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	NRM1935354566
District RP	
Facility ID	
Application ID	

T67SN-200313-C-1410

Release Notification

Responsible Party

TJK88-191031-C-1410

Responsible Party XTO Energy	OGRID 5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email Kyle_Littrell@xtoenergy.com	Incident # *(assigned by OCD)*
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.211013 Longitude -103.765956
(NAD 83 in decimal degrees to 5 decimal places)

Site Name PLU 15 Twin Wells Ranch 905H	Site Type Well Location
Date Release Discovered 10/16/2019	API# *(if applicable)* 30-015-45061 (PLU 15 – Twins Wells Ranch #905H)

Unit Letter	Section	Township	Range	County
N	15	24S	31E	EDDY

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls) 0	Volume Recovered (bbls) 0
☐ Produced Water	Volume Released (bbls) 0	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) 50/50 blend FRAC fluid	Volume/Weight Released (provide units) 70 bbls	Volume/Weight Recovered (provide units) 50 bbls

Cause of Release: Contract trainee employee allowed hydration unit tank to overflow to pad surface. Additional third party resources have been retained to assist in the remediation.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM1935354566
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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? YES – An unauthorized release of fluid over 25 barrels

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

YES, by Amy Ruth : to Rob Hamlet; Victoria Venegas; "Griswold, Jim, EMNRD"; blm_nm_cfo_spill@blm.gov on 10-17-19 at 8:38am.

Initial Response

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

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

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

N/A

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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 10/31/2019

email: Kyle_Littrell@xtoenergy.com Telephone:

OCD Only

Received by: Ramona Marcus Date: 12/19/2019

Incident ID	NRM1935354566
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM1935354566
District RP	
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 03/11/2020

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

OCD Only

Received by: Date:

Incident ID	NRM1935354566
District RP	
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: 03/11/2020

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:

A proud member of WSP

LT Environmental, Inc.
3300 North "A" Street
Building 1, Unit 222
Midland, Texas 79705
432.704.5178

March 12, 2020

Mr. Mike Bratcher
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

RE: Closure Request
PLU 15 Twin Wells Ranch 905H
Incident ID: NRM1935354566
Eddy County, New Mexico

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing site assessment, soil sampling, and remediation activities at the PLU Twin Wells Ranch 905H (Site) in Unit N, Section 15, Township 24 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to confirm the presence or absence of impact to soil by a release of 50/50 blend of hydraulic fracturing fluid at the Site. Based on field observations, field screening, and laboratory analytical results from soil sampling activities, XTO is submitting this Closure Request and requesting no further action (NFA) for Incident Number NRM1935354566.

RELEASE BACKGROUND

On October 16, 2019, a hydration unit tank overflowed resulting in the release of 70 barrels (bbls) of 50/50 blend of hydraulic fracturing fluid into a hydration unit tank and onto the caliche pad. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids, of which approximately 50 bbls were recovered. The net volume release was 20 bbls. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 (Form C-141) on October 31, 2019.

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 groundwater well data. The closest permitted groundwater well with depth to groundwater data is United States Geological Survey (USGS) well 321421103464901, located approximately 2.2 miles northwest of the Site. The groundwater well has a reported depth to groundwater of 437 feet bgs and a total depth of 627 feet bgs. Three New Mexico Office of the State Engineer (NMOSE) wells are closer than the USGS well

321421103464901, however, these wells (C 04388, C 02440, and C 04220) have no depth to groundwater data available. The closest continuously flowing water or significant watercourse to the Site is an emergent wetland, located approximately 4,119 feet northeast 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)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

SITE ASSESSMENT AND DELINEATION SOIL SAMPLING ACTIVITIES

On October 23, 2019, LTE personnel evaluated the release extent based on information provided on the Form C-141 and visual observations. The release extent and preliminary soil sample locations were mapped utilizing a handheld Global Positing System (GPS). The release occurred on the caliche pad. LTE personnel collected and field screened four preliminary soil assessment samples at four locations (SS01 through SS04) within the release extent. Locations of soil samples are presented on Figure 2. Photographic documentation of the Site was conducted and the photographic log is included in Attachment 2.

The four soil samples were collected at a depth of 0.5 feet bgs. The preliminary soil samples were field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. All soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler's 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 (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

According to laboratory analytical results, benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride were reported at concentrations below the Closure Criteria in all preliminary assessment soil samples, SS01-SS04. Though excavation activities did not appear warranted, additional assessment activities were scheduled to further confirm the presence or absence of impacted soil.

Further delineation and remediation efforts were postponed due to continued operations near the release which resulted in Site activity restrictions due to safety concerns. Per 19.15.29.12.B.(1) NMAC, one extension for submission of a Remediation Plan or Closure Request was granted. The extension was requested on January 8, 2020 and approved on January 9, 2020.

On January 10, 2020, LTE personnel returned to the Site to oversee additional soil assessment activities. Preliminary soil sample (SS05) was collected from within the release extent from a depth of approximately 0.5 feet bgs to further assess the lateral extent of impacted soil. In addition, five potholes (PH01 through PH05) were advanced using track-mounted backhoe, to a depth of two feet within the release extent. Potholes PH01 through PH04 were advanced at SS01 thought SS04 preliminary soil sample locations and pothole PH05 was advanced within the release extent at the newly-collected SS05 preliminary soil sample location.

Soil from the potholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach© chloride QuanTab© test strips, respectively. Field screening results and observations for each pothole were logged on lithologic/soil sampling logs, which are included in Attachment 1. The locations of delineation potholes (PH01 through PH05) are presented on Figure 2. The discrete delineation soil samples were collected, handled, and analyzed as described above at Xenco in Carlsbad, New Mexico.

ANALYTICAL RESULTS

Laboratory analytical results indicated benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in soil samples SS01 through SS05 collected at approximately 0.5 feet bgs and in the five delineation soil samples (PH01 through PH05) collected at two feet bgs. The laboratory analytical results are summarized in Table 1 and the laboratory analytical reports are provided in Attachment 3.

CLOSURE REQUEST

Preliminary soil samples SS01 through SS05 and delineation soil samples PH01 through PH05 were collected from within the release extent from depths ranging from 0.5 feet to two feet bgs to assess for the presence or absence of soil impacts as a result of the release on October 16, 2019. Laboratory analytical results for all soil samples indicated benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, field screening of soil indicated volatile aromatic hydrocarbons and chloride concentrations were not elevated and petroleum hydrocarbon odors were not identified within the release extent.

Based on initial response efforts, absence of elevated field screening results, and soil sample laboratory analytical results compliant with the Closure Criteria, no impacted soil was identified, and no soil excavation was warranted. XTO requests NFA for this release event on October 16, 2019 and respectfully requests closure of Incident Number NRM1935354566.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Elizabeth Naka
Staff Environmental Scientist

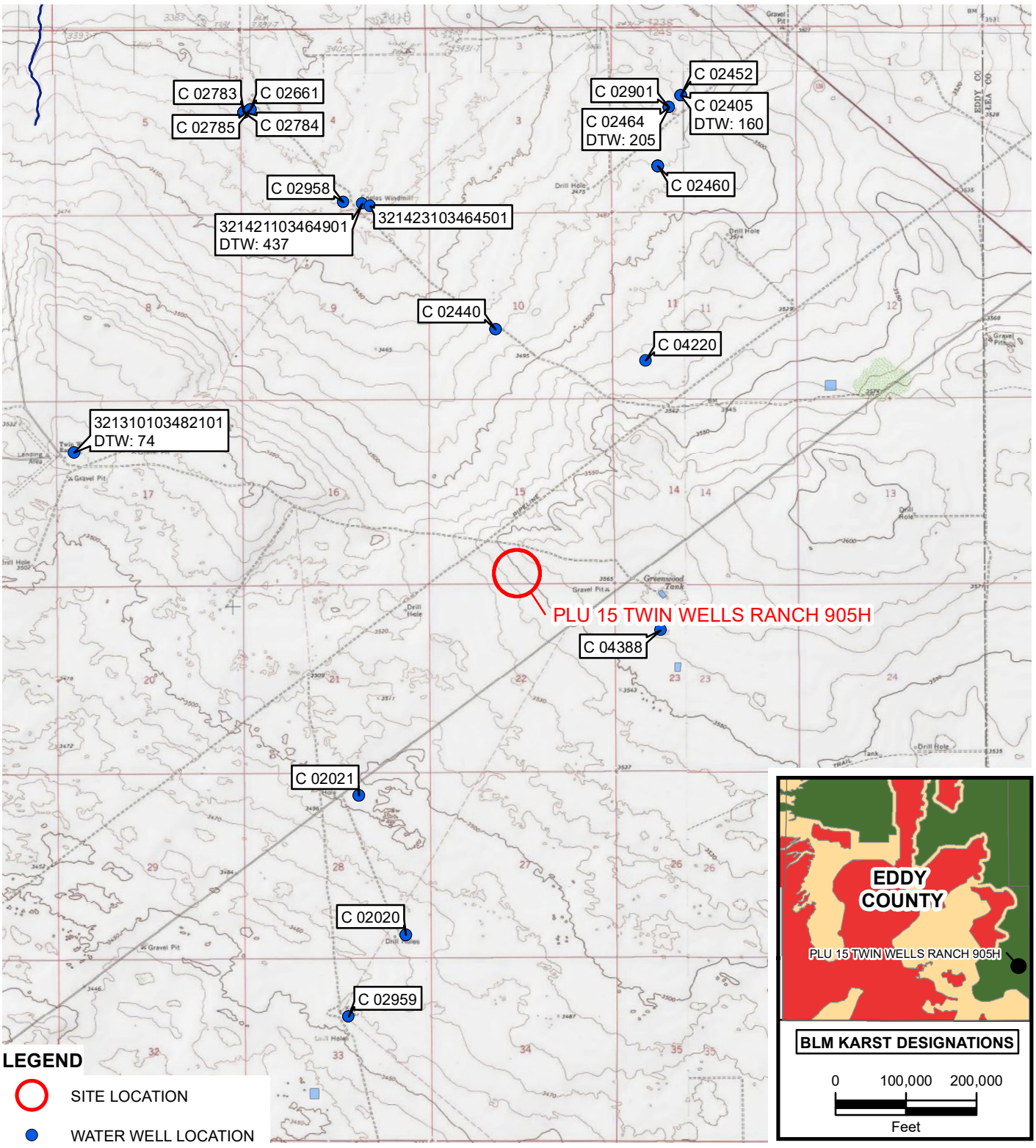
Ashley L. Ager, P.G.
Senior Geologist

cc:

Appendices:

Figure 1	Site Location Map
Figure 2	Soil Sampling Locations
Table 1	Soil Analytical Results
Attachment 1	Photographic Log
Attachment 2	Lithologic/Soil Sampling Logs
Attachment 3	Laboratory Analytical Reports

FIGURES



LEGEND

- SITE LOCATION
- WATER WELL LOCATION
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE
- NATIONAL WETLANDS INVENTORY SURFACE WATER FEATURE
- LOW KARST
- MEDIUM KARST
- HIGH KARST

NOTE: REMEDIATION PERMIT NUMBER NOT ASSIGNED
DTW: DEPTH TO WATER IN FEET

FIGURE 1
SITE LOCATION MAP
PLU 15 TWIN WELLS RANCH 905H
UNIT N SEC 15 T24S R31E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012919257_PLU 15 TWIN WELLS RANCH 905H\012919257_FIG01_SL_2020.mxd

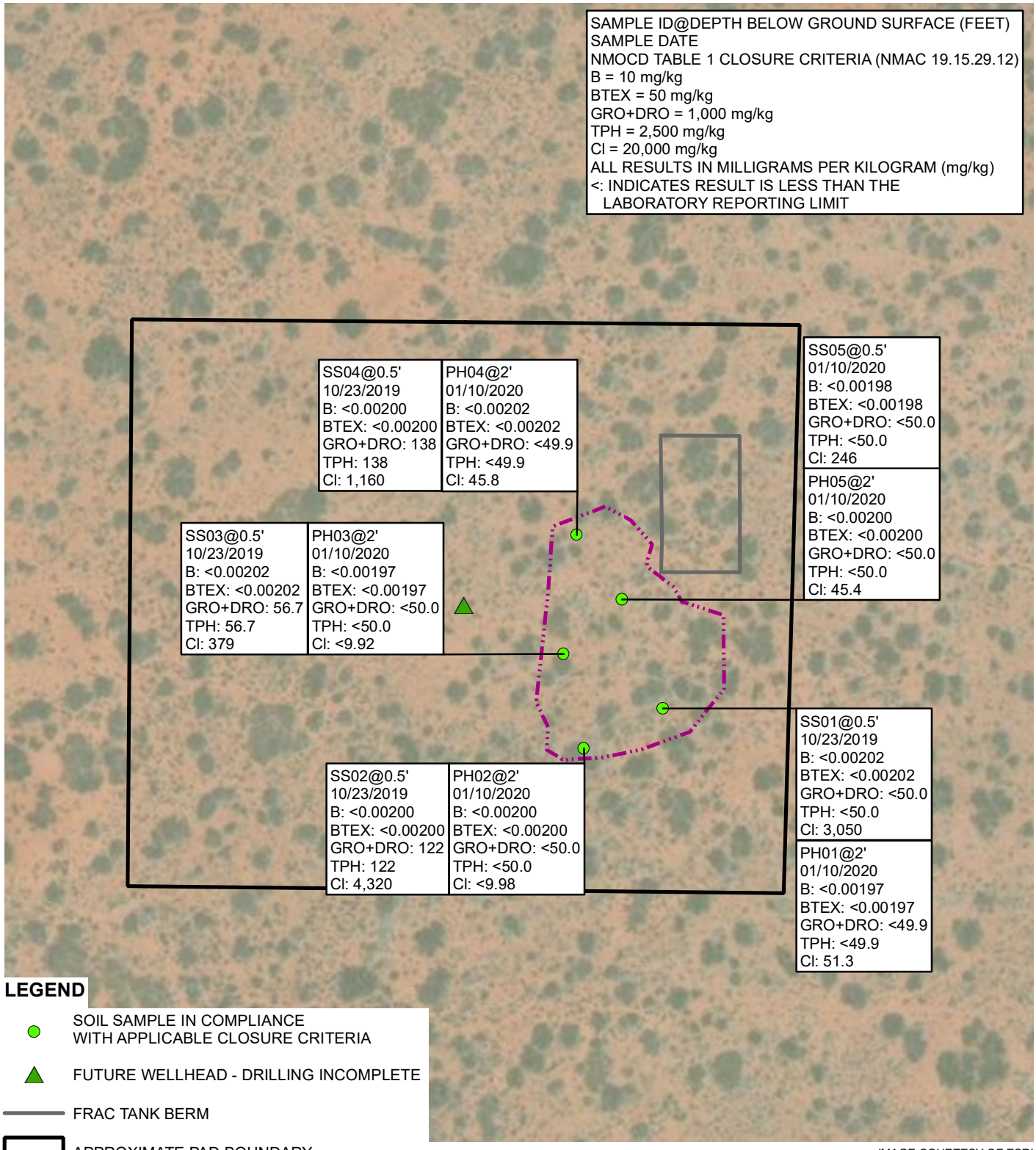


FIGURE 2
SOIL SAMPLE LOCATIONS
PLU 15 TWIN WELLS RANCH 905H
UNIT N SEC 15 T24S R31E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012919257_PLU 15 TWIN WELLS RANCH 905H\012919257_FIG02_SS LOC_2019.mxd

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

PLU 15 TWIN WELLS RANCH 905H
INCIDENT NO. NRM1935354566
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**
SS01	0.5	10/23/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	3,050
SS02	0.5	10/23/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	122	<49.8	122	122	4,320
SS03	0.5	10/23/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	56.7	<50.0	56.7	56.7	379
SS04	0.5	10/23/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	138	<49.9	138	138	1,160
SS05	0.5	01/10/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	246
PH01	2	01/10/2020	<0.00197	<0.00197	<0.00197	<0.00197	<0.00197	<49.9	<49.9	<49.9	<49.9	<49.9	51.3
PH02	2	01/10/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<9.98
PH03	2	01/10/2020	<0.00197	<0.00197	<0.00197	<0.00197	<0.00197	<50.0	<50.0	<50.0	<50.0	<50.0	<9.92
PH04	2	01/10/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	45.8
PH05	2	01/10/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	45.4

Notes:

bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
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

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ATTACHMENT 1: PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

Photograph 1: View of initial Site Visit

Photograph 2: View of Delineation activities facing South

PHOTOGRAPHIC LOG

Photograph 3: View of Delineation activities facing Southwest

Photograph 4: View of site facing East

ATTACHMENT 2: LITHOLOGIC SOIL SAMPLE LOGS

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

Identifier: PH01	Date: 1/10/20
Project Name: PLU 15 Twin wells Ranch 905H	RP Number: not assigned
Logged By: Ellie	Method: Track hoe
Lat/Long:	Field Screening: Chlorides + TPH
Hole Diameter:	Total Depth: 2'

LITHOLOGIC / SOIL SAMPLING LOG

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	164	0.0	N		2	2ft	S	caliche, tan, no odor

0920

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

Identifier:	Date:
PH02	1/16/20
Project Name: PLU ISTwin Wells Ranch 90514	RP Number: not assigned
Logged By: Ellie N.	Method: Trackhoe
Hole Diameter:	Total Depth:

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: Chlorides + TPH

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0935 D	274	0.0	N		1 2 3 4 6 8 10 12 14 16 18 20 12	2ft	S	sand, trace roots, no odor brown

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

Identifier:	Date:
PH03	1/16/20
Project Name: PLU 15 Twin Wells Ranch 905H	RP Number: not assigned
Logged By: Elke N.	Method: Trackhoe
Hole Diameter:	Total Depth: 2ft

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: Chloride & TPH

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0945 D	392	0.0	N		1 2 3 4 6 8 10 12 14 16 18 20 12	2ft	S	sand, trace silt, brown, no odor

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

Identifier: PH04	Date: 1/10/20
Project Name: PLU 15 Twin Wells Ranch 905H	RP Number: not assigned
Logged By: Ellie N.	Method: Track hoe
Hole Diameter:	Total Depth: 2'

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: Chloride + TPH

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0955 D	274	0.0	N		1 2 3 4 6 8 10 12 14 16 18 20 12	2ft	S	caliche, trace sand, tan, no odor

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

Identifier: PH05	Date: 1/10/20
Project Name: PLU 15 Twin Wells Ranch 905H	RP Number: not assigned
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Ellie N. / Method: Trackhoe
Lat/Long:	Field Screening: Chloride + TPH / Hole Diameter: / Total Depth: 28'
Comments:	

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0910 D	>160	0.0	N		1	0.5	S	caliche, tan-white, no odor
0905 D	>160	0.0	N		2	28'	S	↓
					3			
					4			
					6			
					8			
					10			
					12			
					14			
					16			
					18			
					20			
					12			

ATTACHMENT 3 : LABORATORY ANALYTICAL REPORTS

Analytical Report 640977

for

LT Environmental, Inc.

Project Manager: Dan Moir

PLU Twins Well Ranch 905H

10/16/2019

30-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

30-OCT-19

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

Reference: XENCO Report No(s): **640977**
PLU Twins Well Ranch 905H
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) 640977. 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. 640977 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	10-23-19 18:35	0.5 ft	640977-001
SS02	S	10-23-19 18:40	0.5 ft	640977-002
SS03	S	10-23-19 18:45	0.5 ft	640977-003
SS04	S	10-23-19 18:50	0.5 ft	640977-004

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU Twins Well Ranch 905H

Project ID: *10/16/2019*
Work Order Number(s): *640977*

Report Date: *30-OCT-19*
Date Received: *10/24/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3105876 BTEX by EPA 8021B

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

Certificate of Analysis Summary 640977

LT Environmental, Inc., Arvada, CO

Project Name: PLU Twins Well Ranch 905H

Project Id: 10/16/2019
Contact: Dan Moir
Project Location:

Date Received in Lab: Thu Oct-24-19 08:51 am
Report Date: 30-OCT-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	640977-001		640977-002		640977-003		640977-004					
	Field Id:	SS01		SS02		SS03		SS04					
	Depth:	0.5- ft		0.5- ft		0.5- ft		0.5- ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Oct-23-19 18:35		Oct-23-19 18:40		Oct-23-19 18:45		Oct-23-19 18:50					
BTEX by EPA 8021B SUB: T104704400-19-19	***Extracted:***	Oct-29-19 14:00		Oct-29-19 14:00		Oct-29-19 14:00		Oct-29-19 14:00					
	Analyzed:	Oct-29-19 23:23		Oct-29-19 23:43		Oct-30-19 00:03		Oct-30-19 00:23					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
Toluene		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
m,p-Xylenes		<0.00403	0.00403	<0.00399	0.00399	<0.00403	0.00403	<0.00401	0.00401				
o-Xylene		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
Total BTEX		<0.00202	0.00202	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200				
Chloride by EPA 300 SUB: T104704400-19-19	***Extracted:***	Oct-28-19 16:00		Oct-28-19 16:00		Oct-28-19 16:00		Oct-28-19 16:00					
	Analyzed:	Oct-28-19 21:35		Oct-28-19 21:56		Oct-28-19 22:01		Oct-28-19 22:17					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		3050	25.1	4320	50.5	379	4.99	1160	4.96				
TPH by SW8015 Mod SUB: T104704400-19-19	***Extracted:***	Oct-25-19 17:00		Oct-25-19 17:00		Oct-25-19 17:00		Oct-25-19 17:00					
	Analyzed:	Oct-26-19 02:27		Oct-26-19 02:46		Oct-26-19 03:05		Oct-26-19 03:24					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.8	49.8	<50.0	50.0	<49.9	49.9				
Diesel Range Organics (DRO)		<50.0	50.0	122	49.8	56.7	50.0	138	49.9				
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.8	49.8	<50.0	50.0	<49.9	49.9				
Total GRO-DRO		<50.0	50.0	122	49.8	56.7	50.0	138	49.9				
Total TPH		<50.0	50.0	122	49.8	56.7	50.0	138	49.9				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-001	Date Collected:	10.23.19 18.35	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.28.19 16.00	Basis:	Wet Weight
Seq Number:	3105667			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3050**	25.1	mg/kg	10.28.19 21.35		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.25.19 17.00	Basis:	Wet Weight
Seq Number:	3105539			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.26.19 02.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.26.19 02.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.26.19 02.27	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	10.26.19 02.27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.26.19 02.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	10.26.19 02.27	
o-Terphenyl	84-15-1	97	%	70-135	10.26.19 02.27	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-001	Date Collected:	10.23.19 18.35	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.29.19 14.00	Basis:	Wet Weight
Seq Number:	3105876			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.29.19 23.23	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.29.19 23.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	10.29.19 23.23	
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.29.19 23.23	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-002	Date Collected:	10.23.19 18.40	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.28.19 16.00	Basis:	Wet Weight
Seq Number:	3105667			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4320**	50.5	mg/kg	10.28.19 21.56		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.25.19 17.00	Basis:	Wet Weight
Seq Number:	3105539			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	10.26.19 02.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	**122**	49.8	mg/kg	10.26.19 02.46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.26.19 02.46	U	1
Total GRO-DRO	PHC628	**122**	49.8	mg/kg	10.26.19 02.46		1
Total TPH	PHC635	**122**	49.8	mg/kg	10.26.19 02.46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.26.19 02.46	
o-Terphenyl	84-15-1	97	%	70-135	10.26.19 02.46	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-002	Date Collected:	10.23.19 18.40	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.29.19 14.00	Basis:	Wet Weight
Seq Number:	3105876			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.29.19 23.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.29.19 23.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	10.29.19 23.43	
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.29.19 23.43	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-003	Date Collected:	10.23.19 18.45	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.28.19 16.00	Basis:	Wet Weight
Seq Number:	3105667			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**379**	4.99	mg/kg	10.28.19 22.01		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.25.19 17.00	Basis:	Wet Weight
Seq Number:	3105539			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.26.19 03.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	**56.7**	50.0	mg/kg	10.26.19 03.05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.26.19 03.05	U	1
Total GRO-DRO	PHC628	**56.7**	50.0	mg/kg	10.26.19 03.05		1
Total TPH	PHC635	**56.7**	50.0	mg/kg	10.26.19 03.05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.26.19 03.05	
o-Terphenyl	84-15-1	95	%	70-135	10.26.19 03.05	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-003	Date Collected:	10.23.19 18.45	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.29.19 14.00	Basis:	Wet Weight
Seq Number:	3105876			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.30.19 00.03	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.30.19 00.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.30.19 00.03	
4-Bromofluorobenzene	460-00-4	104	%	70-130	10.30.19 00.03	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS04**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-004	Date Collected:	10.23.19 18.50	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.28.19 16.00	Basis:	Wet Weight
Seq Number:	3105667			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1160**	4.96	mg/kg	10.28.19 22.17		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.25.19 17.00	Basis:	Wet Weight
Seq Number:	3105539			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.26.19 03.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	**138**	49.9	mg/kg	10.26.19 03.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.26.19 03.24	U	1
Total GRO-DRO	PHC628	**138**	49.9	mg/kg	10.26.19 03.24		1
Total TPH	PHC635	**138**	49.9	mg/kg	10.26.19 03.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	10.26.19 03.24	
o-Terphenyl	84-15-1	108	%	70-135	10.26.19 03.24	

Certificate of Analytical Results 640977

LT Environmental, Inc., Arvada, CO

PLU Twins Well Ranch 905H

Sample Id:	**SS04**	Matrix:	Soil	Date Received:	10.24.19 08.51
Lab Sample Id:	640977-004	Date Collected:	10.23.19 18.50	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.29.19 14.00	Basis:	Wet Weight
Seq Number:	3105876			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.30.19 00.23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.30.19 00.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.30.19 00.23	
4-Bromofluorobenzene	460-00-4	113	%	70-130	10.30.19 00.23	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 640977

LT Environmental, Inc.

PLU Twins Well Ranch 905H

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3105667 — Matrix: Solid — Date Prep: 10.28.19
MB Sample Id: 7689058-1-BLK — LCS Sample Id: 7689058-1-BKS — LCSD Sample Id: 7689058-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	265	106	266	106	90-110	0	20	mg/kg	10.28.19 20:18	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3105667 — Matrix: Soil — Date Prep: 10.28.19
Parent Sample Id: 640597-035 — MS Sample Id: 640597-035 S — MSD Sample Id: 640597-035 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	67.6	249	312	98	313	99	90-110	0	20	mg/kg	10.28.19 21:46	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3105667 — Matrix: Soil — Date Prep: 10.28.19
Parent Sample Id: 641232-001 — MS Sample Id: 641232-001 S — MSD Sample Id: 641232-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.12	199	203	101	203	101	90-110	0	20	mg/kg	10.28.19 20:34	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3105539 — Matrix: Solid — Date Prep: 10.25.19
MB Sample Id: 7688958-1-BLK — LCS Sample Id: 7688958-1-BKS — LCSD Sample Id: 7688958-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1040	104	1050	105	70-135	1	20	mg/kg	10.25.19 20:12	
Diesel Range Organics (DRO)	<15.0	1000	970	97	981	98	70-135	1	20	mg/kg	10.25.19 20:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		119		118		70-135	%	10.25.19 20:12
o-Terphenyl	102		103		106		70-135	%	10.25.19 20:12

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3105539 — Matrix: Solid — Date Prep: 10.25.19
MB Sample Id: 7688958-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.25.19 19:53	

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

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

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

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

Final 1.000

QC Summary 640977

LT Environmental, Inc.

PLU Twins Well Ranch 905H

Analytical Method: TPH by SW8015 Mod | Prep Method: SW8015P
Seq Number: 3105539 | Matrix: Soil | Date Prep: 10.25.19
Parent Sample Id: 640965-001 | MS Sample Id: 640965-001 S | MSD Sample Id: 640965-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	1020	102	1040	104	70-135	2	20	mg/kg	10.25.19 21:08	
Diesel Range Organics (DRO)	<15.0	999	958	96	973	97	70-135	2	20	mg/kg	10.25.19 21:08	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		119		70-135	%	10.25.19 21:08
o-Terphenyl	108		105		70-135	%	10.25.19 21:08

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3105876 | Matrix: Solid | Date Prep: 10.29.19
MB Sample Id: 7689147-1-BLK | LCS Sample Id: 7689147-1-BKS | LCSD Sample Id: 7689147-1-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	0.112	112	70-130	8	35	mg/kg	10.29.19 21:23	
Toluene	<0.00200	0.100	0.0973	97	0.108	108	70-130	10	35	mg/kg	10.29.19 21:23	
Ethylbenzene	<0.00200	0.100	0.0992	99	0.112	112	70-130	12	35	mg/kg	10.29.19 21:23	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.230	115	70-130	12	35	mg/kg	10.29.19 21:23	
o-Xylene	<0.00200	0.100	0.101	101	0.117	117	70-130	15	35	mg/kg	10.29.19 21:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	95		97		99		70-130	%	10.29.19 21:23
4-Bromofluorobenzene	98		104		115		70-130	%	10.29.19 21:23

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3105876 | Matrix: Soil | Date Prep: 10.29.19
Parent Sample Id: 640977-001 | MS Sample Id: 640977-001 S | MSD Sample Id: 640977-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0878	88	0.0893	90	70-130	2	35	mg/kg	10.29.19 22:03	
Toluene	<0.00200	0.100	0.0847	85	0.0852	86	70-130	1	35	mg/kg	10.29.19 22:03	
Ethylbenzene	<0.00200	0.100	0.0863	86	0.0860	87	70-130	0	35	mg/kg	10.29.19 22:03	
m,p-Xylenes	<0.00401	0.200	0.176	88	0.175	88	70-130	1	35	mg/kg	10.29.19 22:03	
o-Xylene	<0.00200	0.100	0.0881	88	0.0874	88	70-130	1	35	mg/kg	10.29.19 22:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		100		70-130	%	10.29.19 22:03
4-Bromofluorobenzene	111		108		70-130	%	10.29.19 22:03

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]
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

XENCO LABORATORIES

Chain of Custody

Work Order No: 640977

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 Crasbad, NM (432) 704-5440
Phoenix,AZ (480) 355-0900 Atlanta,GA (770) 449-8800 Tampa,FL (813) 620-2000 West Palm Beach, FL (561) 689-6701

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (If different)	Kyle Littrell
Company Name:	LT Environmental	Company Name:	XTO
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad NM 88220
Phone:	432.236.3849	Email:	slo@ltenv.com, dmoir@ltenv.com

Work Order Comments

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

Project Name:	PLU Twin Wells Ranch 905H	Turn Around	
Project Number:	10/16/2019	Routine	☑
Project Location		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	
PO #:		Quote #:	

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Temperature (°C):	1.4	Thermometer ID	T-NM-007
Received Intact:	Yes No		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Total Containers:	4

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Pres. Code	TPH (EPA 8015)	BTEX (EPA 8021)	Chlorides (EPA 300)
	SS01	S	10.23.19	1835	0.5'	1		X	X	X
	SS02	S		1840	0.5'					
	SS03	S		1845	0.5'					
	SS04	S		1850	0.5'					

ANALYSIS REQUEST

Preservative Codes

MeOH: Me
None: NO
HNO3: HN
H2S04: H2
HCL: HL
NaOH: Na
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:00pm

Sample Comments

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

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

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
Spencer Lo	Kalei Jennings	10.24.19 8:00AM	2 Kalei Jennings		10/24/19 851
			4		
			6		

Revised Date 022619 Rev. 2019.1

Inter-Office Shipment

IOS Number **50794**

Date/Time: 10/24/19 14:02
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Martha Castro
Delivery Priority:
Air Bill No.: 776810437200

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

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
640977-001	S	SS01	10/23/19 18:35	SW8015MOD_NM	TPH by SW8015 Mod	10/30/19	11/06/19	JKR	GRO-DRO PHCC10C28 PI	
640977-001	S	SS01	10/23/19 18:35	SW8021B	BTEX by EPA 8021B	10/30/19	11/06/19	JKR	BR4FBZ BZ BZME EBZ X	
640977-001	S	SS01	10/23/19 18:35	E300_CL	Chloride by EPA 300	10/30/19	04/20/20	JKR	CL	
640977-002	S	SS02	10/23/19 18:40	SW8015MOD_NM	TPH by SW8015 Mod	10/30/19	11/06/19	JKR	GRO-DRO PHCC10C28 PI	
640977-002	S	SS02	10/23/19 18:40	SW8021B	BTEX by EPA 8021B	10/30/19	11/06/19	JKR	BR4FBZ BZ BZME EBZ X	
640977-002	S	SS02	10/23/19 18:40	E300_CL	Chloride by EPA 300	10/30/19	04/20/20	JKR	CL	
640977-003	S	SS03	10/23/19 18:45	E300_CL	Chloride by EPA 300	10/30/19	04/20/20	JKR	CL	
640977-003	S	SS03	10/23/19 18:45	SW8015MOD_NM	TPH by SW8015 Mod	10/30/19	11/06/19	JKR	GRO-DRO PHCC10C28 PI	
640977-003	S	SS03	10/23/19 18:45	SW8021B	BTEX by EPA 8021B	10/30/19	11/06/19	JKR	BR4FBZ BZ BZME EBZ X	
640977-004	S	SS04	10/23/19 18:50	E300_CL	Chloride by EPA 300	10/30/19	04/20/20	JKR	CL	
640977-004	S	SS04	10/23/19 18:50	SW8015MOD_NM	TPH by SW8015 Mod	10/30/19	11/06/19	JKR	GRO-DRO PHCC10C28 PI	
640977-004	S	SS04	10/23/19 18:50	SW8021B	BTEX by EPA 8021B	10/30/19	11/06/19	JKR	BR4FBZ BZ BZME EBZ X	

Inter Office Shipment or Sample Comments:

Relinquished By: Martha Castro
Date Relinquished: 10/24/2019

Received By: Brianna Teel
Date Received: 10/25/2019 11:36
Cooler Temperature: 0.1

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 50794

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

Sent By: Martha Castro **Date Sent:** 10/24/2019 02:02 PM

Received By: Brianna Teel **Date Received:** 10/25/2019 11:36 AM

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

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: Brianna Teel Date: 10/25/2019

Brianna Teel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/24/2019 08:51:00 AM

Work Order #: 640977

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

Temperature Measuring device used : T-NM-07

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Martha Castro Date: 10/24/2019

Checklist reviewed by: Jessica Kramer Date: 10/24/2019

Analytical Report 648700

for

LT Environmental, Inc.

Project Manager: Dan Moir

PLU 15 Twin Wells Ranch 905H

012919257

16-JAN-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)

16-JAN-20

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

Reference: XENCO Report No(s): **648700**
PLU 15 Twin Wells Ranch 905H
Project Address: Eddy County

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) 648700. 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. 648700 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	01-10-20 09:20	2 ft	648700-001
PH02	S	01-10-20 09:35	2 ft	648700-002
PH03	S	01-10-20 09:45	2 ft	648700-003
PH04	S	01-10-20 09:55	2 ft	648700-004
PH05	S	01-10-20 09:05	2 ft	648700-005
SS05	S	01-10-20 09:10	0.5 ft	648700-006

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 15 Twin Wells Ranch 905H

Project ID: *012919257*
Work Order Number(s): *648700*

Report Date: *16-JAN-20*
Date Received: *01/10/2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3112984 BTEX by EPA 8021B

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

Certificate of Analysis Summary 648700

LT Environmental, Inc., Arvada, CO

Project Name: PLU 15 Twin Wells Ranch 905H

Project Id: 012919257
Contact: Dan Moir
Project Location: Eddy County

Date Received in Lab: Fri Jan-10-20 01:30 pm
Report Date: 16-JAN-20
Project Manager: Jessica Kramer

Analysis Requested		648700-001		648700-002		648700-003		648700-004		648700-005		648700-006	
	Field Id:	PH01		PH02		PH03		PH04		PH05		SS05	
	Depth:	2- ft		2- ft		2- ft		2- ft		2- ft		0.5- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-10-20 09:20		Jan-10-20 09:35		Jan-10-20 09:45		Jan-10-20 09:55		Jan-10-20 09:05		Jan-10-20 09:10	
BTEX by EPA 8021B	Extracted:	Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00	
	Analyzed:	Jan-11-20 00:32		Jan-11-20 00:51		Jan-11-20 01:10		Jan-11-20 01:29		Jan-11-20 01:49		Jan-11-20 02:08	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
Toluene		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
Ethylbenzene		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
m,p-Xylenes		<0.00394	0.00394	<0.00399	0.00399	<0.00394	0.00394	<0.00405	0.00405	<0.00401	0.00401	<0.00396	0.00396
o-Xylene		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
Total Xylenes		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
Total BTEX		<0.00197	0.00197	<0.00200	0.00200	<0.00197	0.00197	<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198
Chloride by EPA 300	Extracted:	Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00		Jan-10-20 15:00	
	Analyzed:	Jan-10-20 20:10		Jan-10-20 20:16		Jan-10-20 20:22		Jan-10-20 20:29		Jan-11-20 08:04		Jan-10-20 20:36	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		51.3	9.94	<9.98	9.98	<9.92	9.92	45.8	10.0	45.4	9.88	246	49.9
TPH by SW8015 Mod SUB: T104704400-19-19	Extracted:	Jan-15-20 09:00		Jan-15-20 09:00		Jan-15-20 09:00		Jan-15-20 09:00		Jan-15-20 09:00		Jan-15-20 09:00	
	Analyzed:	Jan-15-20 18:55		Jan-15-20 19:14		Jan-15-20 19:33		Jan-15-20 19:51		Jan-15-20 20:10		Jan-15-20 20:28	
	Units/RL:	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	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0
Total GRO-DRO		<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0
Total TPH		<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0

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

Jessica Kramer
Project Assistant

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH01**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-001	Date Collected:	01.10.20 09.20	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**51.3**	9.94	mg/kg	01.10.20 20.10		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.15.20 18.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.15.20 18.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.15.20 18.55	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.15.20 18.55	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.15.20 18.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-135	01.15.20 18.55	
o-Terphenyl	84-15-1	80	%	70-135	01.15.20 18.55	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH01**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-001	Date Collected:	01.10.20 09.20	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1
Toluene	108-88-3	<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1
Ethylbenzene	100-41-4	<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1
m,p-Xylenes	179601-23-1	<0.00394	0.00394	mg/kg	01.11.20 00.32	U	1
o-Xylene	95-47-6	<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1
Total Xylenes	1330-20-7	<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1
Total BTEX		<0.00197	0.00197	mg/kg	01.11.20 00.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	91	%	70-130	01.11.20 00.32	
4-Bromofluorobenzene	460-00-4	98	%	70-130	01.11.20 00.32	

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LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH02**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-002	Date Collected:	01.10.20 09.35	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	01.10.20 20.16	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.15.20 19.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.15.20 19.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.15.20 19.14	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.15.20 19.14	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.15.20 19.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	01.15.20 19.14	
o-Terphenyl	84-15-1	83	%	70-135	01.15.20 19.14	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH02**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-002	Date Collected:	01.10.20 09.35	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.11.20 00.51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.11.20 00.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	98	%	70-130	01.11.20 00.51	
4-Bromofluorobenzene	460-00-4	112	%	70-130	01.11.20 00.51	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH03**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-003	Date Collected:	01.10.20 09.45	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	01.10.20 20.22	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.15.20 19.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.15.20 19.33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.15.20 19.33	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.15.20 19.33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.15.20 19.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	01.15.20 19.33	
o-Terphenyl	84-15-1	82	%	70-135	01.15.20 19.33	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH03**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-003	Date Collected:	01.10.20 09.45	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1
Toluene	108-88-3	<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1
Ethylbenzene	100-41-4	<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1
m,p-Xylenes	179601-23-1	<0.00394	0.00394	mg/kg	01.11.20 01.10	U	1
o-Xylene	95-47-6	<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1
Total Xylenes	1330-20-7	<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1
Total BTEX		<0.00197	0.00197	mg/kg	01.11.20 01.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.11.20 01.10	
4-Bromofluorobenzene	460-00-4	108	%	70-130	01.11.20 01.10	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH04**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-004	Date Collected:	01.10.20 09.55	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**45.8**	10.0	mg/kg	01.10.20 20.29		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.15.20 19.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.15.20 19.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.15.20 19.51	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.15.20 19.51	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.15.20 19.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-135	01.15.20 19.51	
o-Terphenyl	84-15-1	80	%	70-135	01.15.20 19.51	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH04**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-004	Date Collected:	01.10.20 09.55	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1
m,p-Xylenes	179601-23-1	<0.00405	0.00405	mg/kg	01.11.20 01.29	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.11.20 01.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.11.20 01.29	
4-Bromofluorobenzene	460-00-4	114	%	70-130	01.11.20 01.29	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH05**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-005	Date Collected:	01.10.20 09.05	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**45.4**	9.88	mg/kg	01.11.20 08.04		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.15.20 20.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.15.20 20.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.15.20 20.10	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.15.20 20.10	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.15.20 20.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	01.15.20 20.10	
o-Terphenyl	84-15-1	82	%	70-135	01.15.20 20.10	

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LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**PH05**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-005	Date Collected:	01.10.20 09.05	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.11.20 01.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.11.20 01.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.11.20 01.49	
4-Bromofluorobenzene	460-00-4	113	%	70-130	01.11.20 01.49	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**SS05**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-006	Date Collected:	01.10.20 09.10	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112968				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**246**	49.9	mg/kg	01.10.20 20.36		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	01.15.20 09.00	Basis:	Wet Weight
Seq Number:	3113462			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.15.20 20.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.15.20 20.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.15.20 20.28	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.15.20 20.28	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.15.20 20.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-135	01.15.20 20.28	
o-Terphenyl	84-15-1	80	%	70-135	01.15.20 20.28	

Certificate of Analytical Results 648700

LT Environmental, Inc., Arvada, CO

PLU 15 Twin Wells Ranch 905H

Sample Id:	**SS05**	Matrix:	Soil	Date Received:	01.10.20 13.30
Lab Sample Id:	648700-006	Date Collected:	01.10.20 09.10	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.10.20 15.00	Basis:	Wet Weight
Seq Number:	3112984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	01.11.20 02.08	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.11.20 02.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.11.20 02.08	
4-Bromofluorobenzene	460-00-4	111	%	70-130	01.11.20 02.08	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 648700

LT Environmental, Inc.

PLU 15 Twin Wells Ranch 905H

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3112968 — Matrix: Solid — Date Prep: 01.10.20
MB Sample Id: 7694099-1-BLK — LCS Sample Id: 7694099-1-BKS — LCSD Sample Id: 7694099-1-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	259	104	260	104	90-110	0	20	mg/kg	01.10.20 17:45	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3112968 — Matrix: Soil — Date Prep: 01.10.20
Parent Sample Id: 648566-003 — MS Sample Id: 648566-003 S — MSD Sample Id: 648566-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	22.9	200	230	104	231	104	90-110	0	20	mg/kg	01.10.20 18:04	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3112968 — Matrix: Soil — Date Prep: 01.10.20
Parent Sample Id: 648708-006 — MS Sample Id: 648708-006 S — MSD Sample Id: 648708-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	12500	998	13500	100	13500	100	90-110	0	20	mg/kg	01.10.20 19:32	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113462 — Matrix: Solid — Date Prep: 01.15.20
MB Sample Id: 7694462-1-BLK — LCS Sample Id: 7694462-1-BKS — LCSD Sample Id: 7694462-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	883	88	892	89	70-135	1	20	mg/kg	01.15.20 12:58	
Diesel Range Organics (DRO)	<15.0	1000	854	85	849	85	70-135	1	20	mg/kg	01.15.20 12:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	86		110		111		70-135	%	01.15.20 12:58
o-Terphenyl	91		99		99		70-135	%	01.15.20 12:58

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113462 — Matrix: Solid — Date Prep: 01.15.20
MB Sample Id: 7694462-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.15.20 12:39	

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

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

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

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

QC Summary 648700

LT Environmental, Inc.

PLU 15 Twin Wells Ranch 905H

Analytical Method: TPH by SW8015 Mod | Prep Method: SW8015P
Seq Number: 3113462 | Matrix: Soil | Date Prep: 01.15.20
Parent Sample Id: 648841-001 | MS Sample Id: 648841-001 S | MSD Sample Id: 648841-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	865	87	870	87	70-135	1	20	mg/kg	01.15.20 13:55	
Diesel Range Organics (DRO)	<15.0	997	837	84	842	85	70-135	1	20	mg/kg	01.15.20 13:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		106		70-135	%	01.15.20 13:55
o-Terphenyl	95		91		70-135	%	01.15.20 13:55

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3112984 | Matrix: Solid | Date Prep: 01.10.20
MB Sample Id: 7694121-1-BLK | LCS Sample Id: 7694121-1-BKS | LCSD Sample Id: 7694121-1-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	0.115	115	70-130	6	35	mg/kg	01.10.20 18:03	
Toluene	<0.00200	0.100	0.105	105	0.111	111	70-130	6	35	mg/kg	01.10.20 18:03	
Ethylbenzene	<0.00200	0.100	0.106	106	0.112	112	71-129	6	35	mg/kg	01.10.20 18:03	
m,p-Xylenes	<0.00400	0.200	0.211	106	0.224	112	70-135	6	35	mg/kg	01.10.20 18:03	
o-Xylene	<0.00200	0.100	0.104	104	0.112	112	71-133	7	35	mg/kg	01.10.20 18:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		103		106		70-130	%	01.10.20 18:03
4-Bromofluorobenzene	99		100		109		70-130	%	01.10.20 18:03

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3112984 | Matrix: Soil | Date Prep: 01.10.20
Parent Sample Id: 648657-001 | MS Sample Id: 648657-001 S | MSD Sample Id: 648657-001 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	0.0908	91	0.105	105	70-130	15	35	mg/kg	01.10.20 18:41	
Toluene	<0.00199	0.0996	0.0926	93	0.103	103	70-130	11	35	mg/kg	01.10.20 18:41	
Ethylbenzene	<0.00199	0.0996	0.0948	95	0.101	101	71-129	6	35	mg/kg	01.10.20 18:41	
m,p-Xylenes	<0.00398	0.199	0.190	95	0.201	101	70-135	6	35	mg/kg	01.10.20 18:41	
o-Xylene	<0.00199	0.0996	0.0954	96	0.102	102	71-133	7	35	mg/kg	01.10.20 18:41	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		103		70-130	%	01.10.20 18:41
4-Bromofluorobenzene	107		109		70-130	%	01.10.20 18:41

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

Chain of Custody

Work Order No: 648700

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

Page 1 of 1

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

Work Order Comments

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

Project Name:	PLU 15 Twin Wells Ranch 905H	Turn Around	
Project Number:	01291257	Routine	X
P.O. Number:	Eddy County	Rush:	
Sampler's Name:	Elizabeth Naka	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	1.4	Thermometer ID	TN1007
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	6

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
PH01	S	1/10/20	0920	2'	1	X	X	X
PH02			0935	2'				
PH03			0945	2'				
PH04			0955	2'				
PH05			0905	2'				
SS05	↓	↓	0910	0.5'	↓	↓	↓	↓

ANALYSIS REQUEST

Work Order Notes

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

Sample Comments

discrete

Elizabeth Naka

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

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Elizabeth Nak		1/10/20 13:30	2		
			4		
			6		

Revised Date 051418 Rev. 2018.1

Inter-Office Shipment

IOS Number **55841**

Date/Time: 01/10/20 14:55
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Martha Castro
Delivery Priority:
Air Bill No.: 777451781071

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

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
648700-001	S	PH01	01/10/20 09:20	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	
648700-002	S	PH02	01/10/20 09:35	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	
648700-003	S	PH03	01/10/20 09:45	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	
648700-004	S	PH04	01/10/20 09:55	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	
648700-005	S	PH05	01/10/20 09:05	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	
648700-006	S	SS05	01/10/20 09:10	SW8015MOD_NM	TPH by SW8015 Mod	01/16/20	01/24/20	JKR	GRO-DRO PHCC10C28 PI	

Inter Office Shipment or Sample Comments:

Relinquished By: Martha Castro

Date Relinquished: 01/10/2020

Received By: Brianna Teel

Date Received: 01/13/2020 07:13

Cooler Temperature:

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 55841

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

Sent By: Martha Castro **Date Sent:** 01/10/2020 02:55 PM

Received By: Brianna Teel **Date Received:** 01/13/2020 07:13 AM

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

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: Brianna Teel Date: 01/13/2020

Brianna Teel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 01.10.2020 01.30.00 PM

Work Order #: 648700

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

Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**Yes**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**Yes**	TPH Subc. to Xenco Midland
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Martha Castro Date: 01.10.2020

Checklist reviewed by: Jessica Kramer Date: 01.13.2020

Jessica Kramer