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	02.28.2020 14:51	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	02.28.2020 14:51	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	02.28.2020 14:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.28.2020 14:51	
o-Terphenyl	84-15-1	112	%	70-135	02.28.2020 14:51	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH03B**  
 Lab Sample Id: 654041-009

Matrix: Soil  
 Date Collected: 02.27.2020 14:00

Date Received: 02.28.2020 08:35  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.28.2020 15:55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.28.2020 15:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.28.2020 15:55	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.28.2020 15:55	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-010 Date Collected: 02.27.2020 14:10 Sample Depth: 1.5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.8	10.1	mg/kg	02.28.2020 12:10		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.28.2020 16:20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.28.2020 16:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.28.2020 16:20	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.28.2020 16:20	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.28.2020 16:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	02.28.2020 16:20	
o-Terphenyl	84-15-1	132	%	70-135	02.28.2020 16:20	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04**  
 Lab Sample Id: 654041-010

Matrix: Soil  
 Date Collected: 02.27.2020 14:10

Date Received: 02.28.2020 08:35  
 Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.28.2020 17:37	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.28.2020 17:37	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.28.2020 17:37	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	02.28.2020 17:37	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.28.2020 17:37	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.28.2020 17:37	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.28.2020 17:37	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	02.28.2020 17:37		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.28.2020 17:37		





# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04A** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-011 Date Collected: 02.27.2020 14:20 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	43.1	9.92	mg/kg	02.28.2020 12:16		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.28.2020 16:20	U	1
Diesel Range Organics (DRO)	C10C28DRO	67.8	50.0	mg/kg	02.28.2020 16:20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.28.2020 16:20	U	1
Total GRO-DRO	PHC628	67.8	50.0	mg/kg	02.28.2020 16:20		1
Total TPH	PHC635	67.8	50.0	mg/kg	02.28.2020 16:20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	02.28.2020 16:20	
o-Terphenyl	84-15-1	105	%	70-135	02.28.2020 16:20	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04A**  
Lab Sample Id: 654041-011

Matrix: Soil  
Date Collected: 02.27.2020 14:20

Date Received: 02.28.2020 08:35  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.28.2020 17:57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.28.2020 17:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	02.28.2020 17:57	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.28.2020 17:57	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04B** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-012 Date Collected: 02.27.2020 14:35 Sample Depth: 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	597	49.8	mg/kg	02.28.2020 12:33		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.28.2020 16:40	U	1
Diesel Range Organics (DRO)	C10C28DRO	252	49.9	mg/kg	02.28.2020 16:40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.28.2020 16:40	U	1
Total GRO-DRO	PHC628	252	49.9	mg/kg	02.28.2020 16:40		1
Total TPH	PHC635	252	49.9	mg/kg	02.28.2020 16:40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	02.28.2020 16:40	
o-Terphenyl	84-15-1	128	%	70-135	02.28.2020 16:40	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH04B**  
 Lab Sample Id: 654041-012

Matrix: Soil  
 Date Collected: 02.27.2020 14:35

Date Received: 02.28.2020 08:35  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.28.2020 18:18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.28.2020 18:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	02.28.2020 18:18	
1,4-Difluorobenzene	540-36-3	100	%	70-130	02.28.2020 18:18	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-013 Date Collected: 02.27.2020 15:00 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	95.7	49.9	mg/kg	02.28.2020 12:39		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.28.2020 16:40	U	1
Diesel Range Organics (DRO)	C10C28DRO	697	50.1	mg/kg	02.28.2020 16:40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	71.2	50.1	mg/kg	02.28.2020 16:40		1
Total GRO-DRO	PHC628	697	50.1	mg/kg	02.28.2020 16:40		1
Total TPH	PHC635	768	50.1	mg/kg	02.28.2020 16:40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	02.28.2020 16:40	
o-Terphenyl	84-15-1	115	%	70-135	02.28.2020 16:40	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05**  
 Lab Sample Id: 654041-013

Matrix: Soil  
 Date Collected: 02.27.2020 15:00

Date Received: 02.28.2020 08:35  
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00250	0.00250	mg/kg	02.28.2020 18:38	U	1
Toluene	108-88-3	<0.00250	0.00250	mg/kg	02.28.2020 18:38	U	1
Ethylbenzene	100-41-4	<b>0.0181</b>	0.0100	mg/kg	02.28.2020 18:38		1
m,p-Xylenes	179601-23-1	<b>0.107</b>	0.0200	mg/kg	02.28.2020 18:38		1
o-Xylene	95-47-6	<b>0.0729</b>	0.0100	mg/kg	02.28.2020 18:38		1
Total Xylenes	1330-20-7	<b>0.180</b>	0.0100	mg/kg	02.28.2020 18:38		1
Total BTEX		<b>0.198</b>	0.00250	mg/kg	02.28.2020 18:38		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	104	%	70-130	02.28.2020 18:38		
1,4-Difluorobenzene	540-36-3	97	%	70-130	02.28.2020 18:38		





# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05A** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-014 Date Collected: 02.27.2020 15:15 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	63.4	50.1	mg/kg	02.28.2020 12:56		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.28.2020 17:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	73.1	50.2	mg/kg	02.28.2020 17:00		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.28.2020 17:00	U	1
Total GRO-DRO	PHC628	73.1	50.2	mg/kg	02.28.2020 17:00		1
Total TPH	PHC635	73.1	50.2	mg/kg	02.28.2020 17:00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	02.28.2020 17:00	
o-Terphenyl	84-15-1	124	%	70-135	02.28.2020 17:00	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05A**  
 Lab Sample Id: 654041-014

Matrix: Soil  
 Date Collected: 02.27.2020 15:15

Date Received: 02.28.2020 08:35  
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 18:58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 18:58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.28.2020 18:58	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.28.2020 18:58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.28.2020 18:58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.28.2020 18:58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.28.2020 18:58	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	02.28.2020 18:58		
1,4-Difluorobenzene	540-36-3	101	%	70-130	02.28.2020 18:58		



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05B** Matrix: Soil Date Received: 02.28.2020 08:35  
 Lab Sample Id: 654041-015 Date Collected: 02.27.2020 15:30 Sample Depth: 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.2020 10:30 Basis: Wet Weight  
 Seq Number: 3118156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	56.1	9.94	mg/kg	02.28.2020 13:01		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: CAC Date Prep: 02.28.2020 10:00 Basis: Wet Weight  
 Seq Number: 3118137

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.28.2020 13:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	95.7	49.9	mg/kg	02.28.2020 13:31		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.28.2020 13:31	U	1
Total GRO-DRO	PHC628	95.7	49.9	mg/kg	02.28.2020 13:31		1
Total TPH	PHC635	95.7	49.9	mg/kg	02.28.2020 13:31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	02.28.2020 13:31	
o-Terphenyl	84-15-1	119	%	70-135	02.28.2020 13:31	



# Certificate of Analytical Results 654041

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH05B**  
 Lab Sample Id: 654041-015

Matrix: Soil  
 Date Collected: 02.27.2020 15:30

Date Received: 02.28.2020 08:35  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.2020 10:34

Basis: Wet Weight

Seq Number: 3118140

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.28.2020 16:15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.28.2020 16:15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.28.2020 16:15	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.28.2020 16:15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.28.2020 16:15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.28.2020 16:15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.28.2020 16:15	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	02.28.2020 16:15		
1,4-Difluorobenzene	540-36-3	102	%	70-130	02.28.2020 16:15		



## Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.      **ND** Not Detected.

**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.**  
Thriller

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118156

MB Sample Id: 7697721-1-BLK

Matrix: Solid

LCS Sample Id: 7697721-1-BKS

Prep Method: E300P

Date Prep: 02.28.2020

LCSD Sample Id: 7697721-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	02.28.2020 10:45	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118156

Parent Sample Id: 654041-001

Matrix: Soil

MS Sample Id: 654041-001 S

Prep Method: E300P

Date Prep: 02.28.2020

MSD Sample Id: 654041-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	41.7	200	257	108	256	107	90-110	0	20	mg/kg	02.28.2020 11:02	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118156

Parent Sample Id: 654041-011

Matrix: Soil

MS Sample Id: 654041-011 S

Prep Method: E300P

Date Prep: 02.28.2020

MSD Sample Id: 654041-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.1	200	241	99	240	99	90-110	0	20	mg/kg	02.28.2020 12:21	

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118137

MB Sample Id: 7697709-1-BLK

Matrix: Solid

LCS Sample Id: 7697709-1-BKS

Prep Method: SW8015P

Date Prep: 02.28.2020

LCSD Sample Id: 7697709-1-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)	<50.0	1000	967	97	907	91	70-135	6	35	mg/kg	02.28.2020 12:51	
Diesel Range Organics (DRO)	<50.0	1000	950	95	882	88	70-135	7	35	mg/kg	02.28.2020 12:51	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		108		114		70-135	%	02.28.2020 12:51
o-Terphenyl	120		112		107		70-135	%	02.28.2020 12:51

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118137

Matrix: Solid

MB Sample Id: 7697709-1-BLK

Prep Method: SW8015P

Date Prep: 02.28.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.28.2020 12:31	

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.**  
**Thriller**

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118137

Parent Sample Id: 654041-015

Matrix: Soil

MS Sample Id: 654041-015 S

Prep Method: SW8015P

Date Prep: 02.28.2020

MSD Sample Id: 654041-015 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)	<49.8	995	735	74	831	83	70-135	12	35	mg/kg	02.28.2020 13:31	
Diesel Range Organics (DRO)	95.7	995	902	81	976	88	70-135	8	35	mg/kg	02.28.2020 13:31	

**Surrogate**

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		106		70-135	%	02.28.2020 13:31
o-Terphenyl	108		111		70-135	%	02.28.2020 13:31

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

Seq Number: 3118140

MB Sample Id: 7697713-1-BLK

Matrix: Solid

LCS Sample Id: 7697713-1-BKS

Prep Method: SW5030B

Date Prep: 02.28.2020

LCSD Sample Id: 7697713-1-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	0.109	109	0.106	106	70-130	3	35	mg/kg	02.28.2020 11:09	
Toluene	<0.00200	0.100	0.106	106	0.103	103	70-130	3	35	mg/kg	02.28.2020 11:09	
Ethylbenzene	<0.00200	0.100	0.102	102	0.0993	99	71-129	3	35	mg/kg	02.28.2020 11:09	
m,p-Xylenes	<0.00400	0.200	0.212	106	0.205	103	70-135	3	35	mg/kg	02.28.2020 11:09	
o-Xylene	<0.00200	0.100	0.105	105	0.102	102	71-133	3	35	mg/kg	02.28.2020 11:09	

**Surrogate**

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		105		70-130	%	02.28.2020 11:09
4-Bromofluorobenzene	94		95		95		70-130	%	02.28.2020 11:09

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

Seq Number: 3118140

Parent Sample Id: 654041-015

Matrix: Soil

MS Sample Id: 654041-015 S

Prep Method: SW5030B

Date Prep: 02.28.2020

MSD Sample Id: 654041-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.114	114	0.119	119	70-130	4	35	mg/kg	02.28.2020 11:50	
Toluene	<0.00201	0.100	0.111	111	0.116	116	70-130	4	35	mg/kg	02.28.2020 11:50	
Ethylbenzene	<0.00201	0.100	0.105	105	0.111	111	71-129	6	35	mg/kg	02.28.2020 11:50	
m,p-Xylenes	<0.00402	0.201	0.214	106	0.233	117	70-135	9	35	mg/kg	02.28.2020 11:50	
o-Xylene	<0.00201	0.100	0.106	106	0.111	111	71-133	5	35	mg/kg	02.28.2020 11:50	

**Surrogate**

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		103		70-130	%	02.28.2020 11:50
4-Bromofluorobenzene	96		122		70-130	%	02.28.2020 11:50

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

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 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



Houston, TX (281) 240-4200 Dallas, X (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 (813-486-1111)  
Hobbs, NM (575-382-7550)

Work Order No: 057091

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## Chain of Custody

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slco@ltenv.com, dmoir@ltenv.com, acole@ltenv.com

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> RP <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"/> ST/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="text"/>

Project Name:	<i>The Miller</i>	Turn Around
Project Number:	<i>012918162</i>	Routine <input type="checkbox"/>
P.O. Number:	<i>2RP-4915</i>	Rush: <i>24H</i>
Sampler's Name:	<i>Spencer Lo</i>	Due Date:

SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Temperature (°C):		1.2			Thermometer ID		
Received intact:		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No				
Cooler Custody Seals:		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		Correction Factor:	-0.2	
Sample Custody Seals:		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		Total Containers:	15	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (E)	BTEX (E)	Chloride	Sample Comments
PH01	S	2.27.20	1220	1	1	X	X	X	
PH01A			1240	3					
PH01B			1300	5					
PH02			1310	1					
PH02A			1320	3					
PH02B			1330	5					
PH03			1340	1					
PH03A			1350	3					
PH03B			1400	5					
PH04			1410	1.5					

<b>Total</b>	<b>200.7 / 6010</b>	<b>200.8 / 6020:</b>	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
<i>Circle Method(s) and Metal(s) to be analyzed</i>			TCLP / SPLP	6010:	8RCRA		Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U												
			<b>1631 / 245.1 / 7470 / 7471 : Hg</b>																															

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Perls</i>	<i>Anna Byers</i>	2/28/20 0750	<i>Anna Byers</i>	<i>[Signature]</i>	2/28/20 08:33
			4		
			6		





## Chain of Custody

Work Order No:

1054041

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334  
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slm@xenco.com, dmoir@xenco.com, acolde@xenco.com

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

## ANALYSIS REQUEST

## Work Order Notes

Project Name:	Thermin	Turn Around	
Project Number:	012918162	Routine	<input type="checkbox"/>
P.O. Number:	2RP-4915	Rush:	24H
Sampler's Name:	Spencer Lo	Due Date:	

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
-----------------------	--------	--------------	--------------	-------

Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)
----------------------	----------------	-------------------	----------------------

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

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr 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
<i>[Signature]</i>	<i>[Signature]</i>	2/20/20 07:50	<i>[Signature]</i>	<i>[Signature]</i>	2/20/20 08:35

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02.28.2020 08.35.00 AM

Work Order #: 654041

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007


Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	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:

  
Elizabeth McClellan

Date: 02.28.2020

Checklist reviewed by:

  
Jessica Kramer

Date: 02.28.2020

# **Analytical Report 654154**

**for  
LT Environmental, Inc.**

**Project Manager: Dan Moir**

**Thriller**

**012918162**

**02-MAR-20**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



02-MAR-20

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

Reference: XENCO Report No(s): **654154**  
**Thriller**  
Project Address:

**Dan Moir:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 654154. 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. 654154 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 654154

LT Environmental, Inc., Arvada, CO

Thriller

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW01	S	02-28-20 12:25	0 - 5 ft	654154-001



## CASE NARRATIVE

*Client Name: LT Environmental, Inc.*

*Project Name: Thriller*

Project ID: 012918162

Work Order Number(s): 654154

Report Date: 02-MAR-20

Date Received: 02/28/2020

---

**Sample receipt non conformances and comments:**

None

---

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

None

**Analytical non conformances and comments:**

Batch: LBA-3118153 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 654154

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Feb-28-20 03:20 pm

Report Date: 02-MAR-20

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	654154-001					
	<b>Field Id:</b>	SW01					
	<b>Depth:</b>	0-5 ft					
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	Feb-28-20 12:25					
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Feb-28-20 18:00					
	<b>Analyzed:</b>	Feb-29-20 00:42					
	<b>Units/RL:</b>	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00400 0.00400					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
<b>Chloride by EPA 300</b>	<b>Extracted:</b>	Feb-28-20 17:00					
	<b>Analyzed:</b>	Feb-28-20 21:19					
	<b>Units/RL:</b>	mg/kg RL					
Chloride		514 10.0					
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Feb-28-20 19:09					
	<b>Analyzed:</b>	Feb-29-20 07:43					
	<b>Units/RL:</b>	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1					
Diesel Range Organics (DRO)		79.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total GRO-DRO		79.1 50.1					
Total TPH		79.1 50.1					

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 654154

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **SW01** Matrix: Soil Date Received: 02.28.20 15.20  
 Lab Sample Id: 654154-001 Date Collected: 02.28.20 12.25 Sample Depth: 0 - 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 17.00 Basis: Wet Weight  
 Seq Number: 3118170

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	514	10.0	mg/kg	02.28.20 21.19		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 19.09 Basis: Wet Weight  
 Seq Number: 3118192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	79.1	50.1	mg/kg	02.29.20 07.43		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Total GRO-DRO	PHC628	79.1	50.1	mg/kg	02.29.20 07.43		1
Total TPH	PHC635	79.1	50.1	mg/kg	02.29.20 07.43		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	02.29.20 07.43	
o-Terphenyl	84-15-1	119	%	70-135	02.29.20 07.43	



# Certificate of Analytical Results 654154

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **SW01**  
 Lab Sample Id: 654154-001

Matrix: Soil  
 Date Collected: 02.28.20 12.25

Date Received: 02.28.20 15.20  
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.29.20 00.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.29.20 00.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.29.20 00.42	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.29.20 00.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.29.20 00.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.29.20 00.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.29.20 00.42	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	02.29.20 00.42		
4-Bromofluorobenzene	460-00-4	92	%	70-130	02.29.20 00.42		



## 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      **SQL** Sample 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.**  
**Thriller**

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

MB Sample Id: 7697767-1-BLK

Matrix: Solid

LCS Sample Id: 7697767-1-BKS

Prep Method: E300P

Date Prep: 02.28.20

LCSD Sample Id: 7697767-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	225	90	90-110	11	20	mg/kg	02.28.20 20:45	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654052-001

Matrix: Soil

MS Sample Id: 654052-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654052-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	45.5	200	258	106	260	107	90-110	1	20	mg/kg	02.28.20 21:02	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654164-001

Matrix: Soil

MS Sample Id: 654164-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654164-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	216	199	420	103	423	104	90-110	1	20	mg/kg	02.28.20 22:27	

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

MB Sample Id: 7697771-1-BLK

Matrix: Solid

LCS Sample Id: 7697771-1-BKS

Prep Method: SW8015P

Date Prep: 02.28.20

LCSD Sample Id: 7697771-1-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)	<50.0	1000	885	89	910	91	70-135	3	35	mg/kg	02.29.20 06:24	
Diesel Range Organics (DRO)	<50.0	1000	961	96	987	99	70-135	3	35	mg/kg	02.29.20 06:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		111		113		70-135	%	02.29.20 06:24
o-Terphenyl	108		109		111		70-135	%	02.29.20 06:24

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

Matrix: Solid

MB Sample Id: 7697771-1-BLK

Prep Method: SW8015P

Date Prep: 02.28.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.29.20 06:05	

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.

## Thriller

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3118192

Parent Sample Id: 654051-029

Matrix: Soil

MS Sample Id: 654051-029 S

Prep Method: SW8015P

Date Prep: 02.28.20

MSD Sample Id: 654051-029 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)	<50.5	1010	964	95	906	91	70-135	6	35	mg/kg	03.02.20 12:44	
Diesel Range Organics (DRO)	<50.5	1010	1190	118	1020	102	70-135	15	35	mg/kg	03.02.20 12:44	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		115		70-135	%	03.02.20 12:44
o-Terphenyl	128		114		70-135	%	03.02.20 12:44

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

MB Sample Id: 7697768-1-BLK

Matrix: Solid

LCS Sample Id: 7697768-1-BKS

Prep Method: SW5030B

Date Prep: 02.28.20

LCSD Sample Id: 7697768-1-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	0.119	119	0.116	116	70-130	3	35	mg/kg	02.28.20 22:19	
Toluene	<0.00200	0.100	0.108	108	0.106	106	70-130	2	35	mg/kg	02.28.20 22:19	
Ethylbenzene	<0.00200	0.100	0.103	103	0.101	101	71-129	2	35	mg/kg	02.28.20 22:19	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.198	99	70-135	2	35	mg/kg	02.28.20 22:19	
o-Xylene	<0.00200	0.100	0.103	103	0.101	101	71-133	2	35	mg/kg	02.28.20 22:19	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		111		110		70-130	%	02.28.20 22:19
4-Bromofluorobenzene	92		88		88		70-130	%	02.28.20 22:19

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

Parent Sample Id: 654051-024

Matrix: Soil

MS Sample Id: 654051-024 S

Prep Method: SW5030B

Date Prep: 02.28.20

MSD Sample Id: 654051-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.113	114	0.104	104	70-130	8	35	mg/kg	02.28.20 23:00	
Toluene	<0.00199	0.0994	0.104	105	0.0941	94	70-130	10	35	mg/kg	02.28.20 23:00	
Ethylbenzene	<0.00199	0.0994	0.0990	100	0.0878	88	71-129	12	35	mg/kg	02.28.20 23:00	
m,p-Xylenes	<0.00398	0.199	0.192	96	0.170	85	70-135	12	35	mg/kg	02.28.20 23:00	
o-Xylene	<0.00199	0.0994	0.0973	98	0.0873	87	71-133	11	35	mg/kg	02.28.20 23:00	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		109		70-130	%	02.28.20 23:00
4-Bromofluorobenzene	92		89		70-130	%	02.28.20 23:00

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

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334  
Midland, TX (432-704-6440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296  
Phoenix AZ (480) 355-0900 Atlanta GA (770) 449-8800 Tampa FL (813) 975-3827/7550  
Phoenix NM (505) 382-7550

Work Order No: 054159

## Chain of Custody

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slm@ltenv.com, dmoir@ltenv.com, acole@ltenv.com

<b>Work Order Comments</b>			
<b>Program:</b> UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>			
<b>State of Project:</b>			
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV <input type="checkbox"/>			
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: <input type="checkbox"/>			

<b>Project Name:</b>	Thriller	<b>Turn Around</b>	<b>ANALYSIS REQUEST</b>							<b>Work Order Notes</b>
<b>Project Number:</b>	012918162	Routine <input type="checkbox"/>								
<b>P.O. Number:</b>		Rush: 24H								
<b>Sampler's Name:</b>	Spencer Lo	Due Date:								

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

Number of Containers

PA 8015)

EPA 0=8021)

e (EPA 300.0)

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

[illegible]



Total	200.7 / 6010	200.8 / 6020:
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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 to 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
		2/28/20 15:20			



Client: LT Environmental, Inc.

Date/ Time Received: 02/28/2020 03:20:00 PM

Work Order #: 654154

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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:

Elizabeth McClellan

Date: 02/28/2020

Checklist reviewed by:

Jessica Kramer

Date: 02/28/2020

# **Analytical Report 654157**

**for  
LT Environmental, Inc.**

**Project Manager: Dan Moir**

**Thriller**

**012918162**

**02-MAR-20**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)





02-MAR-20

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

Reference: XENCO Report No(s): **654157**  
**Thriller**  
Project Address:

**Dan Moir:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 654157. 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. 654157 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 654157****LT Environmental, Inc., Arvada, CO**

Thriller

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
FS01	S	02-28-20 11:15	0 - 5 ft	654157-001
FS02	S	02-28-20 12:40	0 - 5 ft	654157-002
SW02	S	02-28-20 12:10	0 - 5 ft	654157-003



## CASE NARRATIVE

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

**Project Name:** Thriller

Project ID: 012918162

Work Order Number(s): 654157

Report Date: 02-MAR-20

Date Received: 02/28/2020

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**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-3118153 BTEX by EPA 8021B

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





# Certificate of Analysis Summary 654157

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Feb-28-20 03:20 pm

Report Date: 02-MAR-20

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	654157-001	654157-002	654157-003			
	<b>Field Id:</b>	FS01	FS02	SW02			
	<b>Depth:</b>	0-5 ft	0-5 ft	0-5 ft			
	<b>Matrix:</b>	SOIL	SOIL	SOIL			
	<b>Sampled:</b>	Feb-28-20 11:15	Feb-28-20 12:40	Feb-28-20 12:10			
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Feb-28-20 18:00	Feb-28-20 18:00	Feb-28-20 18:00			
	<b>Analyzed:</b>	Feb-29-20 01:02	Feb-29-20 01:23	Feb-29-20 01:43			
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199			
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199			
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199			
m,p-Xylenes		<0.00399 0.00399	<0.00397 0.00397	<0.00398 0.00398			
o-Xylene		0.0101 0.00200	<0.00198 0.00198	<0.00199 0.00199			
Total Xylenes		0.0101 0.00200	<0.00198 0.00198	<0.00199 0.00199			
Total BTEX		0.0101 0.00200	<0.00198 0.00198	<0.00199 0.00199			
<b>Chloride by EPA 300</b>	<b>Extracted:</b>	Feb-28-20 17:00	Feb-28-20 17:00	Feb-28-20 17:00			
	<b>Analyzed:</b>	Feb-28-20 21:24	Feb-28-20 21:30	Feb-28-20 21:36			
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		506 10.1	734 9.92	33.4 9.98			
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Feb-28-20 19:09	Feb-28-20 19:09	Feb-28-20 19:09			
	<b>Analyzed:</b>	Feb-29-20 07:43	Feb-29-20 08:03	Feb-29-20 08:03			
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<50.0 50.0	<50.1 50.1			
Diesel Range Organics (DRO)		<50.1 50.1	<50.0 50.0	64.0 50.1			
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.0 50.0	<50.1 50.1			
Total GRO-DRO		<50.1 50.1	<50.0 50.0	64.0 50.1			
Total TPH		<50.1 50.1	<50.0 50.0	64.0 50.1			

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*

Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **FS01** Matrix: Soil Date Received: 02.28.20 15.20  
 Lab Sample Id: 654157-001 Date Collected: 02.28.20 11.15 Sample Depth: 0 - 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 17.00 Basis: Wet Weight  
 Seq Number: 3118170

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	506	10.1	mg/kg	02.28.20 21.24		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 19.09 Basis: Wet Weight  
 Seq Number: 3118192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.29.20 07.43	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.29.20 07.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	02.29.20 07.43	
o-Terphenyl	84-15-1	88	%	70-135	02.29.20 07.43	



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **FS01**  
 Lab Sample Id: 654157-001

Matrix: Soil  
 Date Collected: 02.28.20 11.15

Date Received: 02.28.20 15.20  
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.29.20 01.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.29.20 01.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.29.20 01.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.29.20 01.02	U	1
<b>o-Xylene</b>	95-47-6	<b>0.0101</b>	0.00200	mg/kg	02.29.20 01.02		1
<b>Total Xylenes</b>	1330-20-7	<b>0.0101</b>	0.00200	mg/kg	02.29.20 01.02		1
<b>Total BTEX</b>		<b>0.0101</b>	0.00200	mg/kg	02.29.20 01.02		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	02.29.20 01.02		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.29.20 01.02		



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **FS02**  
Lab Sample Id: 654157-002

Matrix: Soil  
Date Collected: 02.28.20 12.40

Date Received: 02.28.20 15.20  
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3118170

Date Prep: 02.28.20 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	734	9.92	mg/kg	02.28.20 21.30		1

Analytical Method: TPH by SW8015 Mod

Tech: MAB

Analyst: MAB

Seq Number: 3118192

Date Prep: 02.28.20 19.09

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.29.20 08.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.29.20 08.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.29.20 08.03	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.29.20 08.03	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.29.20 08.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	02.29.20 08.03	
o-Terphenyl	84-15-1	118	%	70-135	02.29.20 08.03	



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **FS02**  
 Lab Sample Id: 654157-002

Matrix: Soil  
 Date Collected: 02.28.20 12.40

Date Received: 02.28.20 15.20  
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.29.20 01.23	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.29.20 01.23	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.29.20 01.23	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	02.29.20 01.23	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.29.20 01.23	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.29.20 01.23	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.29.20 01.23	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	92	%	70-130	02.29.20 01.23		
1,4-Difluorobenzene	540-36-3	111	%	70-130	02.29.20 01.23		



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **SW02** Matrix: Soil Date Received: 02.28.20 15.20  
 Lab Sample Id: 654157-003 Date Collected: 02.28.20 12.10 Sample Depth: 0 - 5 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 17.00 Basis: Wet Weight  
 Seq Number: 3118170

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.4	9.98	mg/kg	02.28.20 21.36		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 19.09 Basis: Wet Weight  
 Seq Number: 3118192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.29.20 08.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	64.0	50.1	mg/kg	02.29.20 08.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.29.20 08.03	U	1
Total GRO-DRO	PHC628	64.0	50.1	mg/kg	02.29.20 08.03		1
Total TPH	PHC635	64.0	50.1	mg/kg	02.29.20 08.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-135	02.29.20 08.03	
o-Terphenyl	84-15-1	85	%	70-135	02.29.20 08.03	



# Certificate of Analytical Results 654157

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **SW02**  
 Lab Sample Id: 654157-003

Matrix: Soil  
 Date Collected: 02.28.20 12.10

Date Received: 02.28.20 15.20  
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.29.20 01.43	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.29.20 01.43	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.29.20 01.43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.29.20 01.43	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.29.20 01.43	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.29.20 01.43	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.29.20 01.43	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	89	%	70-130	02.29.20 01.43		
1,4-Difluorobenzene	540-36-3	89	%	70-130	02.29.20 01.43		





## 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.**  
**Thriller**

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

MB Sample Id: 7697767-1-BLK

Matrix: Solid

LCS Sample Id: 7697767-1-BKS

Prep Method: E300P

Date Prep: 02.28.20

LCSD Sample Id: 7697767-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	225	90	90-110	11	20	mg/kg	02.28.20 20:45	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654052-001

Matrix: Soil

MS Sample Id: 654052-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654052-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	45.5	200	258	106	260	107	90-110	1	20	mg/kg	02.28.20 21:02	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654164-001

Matrix: Soil

MS Sample Id: 654164-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654164-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	216	199	420	103	423	104	90-110	1	20	mg/kg	02.28.20 22:27	

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

MB Sample Id: 7697771-1-BLK

Matrix: Solid

LCS Sample Id: 7697771-1-BKS

Prep Method: SW8015P

Date Prep: 02.28.20

LCSD Sample Id: 7697771-1-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)	<50.0	1000	885	89	910	91	70-135	3	35	mg/kg	02.29.20 06:24	
Diesel Range Organics (DRO)	<50.0	1000	961	96	987	99	70-135	3	35	mg/kg	02.29.20 06:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		111		113		70-135	%	02.29.20 06:24
o-Terphenyl	108		109		111		70-135	%	02.29.20 06:24

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

Matrix: Solid

MB Sample Id: 7697771-1-BLK

Prep Method: SW8015P

Date Prep: 02.28.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.29.20 06:05	

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.

## Thriller

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3118192

Parent Sample Id: 654051-029

Matrix: Soil

MS Sample Id: 654051-029 S

Prep Method: SW8015P

Date Prep: 02.28.20

MSD Sample Id: 654051-029 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)	<50.5	1010	964	95	906	91	70-135	6	35	mg/kg	03.02.20 12:44	
Diesel Range Organics (DRO)	<50.5	1010	1190	118	1020	102	70-135	15	35	mg/kg	03.02.20 12:44	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		115		70-135	%	03.02.20 12:44
o-Terphenyl	128		114		70-135	%	03.02.20 12:44

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

MB Sample Id: 7697768-1-BLK

Matrix: Solid

LCS Sample Id: 7697768-1-BKS

Prep Method: SW5030B

Date Prep: 02.28.20

LCSD Sample Id: 7697768-1-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	0.119	119	0.116	116	70-130	3	35	mg/kg	02.28.20 22:19	
Toluene	<0.00200	0.100	0.108	108	0.106	106	70-130	2	35	mg/kg	02.28.20 22:19	
Ethylbenzene	<0.00200	0.100	0.103	103	0.101	101	71-129	2	35	mg/kg	02.28.20 22:19	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.198	99	70-135	2	35	mg/kg	02.28.20 22:19	
o-Xylene	<0.00200	0.100	0.103	103	0.101	101	71-133	2	35	mg/kg	02.28.20 22:19	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		111		110		70-130	%	02.28.20 22:19
4-Bromofluorobenzene	92		88		88		70-130	%	02.28.20 22:19

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

Parent Sample Id: 654051-024

Matrix: Soil

MS Sample Id: 654051-024 S

Prep Method: SW5030B

Date Prep: 02.28.20

MSD Sample Id: 654051-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.113	114	0.104	104	70-130	8	35	mg/kg	02.28.20 23:00	
Toluene	<0.00199	0.0994	0.104	105	0.0941	94	70-130	10	35	mg/kg	02.28.20 23:00	
Ethylbenzene	<0.00199	0.0994	0.0990	100	0.0878	88	71-129	12	35	mg/kg	02.28.20 23:00	
m,p-Xylenes	<0.00398	0.199	0.192	96	0.170	85	70-135	12	35	mg/kg	02.28.20 23:00	
o-Xylene	<0.00199	0.0994	0.0973	98	0.0873	87	71-133	11	35	mg/kg	02.28.20 23:00	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		109		70-130	%	02.28.20 23:00
4-Bromofluorobenzene	92		89		70-130	%	02.28.20 23:00

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



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3333  
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) 281-1111

254157

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> RP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input checked="" type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting Level II	<input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other: _____



[illegible]

Number of Containers	
EPA 8015)	
EPA 0=8021)	
(EPA 300.0)	
TAT starts the day received by the Lab. If it is not received by the Lab, it will start the day after the date received by the Lab.	

[illegible]

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

[illegible]

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7/28/20 15:20			



Client: LT Environmental, Inc.

Date/ Time Received: 02/28/2020 03:20:00 PM

Work Order #: 654157

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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:

Elizabeth McClellan

Date: 02/28/2020

Checklist reviewed by:

Jessica Kramer

Date: 02/28/2020

# **Analytical Report 654160**

**for  
LT Environmental, Inc.**

**Project Manager: Dan Moir**

**Thriller**

**012918162**

**02-MAR-20**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)





02-MAR-20

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

Reference: XENCO Report No(s): **654160**  
**Thriller**  
Project Address:

**Dan Moir:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 654160. 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. 654160 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 654160****LT Environmental, Inc., Arvada, CO**

Thriller

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH06	S	02-28-20 13:10	1 ft	654160-001
PH06A	S	02-28-20 13:20	3 ft	654160-002
PH06B	S	02-28-20 13:30	5 ft	654160-003



## CASE NARRATIVE

*Client Name: LT Environmental, Inc.*

*Project Name: Thriller*

Project ID: 012918162

Work Order Number(s): 654160

Report Date: 02-MAR-20

Date Received: 02/28/2020

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**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-3118153 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 654160

LT Environmental, Inc., Arvada, CO

Project Name: Thriller

Project Id: 012918162

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Feb-28-20 03:20 pm

Report Date: 02-MAR-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	654160-001	654160-002	654160-003			
	<i>Field Id:</i>	PH06	PH06A	PH06B			
	<i>Depth:</i>	1- ft	3- ft	5- ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Feb-28-20 13:10	Feb-28-20 13:20	Feb-28-20 13:30			
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Feb-28-20 18:00	Feb-28-20 18:00	Feb-28-20 18:00			
	<i>Analyzed:</i>	Feb-29-20 02:03	Feb-29-20 02:24	Feb-29-20 02:44			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
m,p-Xylenes		<0.00400 0.00400	<0.00399 0.00399	<0.00398 0.00398			
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Feb-28-20 17:00	Feb-28-20 17:00	Feb-28-20 17:00			
	<i>Analyzed:</i>	Feb-28-20 21:53	Feb-28-20 21:58	Feb-28-20 22:04			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		59.1 9.96	10.7 9.84	36.3 9.98			
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Feb-28-20 19:09	Feb-28-20 19:09	Feb-28-20 19:09			
	<i>Analyzed:</i>	Mar-02-20 13:45	Feb-29-20 08:23	Feb-29-20 08:42			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.1 50.1	<50.0 50.0			
Diesel Range Organics (DRO)		<50.0 50.0	<50.1 50.1	<50.0 50.0			
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.1 50.1	<50.0 50.0			
Total GRO-DRO		<50.0 50.0	<50.1 50.1	<50.0 50.0			
Total TPH		<50.0 50.0	<50.1 50.1	<50.0 50.0			

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

Jessica Kramer  
Project Assistant



# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06** Matrix: Soil Date Received: 02.28.20 15.20  
 Lab Sample Id: 654160-001 Date Collected: 02.28.20 13.10 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 17.00 Basis: Wet Weight  
 Seq Number: 3118170

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	59.1	9.96	mg/kg	02.28.20 21.53		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 19.09 Basis: Wet Weight  
 Seq Number: 3118192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	03.02.20 13.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	03.02.20 13.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	03.02.20 13.45	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	03.02.20 13.45	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	03.02.20 13.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	03.02.20 13.45	
o-Terphenyl	84-15-1	122	%	70-135	03.02.20 13.45	



# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06**  
Lab Sample Id: 654160-001

Matrix: Soil  
Date Collected: 02.28.20 13.10

Date Received: 02.28.20 15.20  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.29.20 02.03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.29.20 02.03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.29.20 02.03	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.29.20 02.03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.29.20 02.03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.29.20 02.03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.29.20 02.03	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	89	%	70-130	02.29.20 02.03		
1,4-Difluorobenzene	540-36-3	107	%	70-130	02.29.20 02.03		



# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06A** Matrix: Soil Date Received: 02.28.20 15.20  
 Lab Sample Id: 654160-002 Date Collected: 02.28.20 13.20 Sample Depth: 3 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 17.00 Basis: Wet Weight  
 Seq Number: 3118170

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.7	9.84	mg/kg	02.28.20 21.58		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 02.28.20 19.09 Basis: Wet Weight  
 Seq Number: 3118192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.29.20 08.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.29.20 08.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.29.20 08.23	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.29.20 08.23	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.29.20 08.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.29.20 08.23	
o-Terphenyl	84-15-1	107	%	70-135	02.29.20 08.23	



# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06A**  
 Lab Sample Id: 654160-002

Matrix: Soil  
 Date Collected: 02.28.20 13.20

Date Received: 02.28.20 15.20  
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.29.20 02.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.29.20 02.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.29.20 02.24	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.29.20 02.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.29.20 02.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.29.20 02.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.29.20 02.24	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	110	%	70-130	02.29.20 02.24		
4-Bromofluorobenzene	460-00-4	89	%	70-130	02.29.20 02.24		





# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06B**  
 Lab Sample Id: 654160-003

Matrix: Soil  
 Date Collected: 02.28.20 13.30

Date Received: 02.28.20 15.20  
 Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3118170

Date Prep: 02.28.20 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.3	9.98	mg/kg	02.28.20 22.04		1

Analytical Method: TPH by SW8015 Mod

Tech: MAB

Analyst: MAB

Seq Number: 3118192

Date Prep: 02.28.20 19.09

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.29.20 08.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.29.20 08.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.29.20 08.42	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.29.20 08.42	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.29.20 08.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	02.29.20 08.42	
o-Terphenyl	84-15-1	104	%	70-135	02.29.20 08.42	



# Certificate of Analytical Results 654160

## LT Environmental, Inc., Arvada, CO

### Thriller

Sample Id: **PH06B**  
 Lab Sample Id: 654160-003

Matrix: Soil  
 Date Collected: 02.28.20 13.30

Date Received: 02.28.20 15.20  
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.28.20 18.00

Basis: Wet Weight

Seq Number: 3118153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.29.20 02.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.29.20 02.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.29.20 02.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.29.20 02.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.29.20 02.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.29.20 02.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.29.20 02.44	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	02.29.20 02.44		
1,4-Difluorobenzene	540-36-3	109	%	70-130	02.29.20 02.44		



## 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.**  
**Thriller**

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

MB Sample Id: 7697767-1-BLK

Matrix: Solid

LCS Sample Id: 7697767-1-BKS

Prep Method: E300P

Date Prep: 02.28.20

LCSD Sample Id: 7697767-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	225	90	90-110	11	20	mg/kg	02.28.20 20:45	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654052-001

Matrix: Soil

MS Sample Id: 654052-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654052-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	45.5	200	258	106	260	107	90-110	1	20	mg/kg	02.28.20 21:02	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3118170

Parent Sample Id: 654164-001

Matrix: Soil

MS Sample Id: 654164-001 S

Prep Method: E300P

Date Prep: 02.28.20

MSD Sample Id: 654164-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	216	199	420	103	423	104	90-110	1	20	mg/kg	02.28.20 22:27	

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

MB Sample Id: 7697771-1-BLK

Matrix: Solid

LCS Sample Id: 7697771-1-BKS

Prep Method: SW8015P

Date Prep: 02.28.20

LCSD Sample Id: 7697771-1-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)	<50.0	1000	885	89	910	91	70-135	3	35	mg/kg	02.29.20 06:24	
Diesel Range Organics (DRO)	<50.0	1000	961	96	987	99	70-135	3	35	mg/kg	02.29.20 06:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		111		113		70-135	%	02.29.20 06:24
o-Terphenyl	108		109		111		70-135	%	02.29.20 06:24

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3118192

Matrix: Solid

MB Sample Id: 7697771-1-BLK

Prep Method: SW8015P

Date Prep: 02.28.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.29.20 06:05	

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.

## Thriller

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3118192

Parent Sample Id: 654051-029

Matrix: Soil

MS Sample Id: 654051-029 S

Prep Method: SW8015P

Date Prep: 02.28.20

MSD Sample Id: 654051-029 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)	<50.5	1010	964	95	906	91	70-135	6	35	mg/kg	03.02.20 12:44	
Diesel Range Organics (DRO)	<50.5	1010	1190	118	1020	102	70-135	15	35	mg/kg	03.02.20 12:44	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		115		70-135	%	03.02.20 12:44
o-Terphenyl	128		114		70-135	%	03.02.20 12:44

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

MB Sample Id: 7697768-1-BLK

Matrix: Solid

LCS Sample Id: 7697768-1-BKS

Prep Method: SW5030B

Date Prep: 02.28.20

LCSD Sample Id: 7697768-1-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	0.119	119	0.116	116	70-130	3	35	mg/kg	02.28.20 22:19	
Toluene	<0.00200	0.100	0.108	108	0.106	106	70-130	2	35	mg/kg	02.28.20 22:19	
Ethylbenzene	<0.00200	0.100	0.103	103	0.101	101	71-129	2	35	mg/kg	02.28.20 22:19	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.198	99	70-135	2	35	mg/kg	02.28.20 22:19	
o-Xylene	<0.00200	0.100	0.103	103	0.101	101	71-133	2	35	mg/kg	02.28.20 22:19	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		111		110		70-130	%	02.28.20 22:19
4-Bromofluorobenzene	92		88		88		70-130	%	02.28.20 22:19

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3118153

Parent Sample Id: 654051-024

Matrix: Soil

MS Sample Id: 654051-024 S

Prep Method: SW5030B

Date Prep: 02.28.20

MSD Sample Id: 654051-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.113	114	0.104	104	70-130	8	35	mg/kg	02.28.20 23:00	
Toluene	<0.00199	0.0994	0.104	105	0.0941	94	70-130	10	35	mg/kg	02.28.20 23:00	
Ethylbenzene	<0.00199	0.0994	0.0990	100	0.0878	88	71-129	12	35	mg/kg	02.28.20 23:00	
m,p-Xylenes	<0.00398	0.199	0.192	96	0.170	85	70-135	12	35	mg/kg	02.28.20 23:00	
o-Xylene	<0.00199	0.0994	0.0973	98	0.0873	87	71-133	11	35	mg/kg	02.28.20 23:00	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		109		70-130	%	02.28.20 23:00
4-Bromofluorobenzene	92		89		70-130	%	02.28.20 23:00

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



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 (575-392-7560) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 281-1111

Work Order No: us7120

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## Chain of Custody

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	<a href="mailto:slo@ltenv.com">slo@ltenv.com</a> , <a href="mailto:dmoir@ltenv.com">dmoir@ltenv.com</a> , <a href="mailto:acole@ltenv.com">acole@ltenv.com</a>

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> RP <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"/> ST/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="text"/>

<b>Project Name:</b>	Thriller	<b>Turn Around</b>	<b>ANALYSIS REQUEST</b>								<b>Work Order Notes</b>
<b>Project Number:</b>	012918162	Routine <input type="checkbox"/>									
<b>P.O. Number:</b>		Rush: 24H									
<b>Sampler's Name:</b>	Spencer Lo	Due Date:									

SAMPLE RECEIPT		Temp Blank:	Yes <input checked="" type="radio"/> No <input type="radio"/>	Wet Ice:	Yes <input checked="" type="radio"/> No <input type="radio"/>
Temperature (°C):			Thermometer ID		
Received Intact:	Yes <input checked="" type="radio"/> No <input type="radio"/>		T - N/A - 004		
Cooler Custody Seals:	Yes <input checked="" type="radio"/> No <input type="radio"/>		Correction Factor: -0.2		
Sample Custody Seals:	Yes <input checked="" type="radio"/> No <input type="radio"/>		Total Containers: 3		

Number of Containers

(EPA 8015)

(EPA 0-8021)

side (EPA 300.0)

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

[illegible]

**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**

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

[illegible]



Client: LT Environmental, Inc.

Date/ Time Received: 02/28/2020 03:20:00 PM

Work Order #: 654160

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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:

Elizabeth McClellan

Date: 02/28/2020

Checklist reviewed by:

Jessica Kramer

Date: 02/28/2020