

June 14, 2019

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

**RE: Closure Request
Poker Lake Unit 36 DTD State SWD #1
Remediation Permit Number 2RP-5337
Eddy County, New Mexico**

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing soil sampling activities at the Poker Lake Unit 36 Dogtown Draw (DTD) State Salt Water Disposal (SWD) #1 (Site) in Unit A, Section 36, Township 24 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the soil sampling activities was to assess impacts to soil after 68 barrels (bbls) of produced water were released from the well head.

On March 18, 2019, a release of produced water occurred at the casing valve on the well head due to a failed plug. Fluids were released into well cellar. A vacuum truck was dispatched to the Site to recover free-standing fluid; approximately 65 bbls of produced water were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) via electronic mail within 24 hours and on a Release Notification and Corrective Action Form C-141 on April 1, 2019, and was assigned Remediation Permit (RP) Number 2RP-5337 (Attachment 1). Based on the results of the soil sampling events, XTO is submitting this closure report and requesting no further action for this release event.

BACKGROUND

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well is C 03891, located approximately 6,544 feet south of the Site and approximately 398 feet higher in elevation, with a depth to groundwater of 429 feet bgs and a total depth of 635 feet bgs. The nearest continuously flowing water or significant watercourse to the Site is a freshwater emergent wetland located approximately 7,390 feet east-southeast of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to



a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is in a low karst potential area. Based on these criteria, the following NMOCD Table 1 closure criteria apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 2,500 mg/kg total petroleum hydrocarbons (TPH); 1,000 mg/kg TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO); and 20,000 mg/kg chloride.

SOIL SAMPLING

On May 28, 2019, an LTE scientist was on Site to assess the lateral and vertical extent of soil impacts within the release area by potholing. The soil sample locations, depicted on Figure 2, were selected based on information provided on the initial Form C-141 and visual surface staining. A current aerial photograph was not available for the site map, so it should be noted that the samples were collected around the well cellar. Potholes were advanced by track hoe to a depth of 4 feet bgs in four locations. Pothole soil samples PH01 through PH04 were collected at a depth of 1 foot bgs. Subsequent pothole soil samples PH01A through PH04A were collected at a depth of 4 feet bgs. The soil samples were screened for volatile aromatic hydrocarbons and chlorides using a photo-ionization detector (PID) and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, method of analysis, and immediately placed on ice. The soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0. All potholes were backfilled with the soil removed from the potholes; no soil was removed from the Site for disposal. The soil sample locations are depicted on Figure 2 and soil sample logs are included in Attachment 2.

ANALYTICAL RESULTS

Laboratory analytical results indicated that benzene, BTEX, TPH, TPH-DRO + TPH-GRO, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria in delineation pothole soil samples PH01 through PH04 collected at 1 foot bgs and subsequent pothole soil samples PH01A through PH04A collected at 4 feet bgs. Based on the laboratory analytical results, no soil excavation was required. Laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 3.

CONCLUSIONS

Soil samples PH01 through PH04 and PH01A through PH04A were collected within the release area to determine if soil with concentrations above NMOCD Table 1 closure criteria is present as a result of the release. Laboratory analytical results for all soil samples indicated that benzene,





BTEX, TPH, TPH-DRO + TPH-GRO, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. XTO requests no further action for this release. An updated NMOCD Form C-141 is included as Attachment 1. A photographic log of the Site is included as Attachment 4.

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

Sincerely,
LT ENVIRONMENTAL, INC.

A handwritten signature in black ink that reads "Ashley L. Ager". The signature is written in a cursive, flowing style.

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Ryan Mann, State Land Office
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD

Attachments:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141 (2RP-5337)
Attachment 2 Soil Sample Logs
Attachment 3 Laboratory Analytical Reports
Attachment 4 Photographic Log



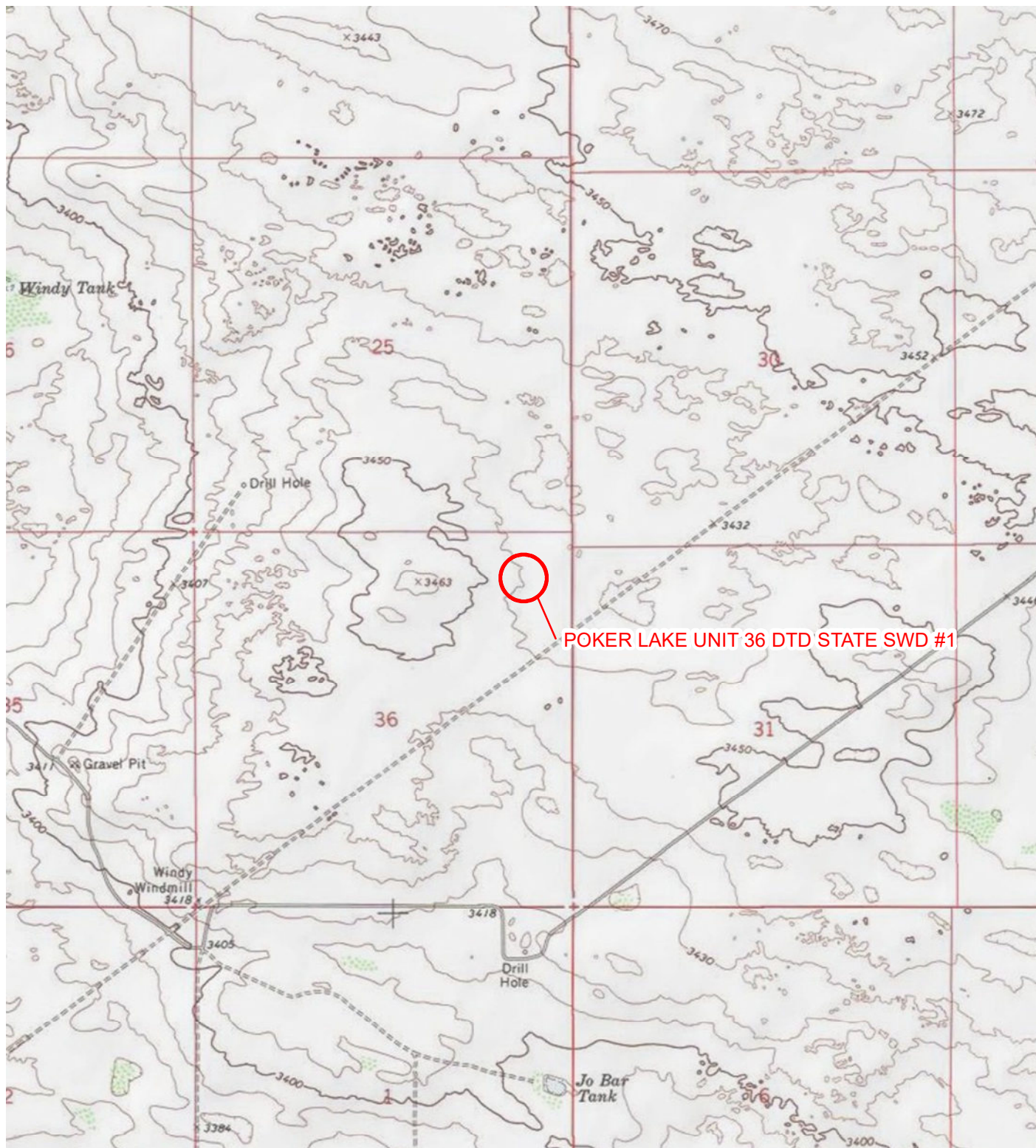
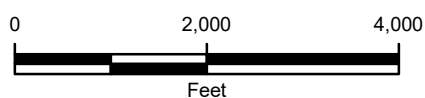


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

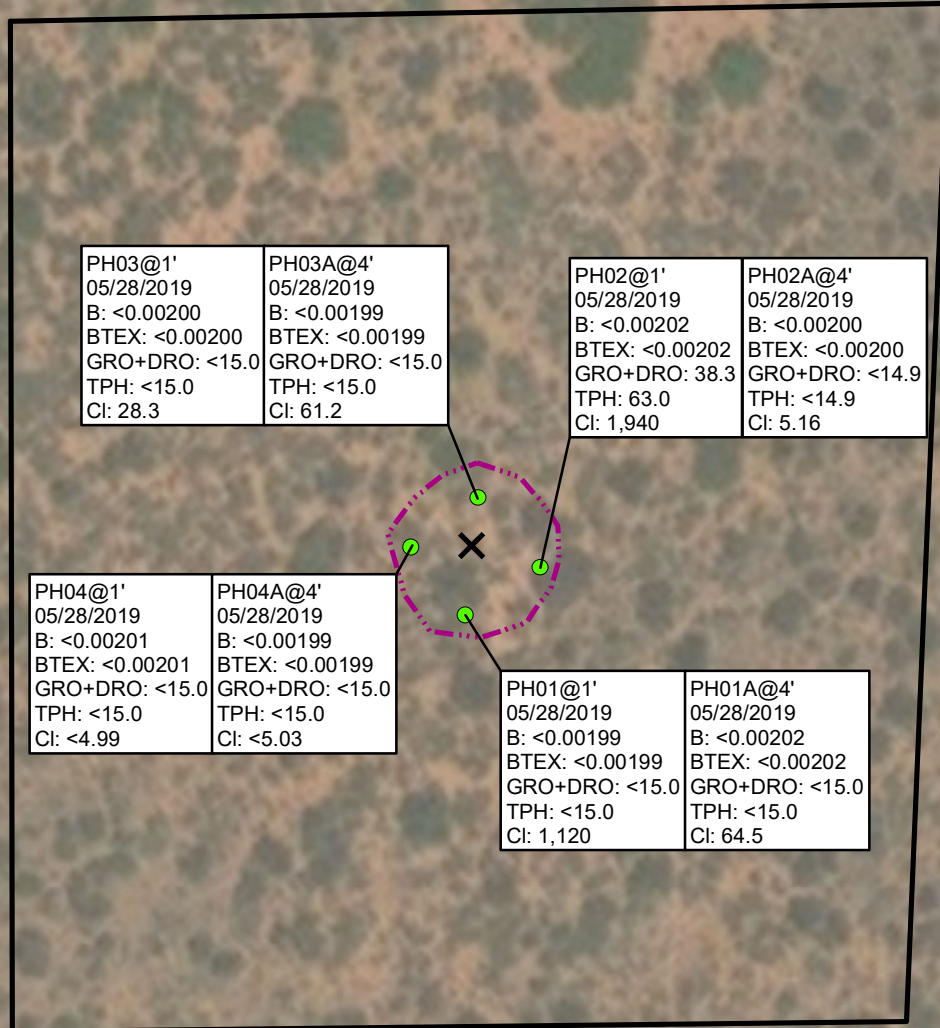


NOTE: REMEDIATION PERMIT
NUMBER 2RP-5337

FIGURE 1
SITE LOCATION MAP
POKER LAKE UNIT 36 DTD STATE SWD #1
UNIT A SEC 36 T24S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



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



LEGEND



RELEASE LOCATION



DELINEATION SOIL SAMPLE IN COMPLIANCE
 WITH APPLICABLE STANDARDS



APPROXIMATE PAD BOUNDARY



RELEASE EXTENT

B: BENZENE

BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE,
 AND TOTAL XYLENES

GRO – GASOLINE RANGE ORGANICS

DRO – DIESEL RANGE ORGANICS

TPH – TOTAL PETROLEUM HYDROCARBONS

Cl – CHLORIDE

NMAC – NEW MEXICO ADMINISTRATIVE CODE

NMOCD – NEW MEXICO OIL CONSERVATION DIVISION

NOTE: REMEDIATION PERMIT NUMBER 2RP-5337

IMAGE COURTESY OF ESRI

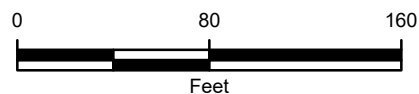


FIGURE 2
DELINEATION SOIL SAMPLE LOCATIONS
POKER LAKE UNIT 36 DTD STATE SWD #1
UNIT A SEC 36 T24S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



**TABLE 1
SOIL ANALYTICAL RESULTS**

**POKER LAKE UNIT 36 DTD STATE SWD #1
REMEDIATION PERMIT NUMBER 2RP-5337
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)
PH01	1	05/28/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	1,120
PH01A	4	05/28/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	64.5
PH02	1	05/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	38.3	24.7	38.3	63.0	1,940
PH02A	4	05/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	5.16
PH03	1	05/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	28.3
PH03A	4	05/28/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	61.2
PH04	1	05/28/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<4.99
PH04A	4	05/28/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	<5.03
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

ORO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

mg/kg - milligrams per kilogram

< - indicates result is below laboratory reporting limits

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

NE - not established

TPH - total petroleum hydrocarbons





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	NAB1909554024
District RP	2RP-5337
Facility ID	
Application ID	pAB1909553616

Release Notification

Responsible Party

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)	NAB1909554024
Contact mailing address	522 W. Mermod, Carlsbad, NM 88220		

Location of Release Source

Latitude 32.179764 Longitude -103.827836
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Poker Lake Unit 36 DTD State SWD #1	Site Type	Production Well Facility
Date Release Discovered	3/18/2019	API# (if applicable)	30-015-45237

Unit Letter	Section	Township	Range	County
A	36	24S	30E	Eddy

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

Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) <u>68</u>	Volume Recovered (bbls) <u>65</u>
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Fluids were released to the well cellar due to a failed plug on the casing valve. A vacuum truck recovered standing fluid and the lease operator replaced the damaged plug. Additional third party resources have been retained to assist with remediation.

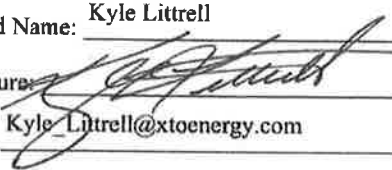

State of New Mexico
Oil Conservation Division

Incident ID	NAB1909554024
District RP	2RP-5337
Facility ID	
Application ID	pAB1909553616

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? An unauthorized release of a volume of 25 barrels or more
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notice provided by Amy Ruth to Mike Bratcher, Rob Hamlet, Victoria Venegas, and Jim Griswold (NMOCD), and Ryan Mann (SLO) on 3/18/2019 by email	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: N/A	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u> Signature:  email: <u>Kyle_Littrell@xtoenergy.com</u>	Title: <u>SH&E Supervisor</u> Date: <u>4/01/2019</u> Telephone: <u>432-221-7331</u>
OCD Only Received by:  Date: <u>4/5/2019</u>	

Incident ID	
District RP	2RP-5337
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5337
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature:  Date: 6/14/2019

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

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP-5337
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 Coordinator

Signature:  Date: 6/14/2019

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: _____





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

Compliance · Engineering · Remediation

Identifier: PH01	Date: 5/28/2019
Project Name: PLU 36	RP Number: 2RP-5337

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: 32.179764, -103.827836	Field Screening: PID/CHLORIDES	Hole Diameter: NA	Method: backhoe
		Total Depth: 4'	

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	1.3	2316	no	PH01	0			
					1		CLCHE	CALICHE, dry, tan/off white, well consolidated, no odor.
dry	0.8	1785	no		2		CLCHE	SAA (Same As Above)
dry	0.7	<112	no		3		CLCHE	SAA
dry	1	<112	no	PH01A	4		CLCHE	SAA
								EOB @ 4' bgs
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



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

Compliance · Engineering · Remediation

Identifier: PH02	Date: 5/28/2019
Project Name: PLU 36	RP Number: 2RP-5337

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: 32.179764, -103.827836	Field Screening: PID/CHLORIDES	Hole Diameter: NA	Method: backhoe
Total Depth: 4'			

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	0.8	2924	no	PH02	0			
					1		CLCHE	CALICHE, dry, tan/off white, well consolidated, no odor.
dry	1.2	<112	no		2		CLCHE	SAA (Same As Above)
dry	1	<112	no		3		CLCHE	SAA
dry	0.4	<112	no	PH02A	4		CLCHE	SAA
								EOB @ 4' bgs
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



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

Compliance · Engineering · Remediation

Identifier:

PH03

Date:

5/28/2019

Project Name:

PLU 36

RP Number:

2RP-5337

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: GG

Method: backhoe

Lat/Long:

32.179764, -103.827836

Field Screening:

PID/CHLORIDES

Hole Diameter:

NA

Total Depth:

4'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	2.8	2048	no	PH03	0			
					1		CLCHE	CALICHE, dry, tan/off white, well consolidated, no odor.
dry	2.2	<112	no		2		CLCHE	SAA (Same As Above)
dry	1.3	<112	no		3		CLCHE	SAA
dry	1.3	<112	no	PH03A	4		CLCHE	SAA
								EOB @ 4' bgs
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



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

Compliance · Engineering · Remediation

Identifier:

PH04

Date:

5/28/2019

Project Name:

PLU 36

RP Number:

2RP-5337

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: GG

Method: backhoe

Lat/Long:

32.179764, -103.827836

Field Screening:

PID/CHLORIDES

Hole Diameter:

NA

Total Depth:

4'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	1.8	<112	no	PH04	0			
					1		CLCHE	CALICHE, dry, tan/off white, well consolidated, no odor.
dry	2.1	<112	no		2		CLCHE	SAA (Same As Above)
dry	1.5	<112	no		3		CLCHE	SAA
dry	1.2	<112	no	PH04A	4		CLCHE	SAA
								EOB @ 4' bgs
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			



Analytical Report 625909

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU 36 DTS State SWD #1

31-MAY-19

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



31-MAY-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **625909**

PLU 36 DTS State SWD #1

Project Address: Delaware Basin

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) 625909. 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. 625909 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

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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



Sample Cross Reference 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	05-28-19 14:00	1 ft	625909-001
PH01A	S	05-28-19 14:15	4 ft	625909-002
PH02	S	05-28-19 14:25	1 ft	625909-003
PH02A	S	05-28-19 14:40	4 ft	625909-004
PH03	S	05-28-19 14:50	1 ft	625909-005
PH03A	S	05-28-19 15:05	4 ft	625909-006
PH04	S	05-28-19 15:10	1 ft	625909-007
PH04A	S	05-28-19 15:25	4 ft	625909-008



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 36 DTS State SWD #1

Project ID:

Work Order Number(s): 625909

Report Date: 31-MAY-19

Date Received: 05/30/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3090682 BTEX by EPA 8021B

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



Certificate of Analysis Summary 625909



LT Environmental, Inc., Arvada, CO

Project Name: PLU 36 DTS State SWD #1

Project Id:

Contact: Dan Moir

Project Location: Delaware Basin

Date Received in Lab: Thu May-30-19 10:58 am

Report Date: 31-MAY-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	625909-001	625909-002	625909-003	625909-004	625909-005	625909-006
	<i>Field Id:</i>	PH01	PH01A	PH02	PH02A	PH03	PH03A
	<i>Depth:</i>	1- ft	4- ft	1- ft	4- ft	1- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	May-28-19 14:00	May-28-19 14:15	May-28-19 14:25	May-28-19 14:40	May-28-19 14:50	May-28-19 15:05
BTEX by EPA 8021B	<i>Extracted:</i>	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45
	<i>Analyzed:</i>	May-31-19 00:05	May-31-19 00:24	May-31-19 00:43	May-31-19 02:16	May-31-19 02:35	May-31-19 02:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00403 0.00403	<0.00400 0.00400	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45	May-30-19 15:45
	<i>Analyzed:</i>	May-30-19 18:57	May-30-19 19:04	May-30-19 19:33	May-30-19 19:11	May-30-19 19:40	May-30-19 20:02
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1120 5.01	64.5 4.97	1940 24.9	5.16 5.05	28.3 5.00	61.2 4.96
TPH by SW8015 Mod	<i>Extracted:</i>	May-30-19 12:00	May-30-19 12:00	May-30-19 12:00	May-30-19 12:00	May-30-19 12:00	May-30-19 12:00
	<i>Analyzed:</i>	May-30-19 14:50	May-30-19 15:10	May-30-19 15:29	May-30-19 15:49	May-30-19 16:08	May-30-19 16:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	38.3 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	24.7 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	63.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Total GRO-DRO		<15.0 15.0	<15.0 15.0	38.3 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 625909

LT Environmental, Inc., Arvada, CO

Project Name: PLU 36 DTS State SWD #1



Project Id:

Contact: Dan Moir

Project Location: Delaware Basin

Date Received in Lab: Thu May-30-19 10:58 am

Report Date: 31-MAY-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	625909-007	625909-008				
	Field Id:	PH04	PH04A				
	Depth:	1- ft	4- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	May-28-19 15:10	May-28-19 15:25				
BTEX by EPA 8021B	Extracted:	May-30-19 15:45	May-30-19 15:45				
	Analyzed:	May-31-19 03:13	May-31-19 03:33				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00201 0.00201	<0.00199 0.00199				
Toluene		<0.00201 0.00201	<0.00199 0.00199				
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199				
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398				
o-Xylene		<0.00201 0.00201	<0.00199 0.00199				
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199				
Total BTEX		<0.00201 0.00201	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	May-30-19 15:45	May-30-19 15:45				
	Analyzed:	May-30-19 20:09	May-30-19 20:17				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		<4.99 4.99	<5.03 5.03				
TPH by SW8015 Mod	Extracted:	May-30-19 12:00	May-30-19 12:00				
	Analyzed:	May-30-19 16:47	May-30-19 17:07				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0				
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0				
Total TPH		<15.0 15.0	<15.0 15.0				
Total GRO-DRO		<15.0 15.0	<15.0 15.0				

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH01**
Lab Sample Id: 625909-001

Matrix: Soil
Date Collected: 05.28.19 14.00

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1120	5.01	mg/kg	05.30.19 18.57		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 14.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 14.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 14.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 14.50	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 14.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	05.30.19 14.50	
o-Terphenyl	84-15-1	94	%	70-135	05.30.19 14.50	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH01**
Lab Sample Id: 625909-001

Matrix: Soil
Date Collected: 05.28.19 14.00

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.31.19 00.05	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.31.19 00.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	05.31.19 00.05		
4-Bromofluorobenzene	460-00-4	84	%	70-130	05.31.19 00.05		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH01A**
Lab Sample Id: 625909-002

Matrix: Soil
Date Collected: 05.28.19 14.15

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.5	4.97	mg/kg	05.30.19 19.04		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 15.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 15.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 15.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 15.10	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 15.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	05.30.19 15.10	
o-Terphenyl	84-15-1	97	%	70-135	05.30.19 15.10	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH01A**
Lab Sample Id: 625909-002

Matrix: Soil
Date Collected: 05.28.19 14.15

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.31.19 00.24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.31.19 00.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	05.31.19 00.24		
4-Bromofluorobenzene	460-00-4	90	%	70-130	05.31.19 00.24		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH02**
Lab Sample Id: 625909-003

Matrix: Soil
Date Collected: 05.28.19 14.25

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1940	24.9	mg/kg	05.30.19 19.33		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 15.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	38.3	15.0	mg/kg	05.30.19 15.29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	24.7	15.0	mg/kg	05.30.19 15.29		1
Total TPH	PHC635	63.0	15.0	mg/kg	05.30.19 15.29		1
Total GRO-DRO	PHC628	38.3	15.0	mg/kg	05.30.19 15.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	05.30.19 15.29	
o-Terphenyl	84-15-1	93	%	70-135	05.30.19 15.29	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH02**
Lab Sample Id: 625909-003

Matrix: Soil
Date Collected: 05.28.19 14.25

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	05.31.19 00.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.31.19 00.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	05.31.19 00.43		
4-Bromofluorobenzene	460-00-4	99	%	70-130	05.31.19 00.43		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH02A**
Lab Sample Id: 625909-004

Matrix: Soil
Date Collected: 05.28.19 14.40

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.16	5.05	mg/kg	05.30.19 19.11		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	05.30.19 15.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	05.30.19 15.49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	05.30.19 15.49	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.30.19 15.49	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	05.30.19 15.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	05.30.19 15.49	
o-Terphenyl	84-15-1	94	%	70-135	05.30.19 15.49	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH02A**
Lab Sample Id: 625909-004

Matrix: Soil
Date Collected: 05.28.19 14.40

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.31.19 02.16	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.31.19 02.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	70-130	05.31.19 02.16		
4-Bromofluorobenzene	460-00-4	81	%	70-130	05.31.19 02.16		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH03**
Lab Sample Id: 625909-005

Matrix: Soil
Date Collected: 05.28.19 14.50

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.3	5.00	mg/kg	05.30.19 19.40		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 16.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 16.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 16.08	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 16.08	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 16.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	05.30.19 16.08	
o-Terphenyl	84-15-1	96	%	70-135	05.30.19 16.08	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH03**
Lab Sample Id: 625909-005

Matrix: Soil
Date Collected: 05.28.19 14.50

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.31.19 02.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.31.19 02.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	81	%	70-130	05.31.19 02.35		
1,4-Difluorobenzene	540-36-3	94	%	70-130	05.31.19 02.35		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH03A**
Lab Sample Id: 625909-006

Matrix: Soil
Date Collected: 05.28.19 15.05

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.2	4.96	mg/kg	05.30.19 20.02		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 16.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 16.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 16.28	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 16.28	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 16.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	05.30.19 16.28	
o-Terphenyl	84-15-1	96	%	70-135	05.30.19 16.28	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH03A**
Lab Sample Id: 625909-006

Matrix: Soil
Date Collected: 05.28.19 15.05

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.31.19 02.54	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.31.19 02.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.31.19 02.54		
1,4-Difluorobenzene	540-36-3	103	%	70-130	05.31.19 02.54		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH04**
Lab Sample Id: 625909-007

Matrix: Soil
Date Collected: 05.28.19 15.10

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	05.30.19 20.09	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 16.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 16.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 16.47	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 16.47	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 16.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	05.30.19 16.47	
o-Terphenyl	84-15-1	98	%	70-135	05.30.19 16.47	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH04**
Lab Sample Id: 625909-007

Matrix: Soil
Date Collected: 05.28.19 15.10

Date Received: 05.30.19 10.58
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.31.19 03.13	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.31.19 03.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	05.31.19 03.13		
1,4-Difluorobenzene	540-36-3	100	%	70-130	05.31.19 03.13		



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH04A**
Lab Sample Id: 625909-008

Matrix: Soil
Date Collected: 05.28.19 15.25

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3090737

Date Prep: 05.30.19 15.45

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.03	5.03	mg/kg	05.30.19 20.17	U	1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3090725

Date Prep: 05.30.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.30.19 17.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.30.19 17.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.30.19 17.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.30.19 17.07	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	05.30.19 17.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	05.30.19 17.07	
o-Terphenyl	84-15-1	96	%	70-135	05.30.19 17.07	



Certificate of Analytical Results 625909



LT Environmental, Inc., Arvada, CO

PLU 36 DTS State SWD #1

Sample Id: **PH04A**
Lab Sample Id: 625909-008

Matrix: Soil
Date Collected: 05.28.19 15.25

Date Received: 05.30.19 10.58
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3090682

Date Prep: 05.30.19 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.31.19 03.33	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.31.19 03.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	05.31.19 03.33		
1,4-Difluorobenzene	540-36-3	101	%	70-130	05.31.19 03.33		

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

SQL 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 625909

LT Environmental, Inc.
PLU 36 DTS State SWD #1

Analytical Method: Chloride by EPA 300

Seq Number: 3090737

MB Sample Id: 7678911-1-BLK

Matrix: Solid

LCS Sample Id: 7678911-1-BKS

Prep Method: E300P

Date Prep: 05.30.19

LCSD Sample Id: 7678911-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	243	97	243	97	90-110	0	20	mg/kg	05.30.19 17:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3090737

Parent Sample Id: 625909-004

Matrix: Soil

MS Sample Id: 625909-004 S

Prep Method: E300P

Date Prep: 05.30.19

MSD Sample Id: 625909-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5.16	253	255	99	256	99	90-110	0	20	mg/kg	05.30.19 19:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3090737

Parent Sample Id: 625925-001

Matrix: Soil

MS Sample Id: 625925-001 S

Prep Method: E300P

Date Prep: 05.30.19

MSD Sample Id: 625925-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	151	274	412	95	412	95	90-110	0	20	mg/kg	05.30.19 17:28	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3090725

MB Sample Id: 7678944-1-BLK

Matrix: Solid

LCS Sample Id: 7678944-1-BKS

Prep Method: TX1005P

Date Prep: 05.30.19

LCSD Sample Id: 7678944-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1050	105	1040	104	70-135	1	20	mg/kg	05.30.19 12:53	
Diesel Range Organics (DRO)	<8.13	1000	988	99	988	99	70-135	0	20	mg/kg	05.30.19 12:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		111		115		70-135	%	05.30.19 12:53
o-Terphenyl	96		98		100		70-135	%	05.30.19 12:53

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



QC Summary 625909

LT Environmental, Inc. PLU 36 DTS State SWD #1

Analytical Method: TPH by SW8015 Mod

Seq Number: 3090725

Parent Sample Id: 625908-001

Matrix: Soil

MS Sample Id: 625908-001 S

Prep Method: TX1005P

Date Prep: 05.30.19

MSD Sample Id: 625908-001 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)	9.16	1000	1070	106	1070	106	70-135	0	20	mg/kg	05.30.19 13:51	
Diesel Range Organics (DRO)	8.64	1000	1010	100	1010	100	70-135	0	20	mg/kg	05.30.19 13:51	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		124		70-135	%	05.30.19 13:51
o-Terphenyl	110		123		70-135	%	05.30.19 13:51

Analytical Method: BTEX by EPA 8021B

Seq Number: 3090682

MB Sample Id: 7678915-1-BLK

Matrix: Solid

LCS Sample Id: 7678915-1-BKS

Prep Method: SW5030B

Date Prep: 05.30.19

LCSD Sample Id: 7678915-1-BSO

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.100	100	0.111	111	70-130	10	35	mg/kg	05.30.19 20:19	
Toluene	<0.000457	0.100	0.0925	93	0.103	103	70-130	11	35	mg/kg	05.30.19 20:19	
Ethylbenzene	<0.000566	0.100	0.0976	98	0.108	108	70-130	10	35	mg/kg	05.30.19 20:19	
m,p-Xylenes	<0.00102	0.200	0.202	101	0.224	112	70-130	10	35	mg/kg	05.30.19 20:19	
o-Xylene	<0.000345	0.100	0.0980	98	0.111	111	70-130	12	35	mg/kg	05.30.19 20:19	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		102		105		70-130	%	05.30.19 20:19
4-Bromofluorobenzene	81		95		104		70-130	%	05.30.19 20:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3090682

Parent Sample Id: 626010-002

Matrix: Soil

MS Sample Id: 626010-002 S

Prep Method: SW5030B

Date Prep: 05.30.19

MSD Sample Id: 626010-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.106	107	0.121	121	70-130	13	35	mg/kg	05.30.19 20:57	
Toluene	0.000766	0.0994	0.0977	98	0.111	110	70-130	13	35	mg/kg	05.30.19 20:57	
Ethylbenzene	0.000827	0.0994	0.103	103	0.116	115	70-130	12	35	mg/kg	05.30.19 20:57	
m,p-Xylenes	0.00318	0.199	0.212	105	0.240	118	70-130	12	35	mg/kg	05.30.19 20:57	
o-Xylene	0.00138	0.0994	0.104	103	0.117	116	70-130	12	35	mg/kg	05.30.19 20:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		107		70-130	%	05.30.19 20:57
4-Bromofluorobenzene	104		104		70-130	%	05.30.19 20:57

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

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

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

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



Chain of Custody

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

Work Order No: 1025909

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

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Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Midland, TX 79705
Phone:	432.704.5178	Email:	Ggreen@ltenv.com

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

Project Name:	PLU 36 OIA State SWD #1	Turn Around	
Project Number:		Routine	<input type="checkbox"/>
P.O. Number:	2R0-5337	Rush:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler's Name:	Garrett Green	Due Date:	5/5/1

SAMPLE RECEIPT	Temp Blank:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wet Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Temperature (°C):	0.50.3	Thermometer:	PC	
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	0.2	
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers:		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
PH01	S	5/18/19	1400	1'	1	X	X	X		
PH01A			1415	4'	1	X	X	X		
PH02			1425	1'	1	X	X	X		
PH02A			1440	4'	1	X	X	X		
PH03			1450	1'	1	X	X	X		
PH03A			1505	4'	1	X	X	X		
PH04			1510	1'	1	X	X	X		
PH04A			1525	4'	1	X	X	X		

Total 200.7 / 6010 200.8 / 6020:

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1. J. M. T. J.	Garrett Green	5/29/19 09:55	2. J. M. T. J.	Garrett Green	5/29/19 10:50
3.			4.		
5.			6.		



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: LT Environmental, Inc.

Date/ Time Received: 05/30/2019 10:58:00 AM

Work Order #: 625909

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 05/30/2019

Checklist reviewed by:

Jessica Kramer


Jessica Kramer

Date: 05/30/2019






Southern view of wellhead and release area during delineation activities.

Project: 012919063	XTO Energy, Inc. Poker Lake Unit 36 DTD State SWD #1	 <i>Advancing Opportunity</i>
May 28, 2019	Photographic Log	



Closeup view of point of release and well cellar.

Project: 012919063	XTO Energy, Inc. Poker Lake Unit 36 DTD State SWD #1	 <i>Advancing Opportunity</i>
May 28, 2019	Photographic Log	