



LT Environmental, Inc.

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

March 27, 2020

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

**RE: Closure Request
North Seven Rivers Queen Transfer Line
Remediation Permit Number 1RP-4436
Lea County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request report detailing site assessment and soil sampling activities at the North Seven Rivers Queen Transfer Line (Site) in Unit J, Section 2, Township 22 South, Range 36 East, in Lea County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to address impacts to soil after a produced water release 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. Based on the site assessment activities and results of the soil sampling events, XTO is requesting no further action for this release.

RELEASE BACKGROUND

On September 8, 2016, a water transfer line ruptured, causing approximately 17.98 barrels (bbls) of produced water to release. The release affected the pasture area surrounding the ruptured water line. XTO reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 on June 8, 2016, and was assigned Remediation Permit (RP) Number 1RP-4436 (Attachment 1).



SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The closest permitted water well with depth to water data is United States Geological Survey (USGS) well 322443103134001, located approximately 3,362 feet southeast of the Site. The water well has a depth to groundwater of approximately 118 feet bgs, the total depth was not determined. Ground surface elevation at the water well location is 3,509 feet above mean sea level (AMSL), which is approximately 8 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an intermittent stream, located approximately 530 feet southwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a low-potential karst area.

CLOSURE CRITERIA

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

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

SITE ASSESSMENT AND SOIL SAMPLING ACTIVITIES

Environmental Plus, Inc. (EPI), an environmental consulting firm that is no longer in operation, directed initial excavation of impacted soil at the Site. The release extent was documented by EPI and is provided in Attachment 2. XTO operations personnel recalled that excavation activities had occurred, however; the exact date of the excavation activities is unknown, and no excavation documentation or soil sample analytical results were available. Due to the absence of confirmation soil sampling records from the excavation activities, LTE personnel conducted additional site assessment and soil sampling activities to confirm that the Closure Criteria requirements were met.



During February 2020, LTE personnel was at the Site to complete site assessment activities. The backfilled former excavation extent was visibly identifiable. Additionally, backfill soil and native soil were easily distinguished due to a hard caliche layer at approximately 2 feet bgs. Potholes were advanced via backhoe within and around the documented release area and former excavation extent to assess for the presence or absence of impacted soil. Potholes PH01 through PH14 were advanced to a depth of 2 feet bgs. A hard, undisturbed caliche layer was encountered at a depth of 2 feet bgs, and confirmed the former excavation did not exceed a depth of 2 feet. Two delineation soil samples were collected from each pothole from depths from 1 foot and 2 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 the potholes were logged on lithologic/soil sampling logs, which are included in Attachment 3. The delineation soil sample locations are depicted on Figure 2. Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 4.

The delineation 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 Carlsbad, New Mexico, 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.

ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples, collected from potholes PH01 through PH14 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the laboratory analytical results, it appears that impacted soil was successfully removed by EPI. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 5.

CLOSURE REQUEST

Impacted soil was excavated from the Site to address the September 8, 2016, release of produced water at the Site. Due to the absence of soil sample analytical results from the historical excavation, site assessment activities were completed in February 2020 to confirm the removal of impacted soil. Potholes PH01 through PH14 were advanced within the release extent to assess for the presence or absence of impacted soil. Laboratory analytical results for the delineation soil samples collected from potholes PH01 through PH14, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the delineation soil sample analytical results, the impacted soil was successfully removed during initial excavation activities and no further remediation was required.



Billings, B.
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Natural attenuation and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Number 1RP-4436. The excavation was backfilled 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

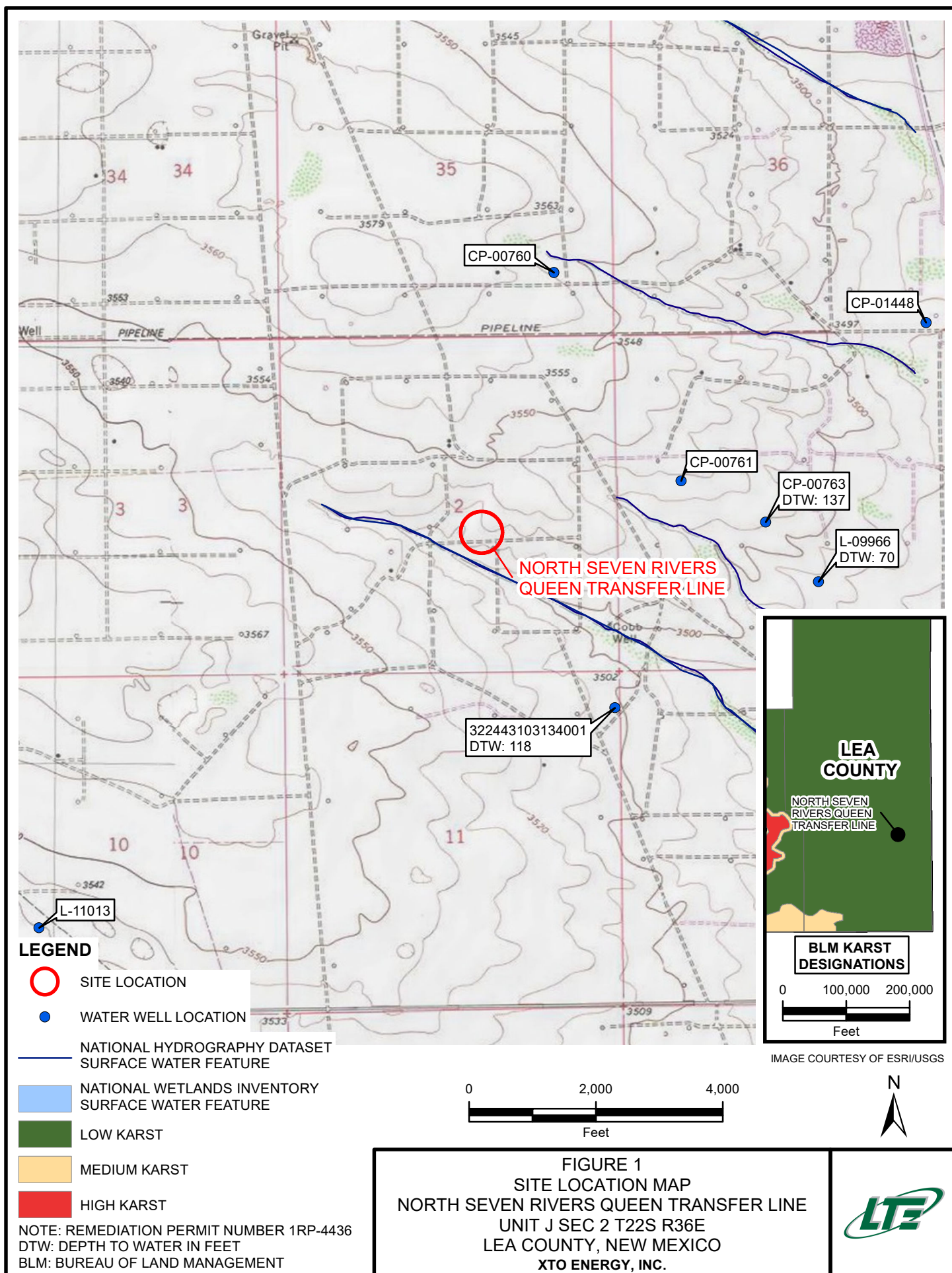
cc: Kyle Littrell, XTO
Ryan Mann, State Land Office
Mike Bratcher, NMOCD

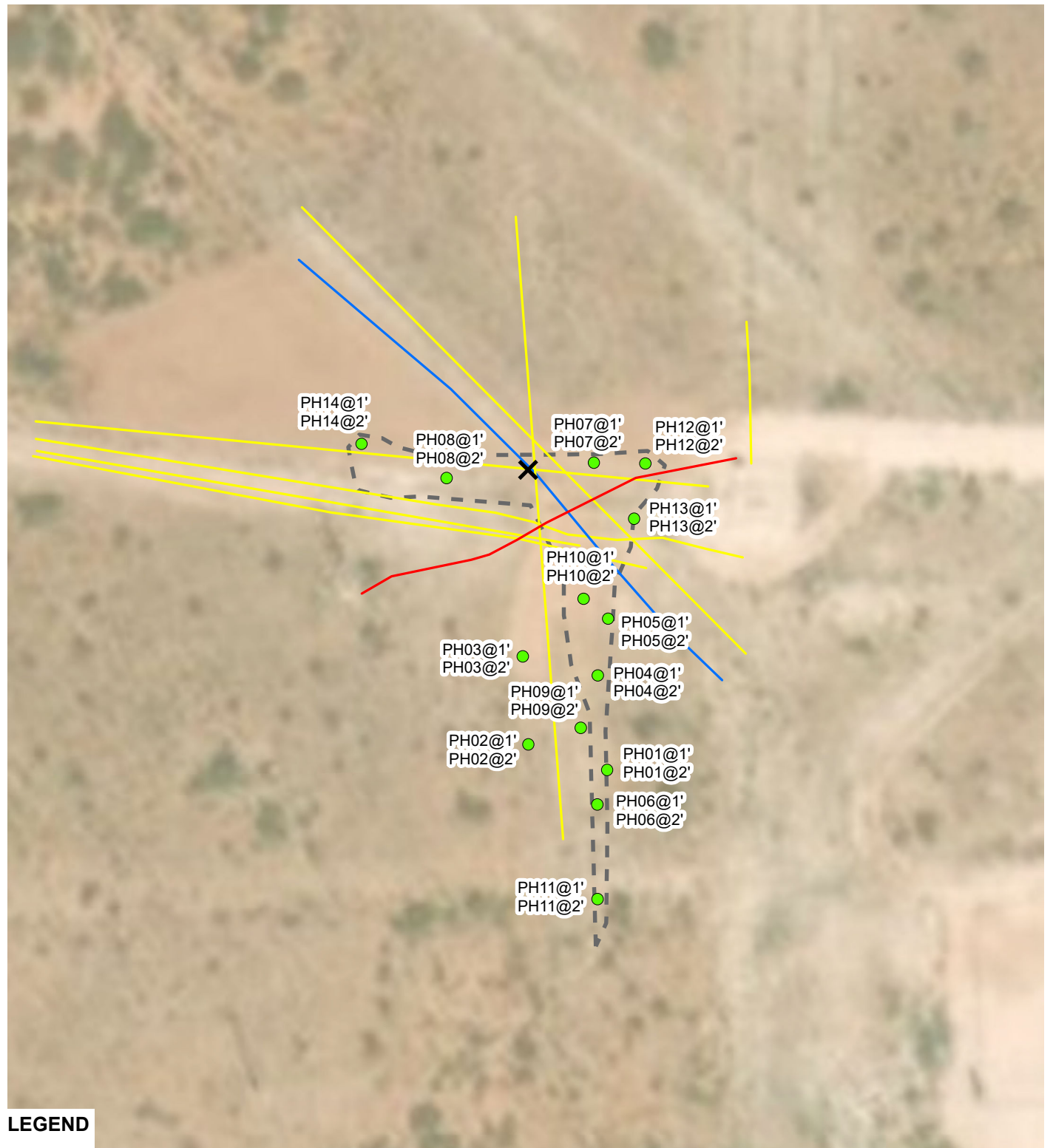
Attachments:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141 (1RP-4436)
Attachment 2 Historical Documentation
Attachment 3 Lithologic / Soil Sample Logs
Attachment 4 Photographic Log
Attachment 5 Laboratory Analytical Reports

FIGURES





**LEGEND**

- RELEASE LOCATION
- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- ELECTRIC LINE
- GAS/PIPELINE
- WATER LINE
- FORMER EXCAVATION EXTENT

NOTE: REMEDIATION PERMIT NUMBER 1RP-4436

IMAGE COURTESY OF ESRI

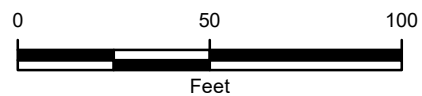


FIGURE 2
DELINEATION SOIL SAMPLE LOCATIONS
NORTH SEVEN RIVERS QUEEN TRANSFER LINE
UNIT J SEC 2 T22S R36E
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.



TABLES



TABLE 1
SOIL ANALYTICAL RESULTS

NORTH SEVEN RIVERS QUEEN TRANSFER LINE
REMEDATION PERMIT NUMBER 1RP-4436
LEA 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)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000
PH01	1	02/19/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<9.92
PH01A	2	02/19/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	<9.98
PH02	1	02/19/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	<9.94
PH02A	2	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	14.3
PH03	1	02/19/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	18.6
PH03A	2	02/19/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	28.4
PH04	1	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	<10.0
PH04A	2	02/19/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	52.4
PH05	1	02/19/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	<9.98
PH05A	2	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	93.0
PH06	1	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	<9.98
PH06A	2	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	<9.86
PH07	1	02/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	<9.98
PH07A	2	02/19/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<9.98
PH08	1	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	10.2
PH08A	2	02/21/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	238
PH09	1	02/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	<10.0
PH09A	2	02/21/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	<10.0
PH10	1	02/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	<9.96
PH10A	2	02/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	45.6
PH11	1	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	<10.0
PH11A	2	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	11.2

**TABLE 1
SOIL ANALYTICAL RESULTS**

**NORTH SEVEN RIVERS QUEEN TRANSFER LINE
REMEDATION PERMIT NUMBER 1RP-4436
LEA 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)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000
PH12	1	02/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	11.5
PH12A	2	02/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	<9.98
PH13	1	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<9.94
PH13A	2	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	<9.98
PH14	1	02/21/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	<9.96
PH14A	2	02/21/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	<9.96

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

MRO - 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

RECEIVED

By JKeyes at 8:09 am, Sep 12, 2016

Form C-141
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action**OPERATOR**

X Initial Report

☐ Final Report

Name of Company	XTO Energy, Inc.	Contact	John Robinson
Address	500 W. Illinois, Suite 100 Midland, TX 79701	Telephone No.	575-441-5199
Facility Name	North Seven Rivers Queen Transfer Line	Facility Type	Injection Line
Surface Owner	Mineral Owner	API No. 30-025-31435	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	2	22 S	36 E	1770	South	1770	East	Lea

Latitude _____ Longitude _____

NATURE OF RELEASE

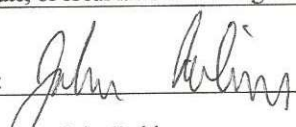
Type of Release	Produced Water	Volume of Release	17.98 bbls	Volume Recovered	0 bbls
Source of Release	water line	Date and Hour of Occurrence	9-8-16 10:00 am	Date and Hour of Discovery	9-8-16 10:00 am
Was Immediate Notice Given?	X Yes ☐ No ☐ Not Required	If YES, To Whom?	Jamie Keyes voice mail		
By Whom?	John Robinson	Date and Hour	9-8-16 10:07 am		
Was a Watercourse Reached?	☐ Yes X No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Water transfer line ruptured. Shut line in.

Describe Area Affected and Cleanup Action Taken.*
Leak was in pasture. Will sample leak area and clean up contaminated area to OCD standards.

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

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: John Robinson		Approved by Environmental Specialist: 	
Title: Maintenance Foreman		Approval Date: 09/12/2016	Expiration Date: 11/12/2016
E-mail Address: john_robinson@xtoenergy.com		Conditions of Approval:	
Date: 6-8-16 Phone: 575-441-5199		Discrete samples only. Delineate and remediate per NMOCD guidelines.	
		Attached ☐ 1RP 4436	

* Attach Additional Sheets If Necessary

nJXK1625629266
pJXK1625629317

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	1RP-4436
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 #: 1RP-4436
Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude N 32.419246 Longitude W -103.234821
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: North Seven Rivers Queen Transfer Line	Site Type: Production Facility
Date Release Discovered: 9-8-2016	API# (if applicable): 30-025-31435

Unit Letter	Section	Township	Range	County
J	2	22S	36E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls):	Volume Recovered (bbls):
☒ Produced Water	Volume Released (bbls): 17.98	Volume Recovered (bbls): 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

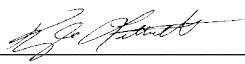
The water transfer line ruptured.

Incident ID	
District RP	1RP-4436
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? Release volume was less than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notice was given by John Robinson to Jamie Keyes on September 8, 2016 ,at 10:07 am.	

Initial Response

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

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 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&E Supervisor</u>
Signature: 	Date: <u>3-27-2020</u>
email: <u>Kyle_Littrell@xtoenergy.com</u>	Telephone: <u>432-221-7331</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	1RP-4436
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

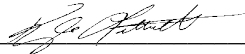
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	1RP-4436
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 SupervisorSignature:  Date: 3-27-2020email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331**OCD Only**

Received by: _____ Date: _____

Incident ID	
District RP	1RP-4436
Facility ID	
Application ID	

Closure

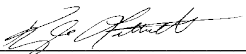
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled 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: 3-27-2020

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

OCD Only

Received by: _____ Date: _____

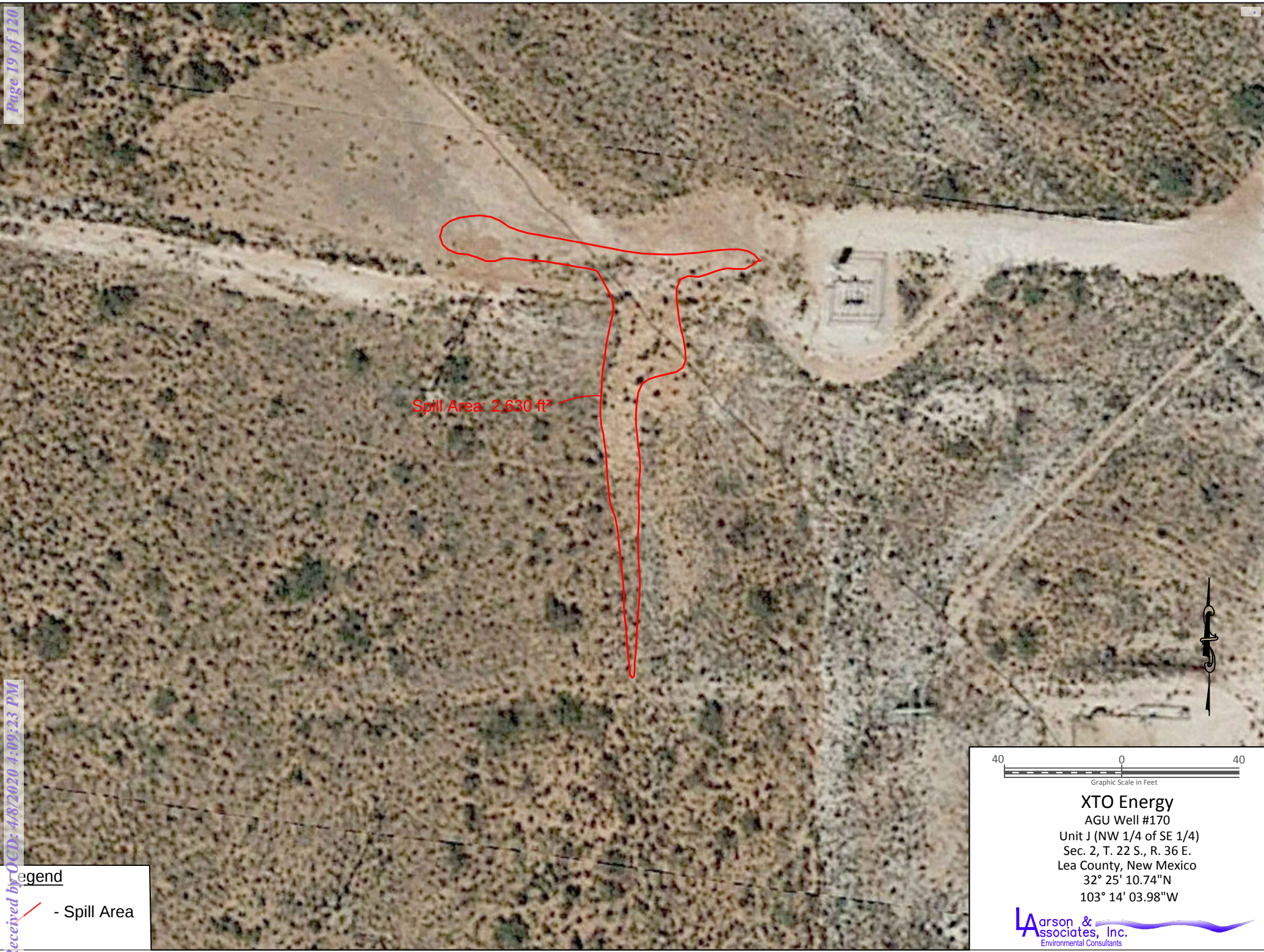
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT 2: HISTORICAL DOCUMENTATION





Legend

— - Spill Area

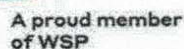
40 0 40
Graphic Scale in Feet

XTO Energy
AGU Well #170
Unit J (NW 1/4 of SE 1/4)
Sec. 2, T. 22 S., R. 36 E.
Lea County, New Mexico
32° 25' 10.74"N
103° 14' 03.98"W

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map

ATTACHMENT 3: LITHOLOGIC / SOIL SAMPLE LOGS



PHO 2

Date:

2.19.20

Site Name: North Seven Rivers

RP or Incident Number: 1 RP-4436

LTE Job Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: SL

Method:

Trackhoe

Lat/Long:

Field Screening:

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

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

Chloride, PID

21

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
P	< 896	0.0	N	PH02	1	0	SP SM	0-2 Sand, Brown, no stain, no odor, m-f, poorly graded, trace silt
P	< 896	0.0	N	PH02A	2	1		
						2		
						3		TD @ 2'
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LTE A proud member of WSP		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220				BH or PH Name:		Date:	
						PH03		2.19.20	
						Site Name: North Seven Rivers			
						RP or Incident Number: IRP-4436			
LITHOLOGIC / SOIL SAMPLING LOG									
Lat/Long:		Field Screening:		Hole Diameter:		Method:		Total Depth:	
		Chloride, PID				Trackhoe		2'	
Comments: TD @ 2'									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks	
						0			
D	<896	0.0	N	PH03	1	1	SP Sm	0-1 Sand w caliche gravel, Brown, no odor, no stain, m-f, poorly graded, white tan caliche	
D	<896	0.0	N	PH03A	2	2	CCH	1-2 Caliche, white-tan. NO odor, no stain	
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			



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Carlsbad, New Mexico 88220

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

0404

Date:

2.19.20

Site Name: North Seven Rivers

RP or Incident Number: 1RP-4436

LTE Job Number:

Logged By: 52

Method: Track her

Total Depth:	2'
--------------	----

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening:

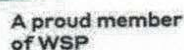
Chloride, PID

Hole Diameter:

Comments:

TD @ 21

[illegible]



PH 05

2.19.20

Site Name: North Seven Rivers

RP or Incident Number: 1RP-4436

LTE Job Number:

Logged By: SL

Method: Track box

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

Total Depth:	2'
--------------	----

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening:

Chloride, PID

Comments:

TDC 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	CB96	0.0	N	PH05	1'	0 1	SP SM	0-1.5 sand w/ caliche gravel, Brown, no odor, no stain, m-f, poorly graded, trace silt, white-tan caliche
D	CB69	0.0	N	PH05A	2'	2	CEHG	1.5-2 caliche, white, tan, no odor, no stain
						3 4 5 6 7 8 9 10 11 12		TD @ 2'



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

BH or PH Name:

7A06

Date:

2.19.20

Site Name: North Seven Rivers

RP or Incident Number: 1RP-4435

LTE Job Number:

Logged By: CL

Method:	Trackhoe
---------	----------

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

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

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

Chloride, PID

Comments:

TD @ 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	2896	0.0	N	PH06	1	1	SP Sm	0-1.5 Sand w/ caliche gravel, brown, no odor, no stain, m-f, poorly graded, trace silt
D	2896	0.0	N	PH064	2	2	CC1E	1.5-2 caliche, white-tan, no odor, no stain
						3		TD @ 2'
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name: PH07		Date: 2.19.20				
		Site Name: North Seven Rivers						
		RP or Incident Number: TRP-4436						
		LTE Job Number:						
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening: Chloride, PID		Logged By: SL				
				Method:				
				Hole Diameter: —				
				Total Depth: 2'				
Comments: TD @ 2'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	2896	0.0	N	PH07	1	1	SP SM	0-1.5 Sand w/ caliche gravel, Brown, m-f, poorly graded, no odor, no stain, trace silt, white-tan caliche
D	2896	0.0	N	PH07A	2	2	CH/E	1.5-2 caliche, tan, white, no odor, no stain
						3		TD @ 2'
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		



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508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

୧୫୦୭

Date:

2.21.20

Site Name:

North Seven Rivers

RP or Incident Number:

2RP-4436

LTE Job Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By:

52

Method:

Track hoe

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

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

$$2'$$

Lat/Long:

Field Screening:

Chloride, PID

Comments:

TD @ 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	<186	0.0	N	PH09	1	1	SP Sm	0-1.5 sand w caliche gravel, Brown, no odor, no stain, m-f, poorly graded, white-tan caliche
D	<186	0.0	N	PH09A	2	2	CEHE	1.5-2 caliche, White-tan, no odor, no stain
						3		TDC 2'
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		



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

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BH or PH Name:

BH08

Date:

2.21.20

Site Name: North Seven Rivers

RP or Incident Number: 2LP-4436

LTE Job Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: *SL*

Method: Trackhe

Lat/Long:

Field Screening:

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

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

Chloride, PID

1

2'

Comments:

TD @ 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	C186	0.0	N	BH08	1	1	SP sm	0-1.5 sand w/ caliche gravel, Brown, no odor, no stain. poorly graded, white-tan caliche
D	C186	0.0	N	BH08A	2	2	CCHE	1.5-2 caliche, white-tan, no odor, no stain
						3		TD @ 2'
						4		
						5		
						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:

PH10

Date:

e: 2.21.20

Site Name:

North Seven Rivers

RP or Incident Number:

2RP-4436

LTE Job Number:

Logged By:

_____ Hole Diameter:

Method:

Trackhoe

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

 z'

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

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

Chloride, PID

Comments:

TD @ 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	<186	0.0	N	PH10	1	1	SP Sm	0-1.5 sand w/ caliche gravel, Brown, no odor, no stain, m-f, poorly graded, white-tan caliche
D	<186	0.0	N	PH10A	2	2	CHE	1.5-2 caliche, white-tan, no odor, no stain
						3		TD @ 2'
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name:		Date:				
		PH11		2.21.20				
		Site Name: North Seven Rivers						
		RP or Incident Number: 2RP-4436						
LTE Job Number:								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		Total Depth: 2'				
Comments: TD C 2'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
5	<186	0.0	n	PH11	1	1	SP Sm	0-1.5 Sand w/ caliche gravel, Brown, no odor, no stain, m-f, poorly graded, white-tan caliche
5	<186	0.0	n	PH11A	2	2	caliche	1.5 - 2 caliche, white-tan, no odor, no stain
						3		TD C 2'
						4		
						5		
						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:

PH 12

Date:

2.21.20

Site Name: North Sever Rivers

RP or Incident Number: 2RP-4436

LTE Job Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: 52

Method: Trackbe

Lat/Long:

Field Screening:

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

Total Depth:	2.1
--------------	-----

Chloride, PID

Comments:

T D Q 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	C186	0.0	N	PH12	1	1	SP sm	0-1.5 Sand w/ caliche, Brown, no odor, no stain, poorly graded, m-f, White-tan caliche
D	C186	0.0	N	PH12A	2	2	CHE	1.5-2 caliche, white-tan, no odor, no stain
						3		TD @ 2'
						4		
						5		
						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:

PH 14

Date:

2.24.20

Site Name: North Seven Rivers

RP or Incident Number: 2RP-4436

LTE Job Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: 52

Method: Track we

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

Total Depth:	2'
--------------	----

Lat/Long:

Field Screening:
Chloride, PID

Comments:

TD @ 2'

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	<186	0.0	N	PH14	1	0 1	SP sm	0-1.5 Sand w/ caliche, Brown, no odor, no stain. M-f, poorly graded, white-tan caliche
D	<186	0.0	N	PH14A	2	2	CLTE	1.5-2 caliche, white-tan, no odor, no stain TO @ 2'
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		

ATTACHMENT 4: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Photograph 1: South facing view of former excavation area.



Photograph 2: East facing view during site assessment activities.



Photograph 3: West facing view during site assessment activities.



Photograph 4: North facing view during site assessment activities.

ATTACHMENT 5: LABORATORY ANALYTICAL REPORTS



Analytical Report 653094

for

LT Environmental, Inc.

Project Manager: Dan Moir

North Seven Rivers

012919196

02.21.2020

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: TN102385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



02.21.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **653094**

North Seven Rivers

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) 653094. 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. 653094 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, appearing to read 'JB', is written over a light blue rectangular background.

John Builes
Project Manager

A Small Business and Minority Company

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

**Sample Cross Reference 653094****LT Environmental, Inc., Arvada, CO**

North Seven Rivers

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	02.19.2020 12:20	1 ft	653094-001
PH01A	S	02.19.2020 12:30	2 ft	653094-002
PH02	S	02.19.2020 12:50	1 ft	653094-003
PH02A	S	02.19.2020 13:00	2 ft	653094-004
PH03	S	02.19.2020 13:20	1 ft	653094-005
PH03A	S	02.19.2020 13:30	2 ft	653094-006
PH04	S	02.19.2020 13:50	1 ft	653094-007
PH04A	S	02.19.2020 14:00	2 ft	653094-008
PH05	S	02.19.2020 14:10	1 ft	653094-009
PH05A	S	02.19.2020 14:20	2 ft	653094-010
PH06	S	02.19.2020 14:30	1 ft	653094-011
PH06A	S	02.19.2020 14:40	2 ft	653094-012
PH07	S	02.19.2020 14:50	1 ft	653094-013
PH07A	S	02.19.2020 15:00	2 ft	653094-014



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *North Seven Rivers*

Project ID: 012919196
Work Order Number(s): 653094

Report Date: 02.21.2020
Date Received: 02.20.2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3117186 BTEX by EPA 8021B

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



Certificate of Analysis Summary 653094

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 02.20.2020 10:25

Report Date: 02.21.2020 13:44

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	653094-001	653094-002	653094-003	653094-004	653094-005	653094-006
	<i>Field Id:</i>	PH01	PH01A	PH02	PH02A	PH03	PH03A
	<i>Depth:</i>	1- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	02.19.2020 12:20	02.19.2020 12:30	02.19.2020 12:50	02.19.2020 13:00	02.19.2020 13:20	02.19.2020 13:30
BTEX by EPA 8021B	<i>Extracted:</i>	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30
	<i>Analyzed:</i>	02.20.2020 15:57	02.20.2020 16:17	02.20.2020 16:37	02.20.2020 16:58	02.20.2020 17:18	02.20.2020 18:19
	<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	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
Toluene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
Ethylbenzene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
m,p-Xylenes		<0.00398 0.00398	<0.00402 0.00402	<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	<0.00403 0.00403
o-Xylene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
Total Xylenes		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
Total BTEX		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30
	<i>Analyzed:</i>	02.20.2020 12:44	02.20.2020 13:10	02.20.2020 13:15	02.20.2020 13:21	02.20.2020 13:26	02.20.2020 13:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<9.92 9.92	<9.98 9.98	<9.94 9.94	14.3 9.96	18.6 9.90	28.4 9.90
TPH by SW8015 Mod	<i>Extracted:</i>	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30
	<i>Analyzed:</i>	02.20.2020 15:52	02.20.2020 15:52	02.20.2020 16:12	02.20.2020 16:12	02.20.2020 16:32	02.20.2020 16:52
	<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	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.3 50.3	<50.2 50.2
Diesel Range Organics (DRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.3 50.3	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.3 50.3	<50.2 50.2
Total GRO-DRO		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.3 50.3	<50.2 50.2
Total TPH		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.3 50.3	<50.2 50.2

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John Builes
Project Manager



Certificate of Analysis Summary 653094

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 02.20.2020 10:25

Report Date: 02.21.2020 13:44

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	653094-007	653094-008	653094-009	653094-010	653094-011	653094-012
	<i>Field Id:</i>	PH04	PH04A	PH05	PH05A	PH06	PH06A
	<i>Depth:</i>	1- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	02.19.2020 13:50	02.19.2020 14:00	02.19.2020 14:10	02.19.2020 14:20	02.19.2020 14:30	02.19.2020 14:40
BTEX by EPA 8021B	<i>Extracted:</i>	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30
	<i>Analyzed:</i>	02.20.2020 18:40	02.20.2020 19:00	02.20.2020 19:21	02.20.2020 19:41	02.20.2020 20:01	02.20.2020 20:22
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00398 0.00398	<0.00396 0.00396	<0.00399 0.00399	<0.00401 0.00401	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30	02.20.2020 11:30
	<i>Analyzed:</i>	02.20.2020 13:49	02.20.2020 13:54	02.20.2020 14:00	02.20.2020 14:05	02.20.2020 14:11	02.20.2020 14:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<10.0 10.0	52.4 9.98	<9.98 9.98	93.0 9.98	<9.98 9.98	<9.86 9.86
TPH by SW8015 Mod	<i>Extracted:</i>	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30	02.20.2020 12:30
	<i>Analyzed:</i>	02.20.2020 16:52	02.20.2020 17:11	02.20.2020 17:11	02.20.2020 17:31	02.20.2020 17:31	02.20.2020 17:51
	<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)		<50.3 50.3	<50.1 50.1	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.9 49.9
Diesel Range Organics (DRO)		<50.3 50.3	<50.1 50.1	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.1 50.1	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.9 49.9
Total GRO-DRO		<50.3 50.3	<50.1 50.1	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.9 49.9
Total TPH		<50.3 50.3	<50.1 50.1	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.9 49.9

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John Builes
Project Manager



Certificate of Analysis Summary 653094

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 02.20.2020 10:25

Report Date: 02.21.2020 13:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	653094-013	653094-014				
	Field Id:	PH07	PH07A				
	Depth:	1- ft	2- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	02.19.2020 14:50	02.19.2020 15:00				
BTEX by EPA 8021B	Extracted:	02.20.2020 11:30	02.20.2020 11:30				
	Analyzed:	02.20.2020 20:42	02.20.2020 21:03				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00200 0.00200	<0.00199 0.00199				
	Toluene	<0.00200 0.00200	<0.00199 0.00199				
	Ethylbenzene	<0.00200 0.00200	<0.00199 0.00199				
	m,p-Xylenes	<0.00400 0.00400	<0.00398 0.00398				
	o-Xylene	<0.00200 0.00200	<0.00199 0.00199				
	Total Xylenes	<0.00200 0.00200	<0.00199 0.00199				
	Total BTEX	<0.00200 0.00200	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	02.20.2020 11:30	02.20.2020 11:30				
	Analyzed:	02.20.2020 14:33	02.20.2020 14:50				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	<9.98 9.98	<9.98 9.98				
TPH by SW8015 Mod	Extracted:	02.20.2020 12:30	02.20.2020 12:30				
	Analyzed:	02.20.2020 17:51	02.20.2020 18:11				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<50.1 50.1	<50.0 50.0				
	Diesel Range Organics (DRO)	<50.1 50.1	<50.0 50.0				
	Motor Oil Range Hydrocarbons (MRO)	<50.1 50.1	<50.0 50.0				
	Total GRO-DRO	<50.1 50.1	<50.0 50.0				
	Total TPH	<50.1 50.1	<50.0 50.0				

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John Builes
Project Manager



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH01** Matrix: Soil Date Received: 02.20.2020 10:25
 Lab Sample Id: 653094-001 Date Collected: 02.19.2020 12:20 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 02.20.2020 11:30 Basis: Wet Weight
 Seq Number: 3117209

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	02.20.2020 12:44	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 02.20.2020 12:30 Basis: Wet Weight
 Seq Number: 3117187

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.20.2020 15:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.20.2020 15:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.20.2020 15:52	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.20.2020 15:52	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.20.2020 15:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.20.2020 15:52	
o-Terphenyl	84-15-1	98	%	70-135	02.20.2020 15:52	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH01**
Lab Sample Id: 653094-001

Matrix: Soil
Date Collected: 02.19.2020 12:20

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.20.2020 15:57	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.20.2020 15:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 15:57	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.20.2020 15:57	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH01A**
Lab Sample Id: 653094-002

Matrix: Soil
Date Collected: 02.19.2020 12:30

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.20.2020 13:10	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.20.2020 15:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.20.2020 15:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.20.2020 15:52	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.20.2020 15:52	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.20.2020 15:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	02.20.2020 15:52	
o-Terphenyl	84-15-1	103	%	70-135	02.20.2020 15:52	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH01A**
Lab Sample Id: 653094-002

Matrix: Soil
Date Collected: 02.19.2020 12:30

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117186

Prep Method: SW5030B

% Moisture:

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.20.2020 16:17	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.20.2020 16:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 16:17	
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.20.2020 16:17	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH02**
Lab Sample Id: 653094-003

Matrix: Soil
Date Collected: 02.19.2020 12:50

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	02.20.2020 13:15	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.20.2020 16:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.20.2020 16:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.20.2020 16:12	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.20.2020 16:12	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.20.2020 16:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	02.20.2020 16:12	
o-Terphenyl	84-15-1	96	%	70-135	02.20.2020 16:12	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH02**
Lab Sample Id: 653094-003

Matrix: Soil
Date Collected: 02.19.2020 12:50

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.20.2020 16:37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.20.2020 16:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.20.2020 16:37	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 16:37	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH02A**
Lab Sample Id: 653094-004

Matrix: Soil
Date Collected: 02.19.2020 13:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.3	9.96	mg/kg	02.20.2020 13:21		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.20.2020 16:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.20.2020 16:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.20.2020 16:12	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	02.20.2020 16:12	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.20.2020 16:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.20.2020 16:12	
o-Terphenyl	84-15-1	104	%	70-135	02.20.2020 16:12	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH02A**
Lab Sample Id: 653094-004

Matrix: Soil
Date Collected: 02.19.2020 13:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.20.2020 16:58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 16:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 16:58	
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.20.2020 16:58	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH03**
Lab Sample Id: 653094-005

Matrix: Soil
Date Collected: 02.19.2020 13:20

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.6	9.90	mg/kg	02.20.2020 13:26		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.20.2020 16:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.20.2020 16:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.20.2020 16:32	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	02.20.2020 16:32	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.20.2020 16:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	02.20.2020 16:32	
o-Terphenyl	84-15-1	119	%	70-135	02.20.2020 16:32	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH03**
Lab Sample Id: 653094-005

Matrix: Soil
Date Collected: 02.19.2020 13:20

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117186

Prep Method: SW5030B

% Moisture:

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.20.2020 17:18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.20.2020 17:18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	02.20.2020 17:18		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 17:18		



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH03A**
Lab Sample Id: 653094-006

Matrix: Soil
Date Collected: 02.19.2020 13:30

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.4	9.90	mg/kg	02.20.2020 13:43		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.20.2020 16:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.20.2020 16:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.20.2020 16:52	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.20.2020 16:52	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.20.2020 16:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.20.2020 16:52	
o-Terphenyl	84-15-1	105	%	70-135	02.20.2020 16:52	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH03A**
Lab Sample Id: 653094-006

Matrix: Soil
Date Collected: 02.19.2020 13:30

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	02.20.2020 18:19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.20.2020 18:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 18:19	
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.20.2020 18:19	



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LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH04**
Lab Sample Id: 653094-007

Matrix: Soil
Date Collected: 02.19.2020 13:50

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	02.20.2020 13:49	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.20.2020 16:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.20.2020 16:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.20.2020 16:52	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	02.20.2020 16:52	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.20.2020 16:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	02.20.2020 16:52	
o-Terphenyl	84-15-1	106	%	70-135	02.20.2020 16:52	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH04**
Lab Sample Id: 653094-007

Matrix: Soil
Date Collected: 02.19.2020 13:50

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.20.2020 18:40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 18:40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.20.2020 18:40		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.20.2020 18:40		



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LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH04A**
Lab Sample Id: 653094-008

Matrix: Soil
Date Collected: 02.19.2020 14:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	52.4	9.98	mg/kg	02.20.2020 13:54		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.20.2020 17:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.20.2020 17:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.20.2020 17:11	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.20.2020 17:11	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.20.2020 17:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	02.20.2020 17:11	
o-Terphenyl	84-15-1	101	%	70-135	02.20.2020 17:11	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH04A**
Lab Sample Id: 653094-008

Matrix: Soil
Date Collected: 02.19.2020 14:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.20.2020 19:00	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.20.2020 19:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	02.20.2020 19:00		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 19:00		



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH05**
Lab Sample Id: 653094-009

Matrix: Soil
Date Collected: 02.19.2020 14:10

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.20.2020 14:00	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	02.20.2020 17:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	02.20.2020 17:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	02.20.2020 17:11	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	02.20.2020 17:11	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	02.20.2020 17:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	02.20.2020 17:11	
o-Terphenyl	84-15-1	107	%	70-135	02.20.2020 17:11	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH05**
Lab Sample Id: 653094-009

Matrix: Soil
Date Collected: 02.19.2020 14:10

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	02.20.2020 19:21	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.20.2020 19:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	02.20.2020 19:21	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 19:21	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH05A**
Lab Sample Id: 653094-010

Matrix: Soil
Date Collected: 02.19.2020 14:20

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	93.0	9.98	mg/kg	02.20.2020 14:05		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.20.2020 17:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.20.2020 17:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.20.2020 17:31	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.20.2020 17:31	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.20.2020 17:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	02.20.2020 17:31	
o-Terphenyl	84-15-1	109	%	70-135	02.20.2020 17:31	



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LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH05A**
Lab Sample Id: 653094-010

Matrix: Soil
Date Collected: 02.19.2020 14:20

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117186

Prep Method: SW5030B

% Moisture:

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.20.2020 19:41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 19:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 19:41	
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.20.2020 19:41	



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LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH06**
Lab Sample Id: 653094-011

Matrix: Soil
Date Collected: 02.19.2020 14:30

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.20.2020 14:11	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.20.2020 17:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.20.2020 17:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.20.2020 17:31	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.20.2020 17:31	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.20.2020 17:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.20.2020 17:31	
o-Terphenyl	84-15-1	111	%	70-135	02.20.2020 17:31	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH06**
Lab Sample Id: 653094-011

Matrix: Soil
Date Collected: 02.19.2020 14:30

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.20.2020 20:01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 20:01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.20.2020 20:01		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.20.2020 20:01		



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH06A**
Lab Sample Id: 653094-012

Matrix: Soil
Date Collected: 02.19.2020 14:40

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.86	9.86	mg/kg	02.20.2020 14:28	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.20.2020 17:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.20.2020 17:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.20.2020 17:51	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.20.2020 17:51	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.20.2020 17:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	02.20.2020 17:51	
o-Terphenyl	84-15-1	96	%	70-135	02.20.2020 17:51	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH06A**
Lab Sample Id: 653094-012

Matrix: Soil
Date Collected: 02.19.2020 14:40

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.20.2020 20:22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 20:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	02.20.2020 20:22		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.20.2020 20:22		



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH07** Matrix: Soil Date Received: 02.20.2020 10:25
 Lab Sample Id: 653094-013 Date Collected: 02.19.2020 14:50 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 02.20.2020 11:30 Basis: Wet Weight
 Seq Number: 3117209

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.20.2020 14:33	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 02.20.2020 12:30 Basis: Wet Weight
 Seq Number: 3117187

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.20.2020 17:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.20.2020 17:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.20.2020 17:51	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.20.2020 17:51	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.20.2020 17:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	02.20.2020 17:51	
o-Terphenyl	84-15-1	104	%	70-135	02.20.2020 17:51	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH07**
Lab Sample Id: 653094-013

Matrix: Soil
Date Collected: 02.19.2020 14:50

Date Received: 02.20.2020 10:25
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Seq Number: 3117186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.20.2020 20:42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.20.2020 20:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.20.2020 20:42	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.20.2020 20:42	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH07A**
Lab Sample Id: 653094-014

Matrix: Soil
Date Collected: 02.19.2020 15:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117209

Date Prep: 02.20.2020 11:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.20.2020 14:50	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117187

Date Prep: 02.20.2020 12:30

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	02.20.2020 18:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.20.2020 18:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.20.2020 18:11	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.20.2020 18:11	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.20.2020 18:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	02.20.2020 18:11	
o-Terphenyl	84-15-1	94	%	70-135	02.20.2020 18:11	



Certificate of Analytical Results 653094

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH07A**
Lab Sample Id: 653094-014

Matrix: Soil
Date Collected: 02.19.2020 15:00

Date Received: 02.20.2020 10:25
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117186

Prep Method: SW5030B

% Moisture:

Date Prep: 02.20.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.20.2020 21:03	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.20.2020 21:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.20.2020 21:03	
4-Bromofluorobenzene	460-00-4	98	%	70-130	02.20.2020 21:03	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **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.
North Seven Rivers

Analytical Method: Chloride by EPA 300

Seq Number: 3117209

MB Sample Id: 7697118-1-BLK

Matrix: Solid

LCS Sample Id: 7697118-1-BKS

Prep Method: E300P

Date Prep: 02.20.2020

LCSD Sample Id: 7697118-1-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	265	106	265	106	90-110	0	20	mg/kg	02.20.2020 12:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3117209

Parent Sample Id: 653094-001

Matrix: Soil

MS Sample Id: 653094-001 S

Prep Method: E300P

Date Prep: 02.20.2020

MSD Sample Id: 653094-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.02	200	207	102	209	103	90-110	1	20	mg/kg	02.20.2020 12:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3117209

Parent Sample Id: 653094-011

Matrix: Soil

MS Sample Id: 653094-011 S

Prep Method: E300P

Date Prep: 02.20.2020

MSD Sample Id: 653094-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.80	200	218	107	217	107	90-110	0	20	mg/kg	02.20.2020 14:16	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117187

MB Sample Id: 7697163-1-BLK

Matrix: Solid

LCS Sample Id: 7697163-1-BKS

Prep Method: SW8015P

Date Prep: 02.20.2020

LCSD Sample Id: 7697163-1-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	897	90	895	90	70-135	0	35	mg/kg	02.20.2020 14:13	
Diesel Range Organics (DRO)	<50.0	1000	1020	102	974	97	70-135	5	35	mg/kg	02.20.2020 14:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		114		105		70-135	%	02.20.2020 14:13
o-Terphenyl	94		118		104		70-135	%	02.20.2020 14:13

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117187

Matrix: Solid

MB Sample Id: 7697163-1-BLK

Prep Method: SW8015P

Date Prep: 02.20.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.20.2020 14:13	

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.
North Seven Rivers

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117187

Parent Sample Id: 652839-003

Matrix: Soil

MS Sample Id: 652839-003 S

Prep Method: SW8015P

Date Prep: 02.20.2020

MSD Sample Id: 652839-003 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)	<50.2	1000	933	93	914	92	70-135	2	35	mg/kg	02.20.2020 14:53	
Diesel Range Organics (DRO)	<50.2	1000	987	99	1050	105	70-135	6	35	mg/kg	02.20.2020 14:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	132		117		70-135	%	02.20.2020 14:53
o-Terphenyl	109		110		70-135	%	02.20.2020 14:53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117186

MB Sample Id: 7697112-1-BLK

Matrix: Solid

LCS Sample Id: 7697112-1-BKS

Prep Method: SW5030B

Date Prep: 02.20.2020

LCSD Sample Id: 7697112-1-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	0.103	103	0.101	101	70-130	2	35	mg/kg	02.20.2020 12:33	
Toluene	<0.00200	0.100	0.101	101	0.0984	98	70-130	3	35	mg/kg	02.20.2020 12:33	
Ethylbenzene	<0.00200	0.100	0.0983	98	0.0951	95	71-129	3	35	mg/kg	02.20.2020 12:33	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.196	98	70-135	4	35	mg/kg	02.20.2020 12:33	
o-Xylene	<0.00200	0.100	0.101	101	0.0978	98	71-133	3	35	mg/kg	02.20.2020 12:33	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		104		104		70-130	%	02.20.2020 12:33
4-Bromofluorobenzene	93		93		94		70-130	%	02.20.2020 12:33

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117186

Parent Sample Id: 652839-003

Matrix: Soil

MS Sample Id: 652839-003 S

Prep Method: SW5030B

Date Prep: 02.20.2020

MSD Sample Id: 652839-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.102	101	0.124	124	70-130	19	35	mg/kg	02.20.2020 13:14	
Toluene	<0.00202	0.101	0.110	109	0.121	121	70-130	10	35	mg/kg	02.20.2020 13:14	
Ethylbenzene	<0.00202	0.101	0.107	106	0.117	117	71-129	9	35	mg/kg	02.20.2020 13:14	
m,p-Xylenes	<0.00404	0.202	0.224	111	0.240	120	70-135	7	35	mg/kg	02.20.2020 13:14	
o-Xylene	<0.00202	0.101	0.111	110	0.118	118	71-133	6	35	mg/kg	02.20.2020 13:14	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		104		70-130	%	02.20.2020 13:14
4-Bromofluorobenzene	96		92		70-130	%	02.20.2020 13:14

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

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

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

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



Chain of Custody

Work Order No: 1639094

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

www.xenco.com Page 1 of 2

Project Manager:	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:	sls@ltenv.com, dmoir@ltenv.com, acclie@ltenv.com

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

Project Name:	North Seven Rivers	Turn Around	
Project Number:	02919196	Routine	☐
P.O. Number:		Rush: 24H	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT	Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	0.4	Thermometer ID		
Received Intact:	☒ Yes ☐ No	TNN007		
Cooler Custody Seals:	☒ Yes ☐ No	Correction Factor: -0.2		
Sample Custody Seals:	☒ Yes ☐ No	Total Containers: 14		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes									
PH01	5	2-19-20	1230	1'	1	X	X	X																				
PH014			1230	2'																								
PH02			1250	1'																								
PH024			1300	2'																								
PH03			1320	1'																								
PH034			1330	2'																								
PH04			1350	1'																								
PH044			1400	2'																								
PH05			1410	1'																								
PH054			1420	2'																								

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed: 8RCRA 13PPM Texas 11 A1 Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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 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
		7/6/20 10:25			



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) 794-1298
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Chain of Custody

Work Order No: 653094

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, acolle@ltenv.com

Project Name:	North Seven Rivers	Turn Around	
Project Number:	012919196	Routine	☐
P.O. Number:		Rush:	244
Sampler's Name:	Spencer Lo	Due Date:	

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

SAMPLE RECEIPT		ANALYSIS REQUEST		Work Order Notes	
TPH (EPA 8015)		BTEX (EPA 0-8021)		Chloride (EPA 300.0)	

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
PH06	S	2-19-20	1430	1'	1	X	X	X		
PH06A			1440	2'						
PH07			1450	1'						
PH07A			1500	2'						

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

Relinquished by: (Signature) Received by: (Signature) Date/Time

Relinquished by: (Signature) Received by: (Signature) Date/Time

Analytical Report 653452

**for
LT Environmental, Inc.**

Project Manager: Dan Moir

North Seven Rivers

012919196

25-FEB-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)



25-FEB-20

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **653452**

North Seven Rivers

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) 653452. 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. 653452 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 653452****LT Environmental, Inc., Arvada, CO**

North Seven Rivers

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH08	S	02-21-20 12:15	1 ft	653452-001
PH08A	S	02-21-20 12:25	2 ft	653452-002
PH09	S	02-21-20 11:20	1 ft	653452-003
PH09A	S	02-21-20 11:25	2 ft	653452-004
PH10	S	02-21-20 11:35	1 ft	653452-005
PH10A	S	02-21-20 11:45	2 ft	653452-006
PH11	S	02-21-20 12:40	1 ft	653452-007
PH11A	S	02-21-20 12:50	2 ft	653452-008
PH12	S	02-21-20 14:00	1 ft	653452-009
PH12A	S	02-21-20 14:10	2 ft	653452-010
PH13	S	02-21-20 14:25	1 ft	653452-011
PH13A	S	02-21-20 14:35	2 ft	653452-012
PH14	S	02-21-20 14:50	1 ft	653452-013
PH14A	S	02-21-20 15:00	2 ft	653452-014



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: North Seven Rivers

Project ID: 012919196
Work Order Number(s): 653452

Report Date: 25-FEB-20
Date Received: 02/24/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3117500 BTEX by EPA 8021B

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

Batch: LBA-3117524 TPH by SW8015 Mod

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

Samples affected are: 653452-012.



Certificate of Analysis Summary 653452

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon Feb-24-20 10:55 am

Report Date: 25-FEB-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	653452-001	653452-002	653452-003	653452-004	653452-005	653452-006
	<i>Field Id:</i>	PH08	PH08A	PH09	PH09A	PH10	PH10A
	<i>Depth:</i>	1- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Feb-21-20 12:15	Feb-21-20 12:25	Feb-21-20 11:20	Feb-21-20 11:25	Feb-21-20 11:35	Feb-21-20 11:45
BTEX by EPA 8021B	<i>Extracted:</i>	*** ** *	*** ** *	*** ** *	*** ** *	*** ** *	*** ** *
	<i>Analyzed:</i>	Feb-25-20 08:54	Feb-25-20 09:14	Feb-24-20 18:31	Feb-24-20 18:52	Feb-24-20 19:12	Feb-24-20 19:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
m,p-Xylenes		<0.00399 0.00399	<0.00398 0.00398	<0.00403 0.00403	<0.00402 0.00402	<0.00403 0.00403	<0.00404 0.00404
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Feb-24-20 11:40	Feb-24-20 11:40	Feb-24-20 11:40	Feb-24-20 11:40	Feb-24-20 13:00	Feb-24-20 13:00
	<i>Analyzed:</i>	Feb-24-20 13:03	Feb-24-20 13:09	Feb-24-20 13:15	Feb-24-20 13:20	Feb-24-20 13:54	Feb-24-20 14:11
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		10.2 10.1	238 10.0	<10.0 10.0	<10.0 10.0	<9.96 9.96	45.6 10.0
TPH by SW8015 Mod	<i>Extracted:</i>	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00
	<i>Analyzed:</i>	Feb-24-20 20:50	Feb-24-20 22:11	Feb-24-20 22:31	Feb-24-20 22:31	Feb-24-20 22:51	Feb-24-20 23:11
	<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)		<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.2 50.2
Diesel Range Organics (DRO)		<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.2 50.2
Total GRO-DRO		<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.2 50.2
Total TPH		<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.1 50.1	<50.3 50.3	<50.2 50.2

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 Analysis Summary 653452

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon Feb-24-20 10:55 am

Report Date: 25-FEB-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	653452-007	653452-008	653452-009	653452-010	653452-011	653452-012
	Field Id:	PH11	PH11A	PH12	PH12A	PH13	PH13A
	Depth:	1- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Feb-21-20 12:40	Feb-21-20 12:50	Feb-21-20 14:00	Feb-21-20 14:10	Feb-21-20 14:25	Feb-21-20 14:35
BTEX by EPA 8021B	Extracted:	*** ** *	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00
	Analyzed:	Feb-24-20 19:53	Feb-24-20 16:25	Feb-24-20 16:45	Feb-24-20 17:06	Feb-24-20 17:26	Feb-24-20 17:46
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00399 0.00399	<0.00404 0.00404	<0.00404 0.00404	<0.00399 0.00399	<0.00399 0.00399
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300	Extracted:	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00	Feb-24-20 13:00
	Analyzed:	Feb-24-20 14:17	Feb-24-20 14:23	Feb-24-20 14:29	Feb-24-20 14:34	Feb-24-20 14:51	Feb-24-20 14:56
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<10.0 10.0	11.2 10.1	11.5 10.1	<9.98 9.98	<9.94 9.94	<9.98 9.98
TPH by SW8015 Mod	Extracted:	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:00	Feb-24-20 17:10
	Analyzed:	Feb-24-20 23:11	Feb-24-20 23:31	Feb-24-20 23:31	Feb-24-20 23:52	Feb-24-20 23:52	Feb-25-20 02:12
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.0 50.0	<50.2 50.2
Diesel Range Organics (DRO)		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.0 50.0	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.0 50.0	<50.2 50.2
Total GRO-DRO		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.0 50.0	<50.2 50.2
Total TPH		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.0 50.0	<50.2 50.2

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 653452

LT Environmental, Inc., Arvada, CO

Project Name: North Seven Rivers

Project Id: 012919196

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon Feb-24-20 10:55 am

Report Date: 25-FEB-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	653452-013	653452-014				
	Field Id:	PH14	PH14A				
	Depth:	1- ft	2- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Feb-21-20 14:50	Feb-21-20 15:00				
BTEX by EPA 8021B	Extracted:	Feb-24-20 13:00	Feb-24-20 13:00				
	Analyzed:	Feb-24-20 18:07	Feb-24-20 18:27				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00199 0.00199	<0.00199 0.00199				
Toluene		<0.00199 0.00199	<0.00199 0.00199				
Ethylbenzene		<0.00199 0.00199	<0.00199 0.00199				
m,p-Xylenes		<0.00398 0.00398	<0.00398 0.00398				
o-Xylene		<0.00199 0.00199	<0.00199 0.00199				
Total Xylenes		<0.00199 0.00199	<0.00199 0.00199				
Total BTEX		<0.00199 0.00199	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	Feb-24-20 13:00	Feb-24-20 13:00				
	Analyzed:	Feb-24-20 15:02	Feb-24-20 15:08				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		<9.96 9.96	<9.96 9.96				
TPH by SW8015 Mod	Extracted:	Feb-24-20 17:10	Feb-24-20 17:10				
	Analyzed:	Feb-25-20 02:32	Feb-25-20 02:52				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<49.9 49.9				
Diesel Range Organics (DRO)		<50.1 50.1	<49.9 49.9				
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<49.9 49.9				
Total GRO-DRO		<50.1 50.1	<49.9 49.9				
Total TPH		<50.1 50.1	<49.9 49.9				

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

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

Jessica Kramer
Project Assistant



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH08**
Lab Sample Id: 653452-001

Matrix: Soil
Date Collected: 02.21.20 12.15

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117433

Date Prep: 02.24.20 11.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.2	10.1	mg/kg	02.24.20 13.03		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.24.20 20.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.24.20 20.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.24.20 20.50	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.24.20 20.50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.24.20 20.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	02.24.20 20.50	
o-Terphenyl	84-15-1	124	%	70-135	02.24.20 20.50	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH08**
 Lab Sample Id: 653452-001

Matrix: Soil
 Date Collected: 02.21.20 12.15

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.25.20 08.54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.25.20 08.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.25.20 08.54		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.25.20 08.54		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH08A**
Lab Sample Id: 653452-002

Matrix: Soil
Date Collected: 02.21.20 12.25

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117433

Date Prep: 02.24.20 11.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	238	10.0	mg/kg	02.24.20 13.09		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.24.20 22.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.24.20 22.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.24.20 22.11	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.24.20 22.11	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.24.20 22.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	02.24.20 22.11	
o-Terphenyl	84-15-1	133	%	70-135	02.24.20 22.11	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH08A**
 Lab Sample Id: 653452-002

Matrix: Soil
 Date Collected: 02.21.20 12.25

Date Received: 02.24.20 10.55
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.25.20 09.14	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.25.20 09.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.25.20 09.14		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.25.20 09.14		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH09**
Lab Sample Id: 653452-003

Matrix: Soil
Date Collected: 02.21.20 11.20

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117433

Date Prep: 02.24.20 11.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	02.24.20 13.15	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.24.20 22.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.24.20 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.24.20 22.31	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.24.20 22.31	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.24.20 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.24.20 22.31	
o-Terphenyl	84-15-1	113	%	70-135	02.24.20 22.31	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH09**
 Lab Sample Id: 653452-003

Matrix: Soil
 Date Collected: 02.21.20 11.20

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	02.24.20 18.31	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.24.20 18.31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.24.20 18.31		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.24.20 18.31		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH09A**
Lab Sample Id: 653452-004

Matrix: Soil
Date Collected: 02.21.20 11.25

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117433

Date Prep: 02.24.20 11.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	02.24.20 13.20	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.24.20 22.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.24.20 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.24.20 22.31	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.24.20 22.31	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.24.20 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	02.24.20 22.31	
o-Terphenyl	84-15-1	139	%	70-135	02.24.20 22.31	**



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH09A**
 Lab Sample Id: 653452-004

Matrix: Soil
 Date Collected: 02.21.20 11.25

Date Received: 02.24.20 10.55
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.24.20 18.52	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.24.20 18.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.24.20 18.52		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.24.20 18.52		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH10**
Lab Sample Id: 653452-005

Matrix: Soil
Date Collected: 02.21.20 11.35

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	02.24.20 13.54	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.24.20 22.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.24.20 22.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.24.20 22.51	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	02.24.20 22.51	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.24.20 22.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	02.24.20 22.51	
o-Terphenyl	84-15-1	120	%	70-135	02.24.20 22.51	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH10**
 Lab Sample Id: 653452-005

Matrix: Soil
 Date Collected: 02.21.20 11.35

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	02.24.20 19.12	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.24.20 19.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.24.20 19.12		
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.24.20 19.12		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH10A**
Lab Sample Id: 653452-006

Matrix: Soil
Date Collected: 02.21.20 11.45

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	45.6	10.0	mg/kg	02.24.20 14.11		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.24.20 23.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	02.24.20 23.11	
o-Terphenyl	84-15-1	131	%	70-135	02.24.20 23.11	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH10A**
Lab Sample Id: 653452-006

Matrix: Soil
Date Collected: 02.21.20 11.45

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 10.00

Basis: Wet Weight

Seq Number: 3117499

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	02.24.20 19.32	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.24.20 19.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.24.20 19.32		
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.24.20 19.32		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH11**
Lab Sample Id: 653452-007

Matrix: Soil
Date Collected: 02.21.20 12.40

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	02.24.20 14.17	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.24.20 23.11	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.24.20 23.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	02.24.20 23.11	
o-Terphenyl	84-15-1	126	%	70-135	02.24.20 23.11	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH11**
 Lab Sample Id: 653452-007

Matrix: Soil
 Date Collected: 02.21.20 12.40

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117499

Date Prep: 02.24.20 10.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.24.20 19.53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.24.20 19.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.24.20 19.53		
4-Bromofluorobenzene	460-00-4	93	%	70-130	02.24.20 19.53		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH11A**
Lab Sample Id: 653452-008

Matrix: Soil
Date Collected: 02.21.20 12.50

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.2	10.1	mg/kg	02.24.20 14.23		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

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	02.24.20 23.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.24.20 23.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.24.20 23.31	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.24.20 23.31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.24.20 23.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	02.24.20 23.31	
o-Terphenyl	84-15-1	124	%	70-135	02.24.20 23.31	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH11A**
 Lab Sample Id: 653452-008

Matrix: Soil
 Date Collected: 02.21.20 12.50

Date Received: 02.24.20 10.55
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Seq Number: 3117500

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.24.20 16.25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.24.20 16.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.24.20 16.25		
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.24.20 16.25		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH12**
Lab Sample Id: 653452-009

Matrix: Soil
Date Collected: 02.21.20 14.00

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.5	10.1	mg/kg	02.24.20 14.29		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.24.20 23.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.24.20 23.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.24.20 23.31	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.24.20 23.31	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.24.20 23.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	02.24.20 23.31	
o-Terphenyl	84-15-1	127	%	70-135	02.24.20 23.31	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH12**
 Lab Sample Id: 653452-009

Matrix: Soil
 Date Collected: 02.21.20 14.00

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Seq Number: 3117500

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	02.24.20 16.45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.24.20 16.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.24.20 16.45		
4-Bromofluorobenzene	460-00-4	93	%	70-130	02.24.20 16.45		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH12A**
Lab Sample Id: 653452-010

Matrix: Soil
Date Collected: 02.21.20 14.10

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.24.20 14.34	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.24.20 23.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.24.20 23.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.24.20 23.52	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.24.20 23.52	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.24.20 23.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	02.24.20 23.52	
o-Terphenyl	84-15-1	123	%	70-135	02.24.20 23.52	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH12A**
 Lab Sample Id: 653452-010

Matrix: Soil
 Date Collected: 02.21.20 14.10

Date Received: 02.24.20 10.55
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117500

Date Prep: 02.24.20 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	02.24.20 17.06	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.24.20 17.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.24.20 17.06		
1,4-Difluorobenzene	540-36-3	113	%	70-130	02.24.20 17.06		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH13**
Lab Sample Id: 653452-011

Matrix: Soil
Date Collected: 02.21.20 14.25

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	02.24.20 14.51	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117571

Date Prep: 02.24.20 17.00

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	02.24.20 23.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.24.20 23.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.24.20 23.52	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	02.24.20 23.52	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.24.20 23.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	02.24.20 23.52	
o-Terphenyl	84-15-1	124	%	70-135	02.24.20 23.52	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH13**
Lab Sample Id: 653452-011

Matrix: Soil
Date Collected: 02.21.20 14.25

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Seq Number: 3117500

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.24.20 17.26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.24.20 17.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	02.24.20 17.26		
1,4-Difluorobenzene	540-36-3	114	%	70-130	02.24.20 17.26		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH13A**
Lab Sample Id: 653452-012

Matrix: Soil
Date Collected: 02.21.20 14.35

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	02.24.20 14.56	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117524

Date Prep: 02.24.20 17.10

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.25.20 02.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.25.20 02.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.25.20 02.12	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	02.25.20 02.12	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.25.20 02.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	129	%	70-135	02.25.20 02.12	
o-Terphenyl	84-15-1	145	%	70-135	02.25.20 02.12	**



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH13A**
Lab Sample Id: 653452-012

Matrix: Soil
Date Collected: 02.21.20 14.35

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3117500

Prep Method: SW5030B

% Moisture:

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.24.20 17.46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.24.20 17.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	02.24.20 17.46		
4-Bromofluorobenzene	460-00-4	92	%	70-130	02.24.20 17.46		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH14**
Lab Sample Id: 653452-013

Matrix: Soil
Date Collected: 02.21.20 14.50

Date Received: 02.24.20 10.55
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	02.24.20 15.02	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117524

Date Prep: 02.24.20 17.10

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.25.20 02.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.25.20 02.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.25.20 02.32	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.25.20 02.32	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.25.20 02.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	02.25.20 02.32	
o-Terphenyl	84-15-1	112	%	70-135	02.25.20 02.32	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH14**
 Lab Sample Id: 653452-013

Matrix: Soil
 Date Collected: 02.21.20 14.50

Date Received: 02.24.20 10.55
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Seq Number: 3117500

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.24.20 18.07	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.24.20 18.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	02.24.20 18.07		
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.24.20 18.07		



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH14A**
Lab Sample Id: 653452-014

Matrix: Soil
Date Collected: 02.21.20 15.00

Date Received: 02.24.20 10.55
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3117446

Date Prep: 02.24.20 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	02.24.20 15.08	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3117524

Date Prep: 02.24.20 17.10

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.25.20 02.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.25.20 02.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.25.20 02.52	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	02.25.20 02.52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.25.20 02.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	02.25.20 02.52	
o-Terphenyl	84-15-1	117	%	70-135	02.25.20 02.52	



Certificate of Analytical Results 653452

LT Environmental, Inc., Arvada, CO

North Seven Rivers

Sample Id: **PH14A**
 Lab Sample Id: 653452-014

Matrix: Soil
 Date Collected: 02.21.20 15.00

Date Received: 02.24.20 10.55
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.24.20 13.00

Basis: Wet Weight

Seq Number: 3117500

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.24.20 18.27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.24.20 18.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	02.24.20 18.27		
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.24.20 18.27		



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.
North Seven Rivers

Analytical Method: Chloride by EPA 300

Seq Number: 3117433

MB Sample Id: 7697297-1-BLK

Matrix: Solid

LCS Sample Id: 7697297-1-BKS

Prep Method: E300P

Date Prep: 02.24.20

LCSD Sample Id: 7697297-1-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	253	101	253	101	90-110	0	20	mg/kg	02.24.20 10:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3117446

MB Sample Id: 7697329-1-BLK

Matrix: Solid

LCS Sample Id: 7697329-1-BKS

Prep Method: E300P

Date Prep: 02.24.20

LCSD Sample Id: 7697329-1-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	253	101	254	102	90-110	0	20	mg/kg	02.24.20 13:42	

Analytical Method: Chloride by EPA 300

Seq Number: 3117433

Parent Sample Id: 653380-001

Matrix: Soil

MS Sample Id: 653380-001 S

Prep Method: E300P

Date Prep: 02.24.20

MSD Sample Id: 653380-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	128	199	337	105	359	117	90-110	6	20	mg/kg	02.24.20 11:51	X

Analytical Method: Chloride by EPA 300

Seq Number: 3117433

Parent Sample Id: 653401-001

Matrix: Soil

MS Sample Id: 653401-001 S

Prep Method: E300P

Date Prep: 02.24.20

MSD Sample Id: 653401-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	254	200	461	104	462	104	90-110	0	20	mg/kg	02.24.20 10:38	

Analytical Method: Chloride by EPA 300

Seq Number: 3117446

Parent Sample Id: 653452-005

Matrix: Soil

MS Sample Id: 653452-005 S

Prep Method: E300P

Date Prep: 02.24.20

MSD Sample Id: 653452-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.07	200	209	103	208	102	90-110	0	20	mg/kg	02.24.20 13:59	

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.

North Seven Rivers

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117571

MB Sample Id: 7697385-1-BLK

Matrix: Solid

LCS Sample Id: 7697385-1-BKS

Prep Method: SW8015P

Date Prep: 02.24.20

LCSD Sample Id: 7697385-1-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	832	83	795	80	70-135	5	35	mg/kg	02.24.20 20:30	
Diesel Range Organics (DRO)	<50.0	1000	940	94	851	85	70-135	10	35	mg/kg	02.24.20 20:30	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag		LCSD %Rec	LCSD Flag	Limits		Units	Analysis Date	
1-Chlorooctane	122		113			115		70-135		%	02.24.20 20:30	
o-Terphenyl	135		117			104		70-135		%	02.24.20 20:30	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117524

MB Sample Id: 7697386-1-BLK

Matrix: Solid

LCS Sample Id: 7697386-1-BKS

Prep Method: SW8015P

Date Prep: 02.24.20

LCSD Sample Id: 7697386-1-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	959	96	963	96	70-135	0	35	mg/kg	02.25.20 01:52	
Diesel Range Organics (DRO)	<50.0	1000	882	88	984	98	70-135	11	35	mg/kg	02.25.20 01:52	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1-Chlorooctane	115		104		108		70-135	%	02.25.20 01:52			
o-Terphenyl	132		108		108		70-135	%	02.25.20 01:52			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117571

Matrix: Solid

MB Sample Id: 7697385-1-BLK

Prep Method: SW8015P

Date Prep: 02.24.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.24.20 20:30	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117524

Matrix: Solid

MB Sample Id: 7697386-1-BLK

Prep Method: SW8015P

Date Prep: 02.24.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.25.20 01:32	

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

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

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

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



LT Environmental, Inc.

North Seven Rivers

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117571

Parent Sample Id: 653452-001

Matrix: Soil

MS Sample Id: 653452-001 S

Prep Method: SW8015P

Date Prep: 02.24.20

MSD Sample Id: 653452-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	996	100	963	96	70-135	3	35	mg/kg	02.24.20 21:10	
Diesel Range Organics (DRO)	<50.2	1000	913	91	905	91	70-135	1	35	mg/kg	02.24.20 21:10	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		103		70-135	%	02.24.20 21:10
o-Terphenyl	110		106		70-135	%	02.24.20 21:10

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117524

Parent Sample Id: 653452-012

Matrix: Soil

MS Sample Id: 653452-012 S

Prep Method: SW8015P

Date Prep: 02.24.20

MSD Sample Id: 653452-012 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)	<50.2	1000	1000	100	841	84	70-135	17	35	mg/kg	02.25.20 02:12	
Diesel Range Organics (DRO)	<50.2	1000	1030	103	789	79	70-135	26	35	mg/kg	02.25.20 02:12	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		102		70-135	%	02.25.20 02:12
o-Terphenyl	119		91		70-135	%	02.25.20 02:12

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117499

MB Sample Id: 7697295-1-BLK

Matrix: Solid

LCS Sample Id: 7697295-1-BKS

Prep Method: SW5030B

Date Prep: 02.24.20

LCSD Sample Id: 7697295-1-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	0.108	108	0.105	105	70-130	3	35	mg/kg	02.24.20 11:03	
Toluene	<0.00200	0.100	0.103	103	0.101	101	70-130	2	35	mg/kg	02.24.20 11:03	
Ethylbenzene	<0.00200	0.100	0.0985	99	0.0975	98	71-129	1	35	mg/kg	02.24.20 11:03	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.202	101	70-135	0	35	mg/kg	02.24.20 11:03	
o-Xylene	<0.00200	0.100	0.101	101	0.100	100	71-133	1	35	mg/kg	02.24.20 11:03	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		104		70-130	%	02.24.20 11:03
4-Bromofluorobenzene	96		92		93		70-130	%	02.24.20 11:03

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

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

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

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



LT Environmental, Inc.
North Seven Rivers

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117500

MB Sample Id: 7697327-1-BLK

Matrix: Solid

LCS Sample Id: 7697327-1-BKS

Prep Method: SW5030B

Date Prep: 02.24.20

LCSD Sample Id: 7697327-1-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	0.121	121	0.123	123	70-130	2	35	mg/kg	02.24.20 14:43	
Toluene	<0.00200	0.100	0.111	111	0.113	113	70-130	2	35	mg/kg	02.24.20 14:43	
Ethylbenzene	<0.00200	0.100	0.106	106	0.108	108	71-129	2	35	mg/kg	02.24.20 14:43	
m,p-Xylenes	<0.00400	0.200	0.208	104	0.211	106	70-135	1	35	mg/kg	02.24.20 14:43	
o-Xylene	<0.00200	0.100	0.105	105	0.106	106	71-133	1	35	mg/kg	02.24.20 14:43	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	113		112		111		70-130	%	02.24.20 14:43
4-Bromofluorobenzene	90		91		91		70-130	%	02.24.20 14:43

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117499

Parent Sample Id: 653379-001

Matrix: Soil

MS Sample Id: 653379-001 S

Prep Method: SW5030B

Date Prep: 02.24.20

MSD Sample Id: 653379-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0987	99	0.106	106	70-130	7	35	mg/kg	02.24.20 11:43	
Toluene	<0.00199	0.0996	0.0838	84	0.0933	94	70-130	11	35	mg/kg	02.24.20 11:43	
Ethylbenzene	<0.00199	0.0996	0.0704	71	0.0807	81	71-129	14	35	mg/kg	02.24.20 11:43	
m,p-Xylenes	<0.00398	0.199	0.141	71	0.163	82	70-135	14	35	mg/kg	02.24.20 11:43	
o-Xylene	<0.00199	0.0996	0.0730	73	0.0842	85	71-133	14	35	mg/kg	02.24.20 11:43	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		70-130	%	02.24.20 11:43
4-Bromofluorobenzene	96		94		70-130	%	02.24.20 11:43

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117500

Parent Sample Id: 653452-008

Matrix: Soil

MS Sample Id: 653452-008 S

Prep Method: SW5030B

Date Prep: 02.24.20

MSD Sample Id: 653452-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.116	116	0.102	103	70-130	13	35	mg/kg	02.24.20 15:24	
Toluene	<0.00201	0.100	0.106	106	0.0935	94	70-130	13	35	mg/kg	02.24.20 15:24	
Ethylbenzene	<0.00201	0.100	0.102	102	0.0897	90	71-129	13	35	mg/kg	02.24.20 15:24	
m,p-Xylenes	<0.00402	0.201	0.198	99	0.174	87	70-135	13	35	mg/kg	02.24.20 15:24	
o-Xylene	<0.00201	0.100	0.100	100	0.0870	88	71-133	14	35	mg/kg	02.24.20 15:24	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		110		70-130	%	02.24.20 15:24
4-Bromofluorobenzene	89		90		70-130	%	02.24.20 15:24

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



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Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 382-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Chain of Custody

Work Order No: 1631 / 245.1 / 7470 / 7471

1631 / 245.1 / 7470 / 7471

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
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, acode@ltenv.com

Project Name:	North Seven Rivers	Turn Around	
Project Number:	012919196	Routine	☐
P.O. Number:		Rush:	24H
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT		Temp Blank:	Yes ☐ No ☒	Wet Ice:	Yes ☐ No ☒
Temperature (°C):	3.2	Thermometer ID: TMM007			
Received Intact:	Yes ☒ No ☐	Correction Factor: -0.2			
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Total Containers: 14			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	ANALYSIS REQUEST													Work Order Notes
PH08	S	2-21-20	12:15	1'	TPH (EPA 8015)	✓	BTEX (EPA 0-8021)	✓	Chloride (EPA 300.0)	✓								TAT starts the day received by the lab, if received by 4:30pm
PH08A				2'														Sample Comments
PH09				1'														
PH09A				2'														
PH10				1'														
PH10A				2'														
PH11				1'														
PH11A				2'														
PH12				1'														
PH12A				2'														

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
		2/24/20 10:55			



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
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Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Chain of Custody

Work Order No: 453452

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
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:	slc@ltenv.com, dmoir@ltenv.com, acode@ltenv.com

Project Name:	North Seven Rivers	Turn Around	
Project Number:	012919196	Route	
P.O. Number:		Rush:	24H
Sampler's Name:	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	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

Sample Identification					Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA 8015)	BTEX (EPA 8015)	Chloride (EPA 8015)	Sample Comments									
PH13					S	2-24-20	1425	1'	1	X	X	X										
PH13A					S		1435	2'														
PH14					S		1450	1'														
PH14A					S		1500	2'														

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		2/24/20 10:55			

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02.24.2020 10.55.00 AM

Work Order #: 653452

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)?	3.2
#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: 02.24.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.25.2020