

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

<u>Incident ID</u>	NRM2004446696
<u>District RP</u>	
<u>Facility ID</u>	
<u>Application ID</u>	

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

Location of Release Source

Latitude 32.21275 Longitude -103.9143
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Poker Lake Unit 213 SWD	Site Type	SWD
Date Release Discovered	01-28-20	API# (if applicable)	30-015-33859 (Poker Lake Unit #213)

Unit Letter	Section	Township	Range	County
P	18	24S	30E	Eddy

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

Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 140	Volume Recovered (bbls) 140
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: An 8" fiberglass equalizing line separated resulting in a release of 140 barrels of produced water into impermeable containment of which 140 barrels were recovered. A 48-hour advance notice of liner inspection was provided by email to NMOCD District 2. The liner was visually inspected and the inspector determined the liner is insufficient. A third part contractor will be retained to complete delineation activities under the liner.

Form C-141

State of New Mexico
Oil Conservation Division

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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 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 Mike Bratcher; Rob Hamlet; Victoria Venegas; blm_nm_cfo_spill@blm.gov; Crisha Morgan; 'Griswold, Jim, EMNRD' via email on Tuesday, January 28, 2020 at 9:44 AM

Initial Response

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

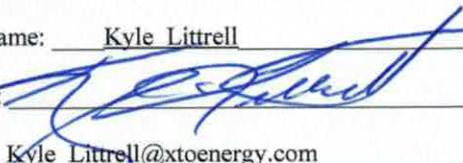
<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, 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 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: 2/11/2020
 email: Kyle_Littrell@xtoenergy.com Telephone: _____

OCD Only
 Received by: Ramona Marcus Date: 02/13/2020

Incident ID	NRM2004446696
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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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor
 Signature:  Date: 04/16/2020
 email: Kyle_Littrell@xtoenergy.com Telephone: (432) 221-7331

OCD Only

Received by: Cristina Eads Date: 04/21/2020

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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: 04/16/2020
 email: Kyle_Littrell@xtoenergy.com Telephone: (432) 221-7331

OCD Only

Received by: Cristina Eads Date: 04/21/2020

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: 07/02/2020
 Printed Name: Cristina Eads Title: Environmental Specialist



LT Environmental, Inc.

3300 North "A" Street
Building 1, Unit 222
Midland, Texas 79705
432.704.5178

April 16, 2020

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

**RE: Closure Request
Poker Lake Unit 213 SWD
Incident Number: NRM2004446696
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 and soil sampling activities at the Poker Lake Unit 213 Saltwater Disposal (SWD) – Nash Draw 19 SWD (Site) in Unit P, Section 18, Township 24 South, Range 30 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 produced water 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 NRM2004446696.

RELEASE BACKGROUND

On January 28, 2020, an 8-inch fiberglass line separated, resulting in the release of 140 barrels (bbls) of produced water inside a poly-lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids, of which approximately 140 bbls of produced water were recovered. 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 February 11, 2020. A 48-hour advance notice of liner inspection was provided via email to NMOCD District 2 and, upon inspection, the liner was determined to be insufficient.

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 321321103544101, located approximately 0.7 miles north of the Site. The groundwater well has



a reported depth to groundwater of 168 feet bgs, total well depth is not determined. There are two NMOSE wells and three USGS wells within 1.3 miles with depth to water data that indicates regional depth to water is greater than 100 feet bgs. USGS well 321321103544101 and 321205103544701 were both most recently sampled in January 1998. USGS well 321321103544101 is located 0.7 miles north of the Site and had a reported depth to water of 168 feet bgs. USGS well 321205103544701, located 0.75 miles south of the Site had a reported depth to water of 231 feet bgs. Based on this depth to water data, it is highly likely that depth to water at the Site is between 168 feet bgs and 231 feet bgs. The closest continuously flowing water or significant watercourse to the Site is an unnamed dry wash, located approximately 498 feet east 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 not underlain by unstable geology (low potential karst designation 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 SOIL SAMPLING ACTIVITIES

On March 6, 2020, LTE evaluated the release based on information provided on the Form C-141 and visual observations. LTE personnel advanced a borehole via hand-auger at one location within the tank battery containment, located on the southwest edge of the caliche well pad. Site assessment activities and vertical delineation soil sampling was completed at the location of the tear in the liner found during the liner integrity inspection conducted by XTO. Two soil samples were collected at approximately 0.5 feet and 3 feet bgs (BH01 and BH01A, respectively). Soil from the discrete borehole soil samples was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for each sample were documented on a lithologic/soil sampling log and are included as Attachment 1. The borehole was backfilled with the soil removed and XTO repaired the liner. The borehole delineation soil sample location



Bratcher, M.
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is depicted on Figure 2. Photographic documentation was conducted during the Site visit. The photographic log is included in Attachment 2.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were 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.

ANALYTICAL RESULTS

Laboratory analytical results for delineation soil samples BH01 and BH01A, collected at depths of approximately 0.5 feet and 3 feet bgs, respectively, indicated benzene, BTEX, TPH-GRO and TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results are presented on Figure 2 and summarized in Table 1. The complete laboratory analytical reports are included as Attachment 3.

CLOSURE REQUEST

Following the failed liner integrity inspection, LTE personnel advanced one borehole in the location of the hole in the compromised liner. Delineation soil samples BH01 and BH01A were collected from within the lined tank battery containment at depths of approximately 0.5 feet and 3 feet bgs to assess for the presence or absence of soil impacts as a result of the January 28, 2020 produced water release. Laboratory analytical results indicated benzene, BTEX, TPH-GRO and TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in soil samples BH01 and BH01A. The liner was subsequently repaired. As such, XTO respectfully requests NFA for Incident Number NRM2004446696.

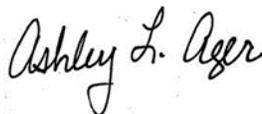
If you have any questions or comments, please do not hesitate to contact Ms. Ashley Ager at (970) 385-1096.

Sincerely,

LT ENVIRONMENTAL, INC.



Elizabeth A. Naka
Staff Environmental Scientist



Ashley L. Ager, P.G.
Senior Geologist



Bratcher, M.
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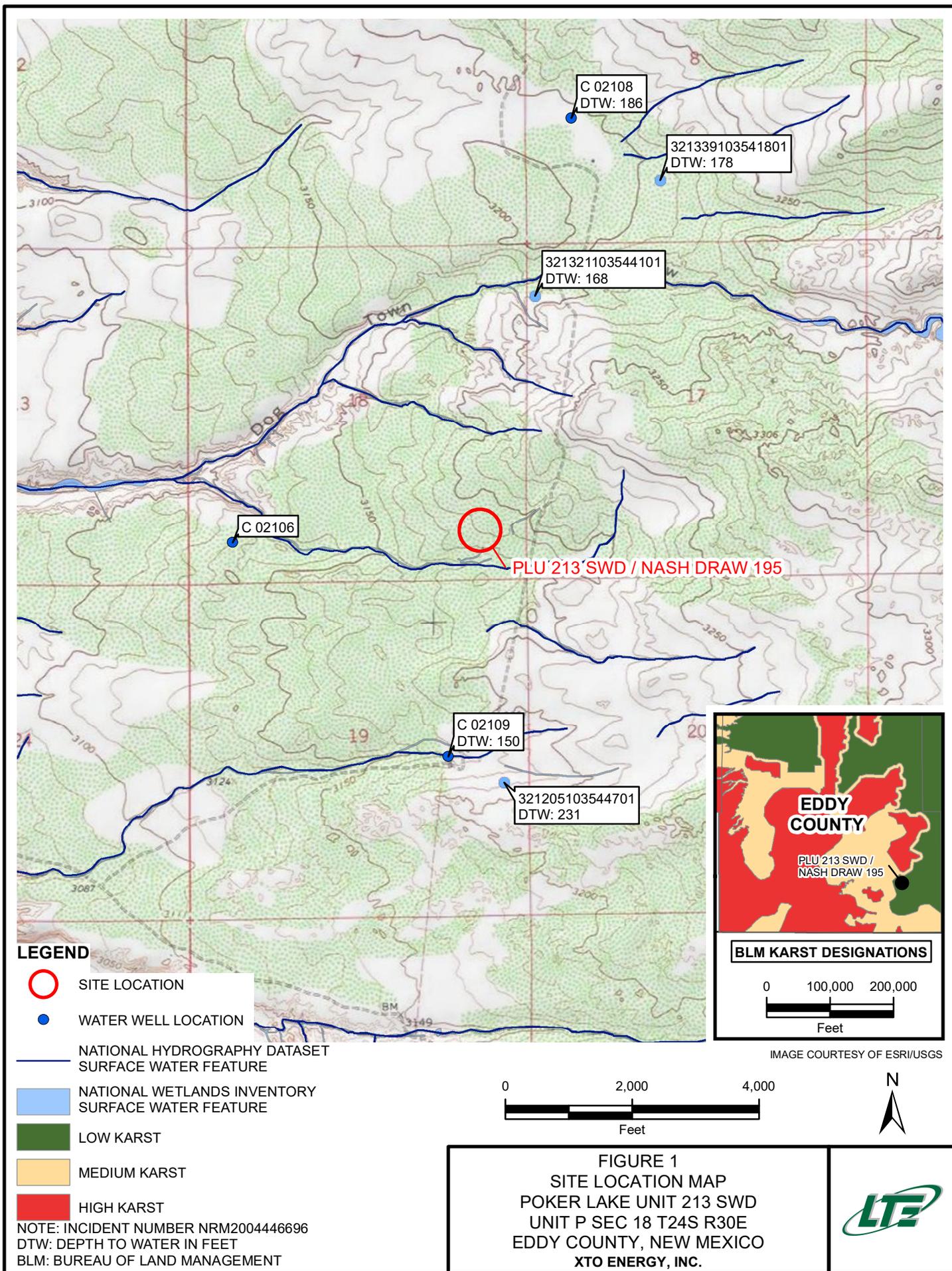
cc: Kyle Littrell, XTO
United States Bureau of Land Management – New Mexico
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD

Attachments:

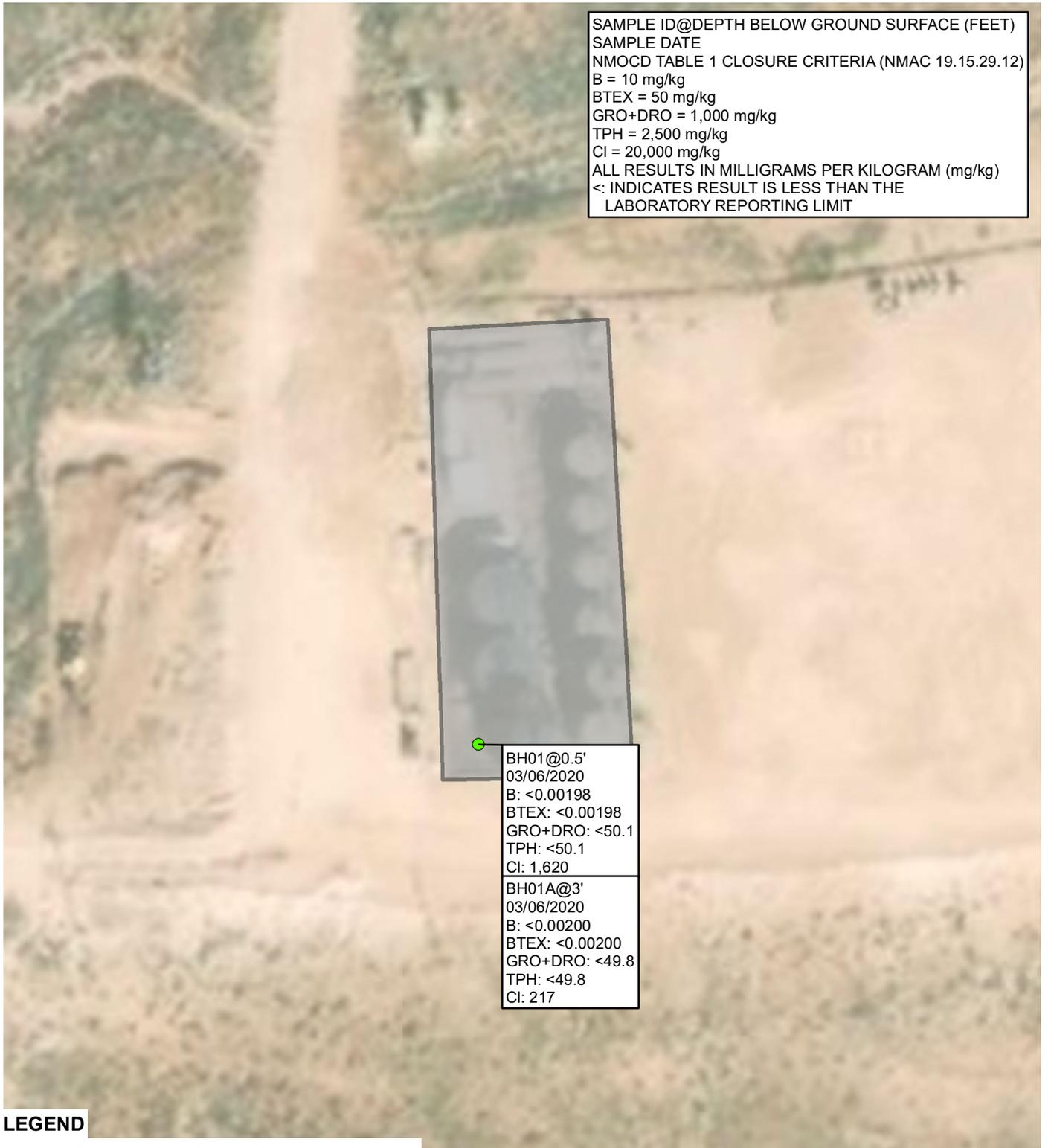
- Figure 1 Site Receptor Map
- Figure 2 Delineation Soil Sample Locations
- Table 1 Soil Analytical Results
- Attachment 1 Lithologic/Soil Sampling Logs
- Attachment 2 Photographic Log
- Attachment 3 Laboratory Analytical Reports

FIGURES





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



BH01A@0.5'
 03/06/2020
 B: <0.00198
 BTEX: <0.00198
 GRO+DRO: <50.1
 TPH: <50.1
 Cl: 1,620

BH01A@3'
 03/06/2020
 B: <0.00200
 BTEX: <0.00200
 GRO+DRO: <49.8
 TPH: <49.8
 Cl: 217

LEGEND

- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- CONTAINMENT
- 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: INCIDENT NUMBER NRM2004446696

IMAGE COURTESY OF ESRI

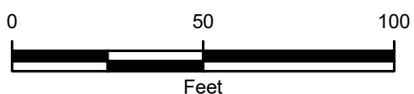


FIGURE 2
 DELINEATION SOIL SAMPLE LOCATIONS
 POKER LAKE UNIT 213 SWD
 UNIT P SEC 18 T24S R30E
 EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



TABLES



**TABLE 1
SOIL ANALYTICAL RESULTS**

**Poker Lake Unit 213 SWD
REMEDATION PERMIT NUMBER NOT ASSIGNED
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)
NMOCDC Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000
BH01	0.5	03/06/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	1,620
BH01A	3	03/06/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	217

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
 NMOCDC - New Mexico Oil Conservation Division
 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
 NE - not established

ATTACHMENT 1: LITHOLOGIC / SOIL SAMPLING LOGS



ATTACHMENT 2: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Photograph 1: View of release collecting inside liner.



Photograph 2: View of delineation soil sample BH01 location.

ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS



Analytical Report 655092

for

LT Environmental, Inc.

Project Manager: Dan Moir

PLU 213 SWD/Nash Draw 195

012920026

13-MAR-20

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

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

Xenco-Dallas (EPA Lab Code: TX01468):

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

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

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

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

Xenco-Carlsbad (LELAP): Louisiana (05092)

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

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

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



13-MAR-20

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

Reference: XENCO Report No(s): **655092**
PLU 213 SWD/Nash Draw 195
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) 655092. 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. 655092 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer
Project Manager

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 655092

LT Environmental, Inc., Arvada, CO

PLU 213 SWD/Nash Draw 195

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	03-06-20 11:30	0.5 ft	655092-001
BH01A	S	03-06-20 11:39	3 ft	655092-002



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU 213 SWD/Nash Draw 195

Project ID: 012920026
Work Order Number(s): 655092

Report Date: 13-MAR-20
Date Received: 03/10/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3119165 BTEX by EPA 8021B

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



Certificate of Analysis Summary 655092

LT Environmental, Inc., Arvada, CO

Project Name: PLU 213 SWD/Nash Draw 195

Project Id: 012920026
Contact: Dan Moir
Project Location:

Date Received in Lab: Tue Mar-10-20 08:45 am
Report Date: 13-MAR-20
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	655092-001	655092-002				
	<i>Field Id:</i>	BH01	BH01A				
	<i>Depth:</i>	0.5- ft	3- ft				
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	Mar-06-20 11:30	Mar-06-20 11:39				
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-10-20 10:30	Mar-10-20 10:30				
	<i>Analyzed:</i>	Mar-10-20 18:45	Mar-10-20 19:06				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00198 0.00198	<0.00200 0.00200				
Toluene		<0.00198 0.00198	<0.00200 0.00200				
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200				
m,p-Xylenes		<0.00396 0.00396	<0.00400 0.00400				
o-Xylene		<0.00198 0.00198	<0.00200 0.00200				
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200				
Total BTEX		<0.00198 0.00198	<0.00200 0.00200				
Chloride by EPA 300	<i>Extracted:</i>	Mar-10-20 11:22	Mar-10-20 11:22				
	<i>Analyzed:</i>	Mar-10-20 13:44	Mar-10-20 13:49				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		1620 49.6	217 9.96				
TPH by SW8015 Mod	<i>Extracted:</i>	Mar-10-20 13:30	Mar-10-20 13:30				
	<i>Analyzed:</i>	Mar-10-20 21:26	Mar-10-20 21:46				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<49.8 49.8				
Diesel Range Organics (DRO)		<50.1 50.1	<49.8 49.8				
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<49.8 49.8				
Total GRO-DRO		<50.1 50.1	<49.8 49.8				
Total TPH		<50.1 50.1	<49.8 49.8				

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

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

Jessica Kramer
Project Manager



Certificate of Analytical Results 655092

LT Environmental, Inc., Arvada, CO

PLU 213 SWD/Nash Draw 195

Sample Id: BH01	Matrix: Soil	Date Received: 03.10.20 08.45
Lab Sample Id: 655092-001	Date Collected: 03.06.20 11.30	Sample Depth: 0.5 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 03.10.20 11.22	Basis: Wet Weight
Seq Number: 3119170		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1620	49.6	mg/kg	03.10.20 13.44		5

Analytical Method: TPH by SW8015 Mod		Prep Method: SW8015P
Tech: DTH		% Moisture:
Analyst: DTH	Date Prep: 03.10.20 13.30	Basis: Wet Weight
Seq Number: 3119178		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	03.10.20 21.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	03.10.20 21.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.10.20 21.26	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	03.10.20 21.26	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.10.20 21.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	03.10.20 21.26	
o-Terphenyl	84-15-1	94	%	70-135	03.10.20 21.26	



Certificate of Analytical Results 655092

LT Environmental, Inc., Arvada, CO

PLU 213 SWD/Nash Draw 195

Sample Id: **BH01**
 Lab Sample Id: 655092-001

Matrix: Soil
 Date Collected: 03.06.20 11.30

Date Received: 03.10.20 08.45
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.10.20 10.30

Basis: Wet Weight

Seq Number: 3119165

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	03.10.20 18.45	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
Total BTEX		<0.00198	0.00198	mg/kg	03.10.20 18.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	03.10.20 18.45		
4-Bromofluorobenzene	460-00-4	94	%	70-130	03.10.20 18.45		



Certificate of Analytical Results 655092

LT Environmental, Inc., Arvada, CO

PLU 213 SWD/Nash Draw 195

Sample Id: BH01A	Matrix: Soil	Date Received: 03.10.20 08.45
Lab Sample Id: 655092-002	Date Collected: 03.06.20 11.39	Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 03.10.20 11.22	Basis: Wet Weight
Seq Number: 3119170		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	217	9.96	mg/kg	03.10.20 13.49		1

Analytical Method: TPH by SW8015 Mod		Prep Method: SW8015P
Tech: DTH		% Moisture:
Analyst: DTH	Date Prep: 03.10.20 13.30	Basis: Wet Weight
Seq Number: 3119178		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	03.10.20 21.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	03.10.20 21.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	03.10.20 21.46	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	03.10.20 21.46	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	03.10.20 21.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.10.20 21.46	
o-Terphenyl	84-15-1	101	%	70-135	03.10.20 21.46	



Certificate of Analytical Results 655092

LT Environmental, Inc., Arvada, CO

PLU 213 SWD/Nash Draw 195

Sample Id: **BH01A**
 Lab Sample Id: 655092-002

Matrix: Soil
 Date Collected: 03.06.20 11.39

Date Received: 03.10.20 08.45
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.10.20 10.30

Basis: Wet Weight

Seq Number: 3119165

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.10.20 19.06	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.10.20 19.06	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94		%	70-130	03.10.20 19.06	
1,4-Difluorobenzene	540-36-3	108		%	70-130	03.10.20 19.06	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
PLU 213 SWD/Nash Draw 195

Analytical Method: Chloride by EPA 300

Seq Number: 3119170 Matrix: Solid Prep Method: E300P
 MB Sample Id: 7698479-1-BLK LCS Sample Id: 7698479-1-BKS Date Prep: 03.10.20
 LCSD Sample Id: 7698479-1-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	259	104	90-110	0	20	mg/kg	03.10.20 11:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3119170 Matrix: Soil Prep Method: E300P
 Parent Sample Id: 655087-001 MS Sample Id: 655087-001 S Date Prep: 03.10.20
 MSD Sample Id: 655087-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	212	106	210	105	90-110	1	20	mg/kg	03.10.20 11:52	

Analytical Method: Chloride by EPA 300

Seq Number: 3119170 Matrix: Soil Prep Method: E300P
 Parent Sample Id: 655087-011 MS Sample Id: 655087-011 S Date Prep: 03.10.20
 MSD Sample Id: 655087-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	249	200	463	107	460	106	90-110	1	20	mg/kg	03.10.20 13:10	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119178 Matrix: Solid Prep Method: SW8015P
 MB Sample Id: 7698526-1-BLK LCS Sample Id: 7698526-1-BKS Date Prep: 03.10.20
 LCSD Sample Id: 7698526-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	895	90	949	95	70-135	6	35	mg/kg	03.10.20 15:03	
Diesel Range Organics (DRO)	<50.0	1000	881	88	875	88	70-135	1	35	mg/kg	03.10.20 15:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		104		101		70-135	%	03.10.20 15:03
o-Terphenyl	105		110		101		70-135	%	03.10.20 15:03

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119178 Matrix: Solid Prep Method: SW8015P
 MB Sample Id: 7698526-1-BLK Date Prep: 03.10.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	03.10.20 14:43	

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



LT Environmental, Inc.
PLU 213 SWD/Nash Draw 195

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119178
Parent Sample Id: 655087-001

Matrix: Soil
MS Sample Id: 655087-001 S

Prep Method: SW8015P
Date Prep: 03.10.20
MSD Sample Id: 655087-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD	Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	888	89	894	89	70-135	1	35		mg/kg	03.10.20 16:11	
Diesel Range Organics (DRO)	<50.2	1000	958	96	993	99	70-135	4	35		mg/kg	03.10.20 16:11	

Surrogate

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		108		70-135	%	03.10.20 16:11
o-Terphenyl	99		106		70-135	%	03.10.20 16:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3119165
MB Sample Id: 7698474-1-BLK

Matrix: Solid
LCS Sample Id: 7698474-1-BKS

Prep Method: SW5030B
Date Prep: 03.10.20
LCSD Sample Id: 7698474-1-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	0.110	110	0.111	111	70-130	1	35		mg/kg	03.10.20 11:57	
Toluene	<0.00200	0.100	0.106	106	0.108	108	70-130	2	35		mg/kg	03.10.20 11:57	
Ethylbenzene	<0.00200	0.100	0.101	101	0.103	103	71-129	2	35		mg/kg	03.10.20 11:57	
m,p-Xylenes	<0.00400	0.200	0.209	105	0.213	107	70-135	2	35		mg/kg	03.10.20 11:57	
o-Xylene	<0.00200	0.100	0.104	104	0.106	106	71-133	2	35		mg/kg	03.10.20 11:57	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		108		108		70-130	%	03.10.20 11:57
4-Bromofluorobenzene	98		94		92		70-130	%	03.10.20 11:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3119165
Parent Sample Id: 655087-001

Matrix: Soil
MS Sample Id: 655087-001 S

Prep Method: SW5030B
Date Prep: 03.10.20
MSD Sample Id: 655087-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD	Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.113	114	0.115	116	70-130	2	35		mg/kg	03.10.20 12:38	
Toluene	<0.00198	0.0992	0.110	111	0.112	113	70-130	2	35		mg/kg	03.10.20 12:38	
Ethylbenzene	<0.00198	0.0992	0.106	107	0.107	108	71-129	1	35		mg/kg	03.10.20 12:38	
m,p-Xylenes	<0.00397	0.198	0.219	111	0.220	111	70-135	0	35		mg/kg	03.10.20 12:38	
o-Xylene	<0.00198	0.0992	0.108	109	0.109	110	71-133	1	35		mg/kg	03.10.20 12:38	

Surrogate

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		70-130	%	03.10.20 12:38
4-Bromofluorobenzene	95		92		70-130	%	03.10.20 12:38

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

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 03.10.2020 08.45.00 AM

Work Order #: 655092

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6*Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:


 Elizabeth McClellan

Date: 03.10.2020

Checklist reviewed by:


 Jessica Kramer

Date: 03.10.2020