

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	NRM2002948523
District RP	
Facility ID	
Application ID	

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 32.412235 Longitude -104.064223
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	BEU 156 (BEGS) CS	Site Type	Well Location
Date Release Discovered	12/04/2019	API# (if applicable)	30-015-35269 (Big Eddy Unit #156)

Unit Letter	Section	Township	Range	County
D	11	22S	28E	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)	0.0	Volume Recovered (bbls)	0.0
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls)	41.65	Volume Recovered (bbls)	41.65
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls)	4.63	Volume Recovered (bbls)	4.63
<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: Two tanks overflowed due to an unanticipated slug of fluid moving through the system. All fluids were recovered. A 48-hour advance notice of liner inspection was provided by email to NMOCD District 2. The liner was visually inspected and located two holes. Additional delineation for deferral will be completed by a third party contractor.


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? YES – An unauthorized release of fluid over 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? YES, by Amy Ruth : Mike Bratcher; Rob Hamlet; Victoria Venegas; "Griswold, Jim, EMNRD"; blm_nm_cfo_spill@blm.gov; Crisha Morgan ; by email December 04, 2019 10:39 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 <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u>	Title: <u>SH&E Supervisor</u>
Signature: 	Date: <u>12/17/2019</u>
email: <u>Kyle_Littrell@xtoenergy.com</u>	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Ramona Marcus</u>	Date: <u>1/29/2020</u>

Location:	BEU 156 (BEGS) CS	
Spill Date:	12/4/2019	
Approximate Area =	259.84	cubic ft.
TOTAL VOLUME OF LEAK		
Total Produced Water =	41.65	bbls
Total Condensate =	4.63	bbls
VOLUME RECOVERED		
Total Produced Water =	41.65	bbls
Total Condensate =	4.63	bbls

NRM2002948523

Incident ID	NRM2002948523
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas 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.

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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: 04/17/2020

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

OCD Only

Received by: _____ Date: _____

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Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 04/17/2020

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

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____



LT Environmental, Inc.

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

April 21, 2020

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

**RE: Closure Request
BEU 156 (BEGS) CS
Incident Number: NRM2002948523
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 BEU 156 (BEGS) CS (Site) in Unit D, Section 11, Township 22 South, Range 28 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 impacts to soil by a release of produced water and condensate 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 NRM2002948523.

RELEASE BACKGROUND

On December 4, 2019, two tanks overflowed resulting in the release of approximately 41.65 barrels (bbls) of produced water and approximately 4.63 bbls of condensate into the lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids, of which approximately 41.65 bbls of produced water and 4.63 bbls of condensate 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 December 17, 2019. 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 nearest permitted groundwater wells to the Site is New Mexico Office of the State Engineer (NMOSE) well number C-03533



Bratcher, M.
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located within 0.5-mile radius from the Site; however, no depth to groundwater data is available for these wells. The closest permitted groundwater well with depth to groundwater data is United States Geological Survey (USGS) well 322547104035001, located approximately 1.21 miles north of the Site. The groundwater well has a reported depth to groundwater of 129 feet bgs, total depth is not determined. USGS well 322547104035001 was most recently sampled in January 1998. The closest continuously flowing water or significant watercourse to the Site is a palustrine wetland, located approximately 850 feet north 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 not underlain by unstable geology and is located in a medium-potential karst area. The Site receptors are identified on Figure 1.

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 April 13, 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 eastern end of containment. Site assessment activities and vertical delineation soil sampling were completed at the location of the tear in the liner found during the liner integrity inspection conducted by XTO. One soil sample was collected at approximately 0.75 feet bgs (BH01) before encountering auger refusal. A discrete sample collected from the borehole 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 from the borehole were documented on lithologic/soil sampling logs 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 is depicted on Figure 2. Photographic documentation was conducted during the Site visit. The photographic log is included in Attachment 2.



Bratcher, M.
Page 3

The soil sample was placed directly into a pre-cleaned glass jar, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil sample was transported 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 sample BH01, collected at a depth of approximately 0.75 feet bgs, indicated benzene, BTEX, TPH-GRO, 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 report is 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 sample BH01 was collected from within the lined tank battery containment at a depth of approximately 0.75 feet bgs to assess for the presence or absence of soil impacts as a result of the December 4, 2019 produced water and condensate release. Laboratory analytical results indicated benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in soil sample BH01. The liner was subsequently repaired. As such, XTO respectfully requests NFA for Incident Number NRM2002948523.

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

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink that reads 'Kalei Jennings'.

Kalei Jennings
Project Environmental Scientist

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

Ashley L. Ager, P.G.
Senior Geologist



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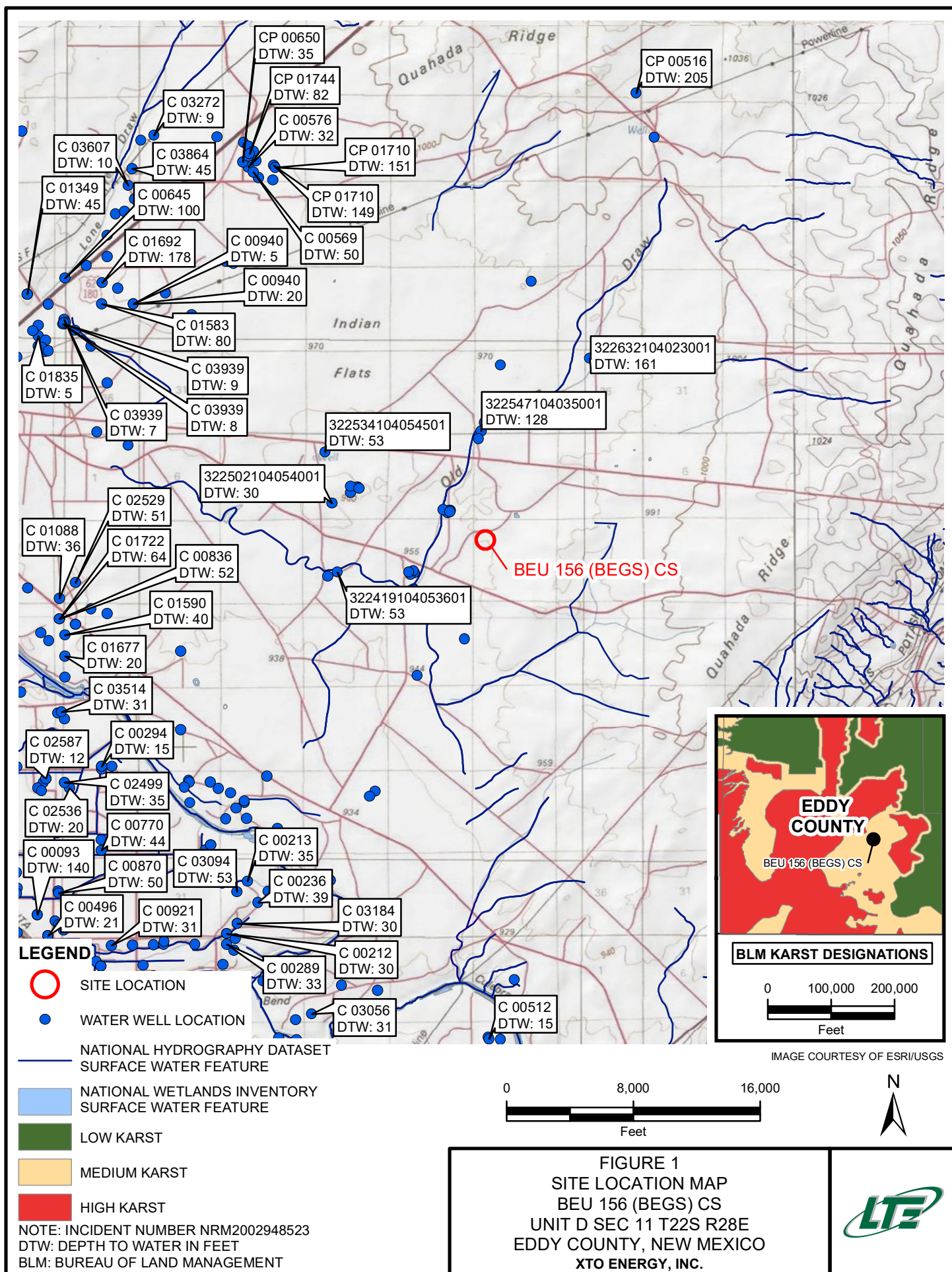
cc: Kyle Littrell, XTO
United States Bureau of Land Management – New Mexico
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD

Appendices:

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

BH01@0.75'
 04/13/2020
 B: <0.00200
 BTEX: <0.00200
 GRO+DRO: 235
 TPH: 421
 Cl: 734

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 NRM2002948523

IMAGE COURTESY OF ESRI

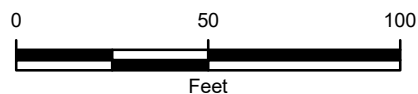


FIGURE 2
 DELINEATION SOIL SAMPLE LOCATIONS
 BEU 156 (BEGS) CS
 UNIT D SEC 11 T22S R28E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



TABLES



TABLE 1
SOIL ANALYTICAL RESULTS

BEU 156 (BEGS) CS
INCIDENT NUMBER NRM2002948523
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000
BH01	0.75	04/13/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	235	186	235	421	734

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

MRO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

NE - not established


TPH - total petroleum hydrocarbons

Bold - indicates result exceeds the applicable regulatory standard

< - indicates result is below laboratory reporting limits

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



		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance • Engineering • Remediation		Identifier: BH01		Date: 4/13/20		
Lat/Long:		Field Screening: Hatch chloride strips + PFD		Project Name: BEU156(BE6S)CS		RP Number:		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: W/M		Method: Hand Auger		
Comments: Advanced through hole in containment on East Side of containment,				Hole Diameter: 4"		Total Depth: 9"		
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
M	2.6 (392)	3.7	N	BH01	0	9"		- SAND, med-ls, well graded, some clay, Caliche gravel lg, Br, moist, No stain, No odor TD=9", Refusal @ 9", large Caliche gravel Blocking Progress NO way to remove or go around.
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

ATTACHMENT 2: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Photograph 1: View of BH01 location along with secondary tear in liner.



Photograph 2: BH01 location backfilled and the liner was repaired.

ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS





Analytical Report 658691

for

LT Environmental, Inc.

Project Manager: Kyle Littrell

BEU 156 (BEGS) CS

012920051

04.14.2020

Collected By: Client

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

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

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

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



04.14.2020

Project Manager: **Kyle Littrell**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **658691**

BEU 156 (BEGS) CS

Project Address:

Kyle Littrell:

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) 658691. 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. 658691 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'. The signature is written in a cursive, flowing style.

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 658691

LT Environmental, Inc., Arvada, CO

BEU 156 (BEGS) CS

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	04.13.2020 10:45	9 ft	658691-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: BEU 156 (BEGS) CS

Project ID: 012920051
Work Order Number(s): 658691

Report Date: 04.14.2020
Date Received: 04.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3122895 BTEX by EPA 8021B

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



Certificate of Analysis Summary 658691

LT Environmental, Inc., Arvada, CO

Project Name: BEU 156 (BEGS) CS

Project Id: 012920051

Contact: Kyle Littrell

Project Location:

Date Received in Lab: Mon 04.13.2020 13:30

Report Date: 04.14.2020 13:51

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	658691-001					
	Field Id:	BH01					
	Depth:	9- ft					
	Matrix:	SOIL					
	Sampled:	04.13.2020 10:45					
BTEX by EPA 8021B	Extracted:	04.13.2020 14:30					
	Analyzed:	04.13.2020 15:14					
	Units/RL:	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00399 0.00399					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
Chloride by EPA 300	Extracted:	04.13.2020 14:11					
	Analyzed:	04.13.2020 16:32					
	Units/RL:	mg/kg RL					
Chloride		734 9.98					
TPH by SW8015 Mod	Extracted:	04.13.2020 17:05					
	Analyzed:	04.14.2020 04:44					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0					
Diesel Range Organics (DRO)		235 50.0					
Motor Oil Range Hydrocarbons (MRO)		186 50.0					
Total GRO-DRO		235 50.0					
Total TPH		421 50.0					

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

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

Jessica Kramer
Project Manager



Certificate of Analytical Results 658691

LT Environmental, Inc., Arvada, CO

BEU 156 (BEGS) CS

Sample Id: **BH01**
Lab Sample Id: 658691-001

Matrix: Soil
Date Collected: 04.13.2020 10:45

Date Received: 04.13.2020 13:30
Sample Depth: 9 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3122891

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 04.13.2020 14:11

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	734	9.98	mg/kg	04.13.2020 16:32		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3122934

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Date Prep: 04.13.2020 17:05

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	04.14.2020 04:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	235	50.0	mg/kg	04.14.2020 04:44		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	186	50.0	mg/kg	04.14.2020 04:44		1
Total GRO-DRO	PHC628	235	50.0	mg/kg	04.14.2020 04:44		1
Total TPH	PHC635	421	50.0	mg/kg	04.14.2020 04:44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.14.2020 04:44	
o-Terphenyl	84-15-1	109	%	70-135	04.14.2020 04:44	



Certificate of Analytical Results 658691

LT Environmental, Inc., Arvada, CO

BEU 156 (BEGS) CS

Sample Id: **BH01**
Lab Sample Id: 658691-001

Matrix: Soil
Date Collected: 04.13.2020 10:45

Date Received: 04.13.2020 13:30
Sample Depth: 9 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.13.2020 14:30

Basis: Wet Weight

Seq Number: 3122895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.13.2020 15:14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.13.2020 15:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	70-130	04.13.2020 15:14	
1,4-Difluorobenzene	540-36-3	113	%	70-130	04.13.2020 15:14	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

BEU 156 (BEGS) CS

Analytical Method: Chloride by EPA 300

Seq Number: 3122891

MB Sample Id: 7701194-1-BLK

Matrix: Solid

LCS Sample Id: 7701194-1-BKS

Prep Method: E300P

Date Prep: 04.13.2020

LCSD Sample Id: 7701194-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	259	104	260	104	90-110	0	20	mg/kg	04.13.2020 16:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3122891

Parent Sample Id: 658691-001

Matrix: Soil

MS Sample Id: 658691-001 S

Prep Method: E300P

Date Prep: 04.13.2020

MSD Sample Id: 658691-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	734	200	941	104	935	101	90-110	1	20	mg/kg	04.13.2020 16:37	

Analytical Method: Chloride by EPA 300

Seq Number: 3122891

Parent Sample Id: 658696-010

Matrix: Soil

MS Sample Id: 658696-010 S

Prep Method: E300P

Date Prep: 04.13.2020

MSD Sample Id: 658696-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.9	200	218	101	220	102	90-110	1	20	mg/kg	04.13.2020 17:54	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3122934

MB Sample Id: 7701154-1-BLK

Matrix: Solid

LCS Sample Id: 7701154-1-BKS

Prep Method: SW8015P

Date Prep: 04.13.2020

LCSD Sample Id: 7701154-1-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	1060	106	1020	102	70-135	4	35	mg/kg	04.14.2020 02:24	
Diesel Range Organics (DRO)	<50.0	1000	1240	124	1180	118	70-135	5	35	mg/kg	04.14.2020 02:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		133		129		70-135	%	04.14.2020 02:24
o-Terphenyl	115		112		109		70-135	%	04.14.2020 02:24

Analytical Method: TPH by SW8015 Mod

Seq Number: 3122934

Matrix: Solid

MB Sample Id: 7701154-1-BLK

Prep Method: SW8015P

Date Prep: 04.13.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.14.2020 02:03	

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

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

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

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



LT Environmental, Inc.

BEU 156 (BEGS) CS

Analytical Method: TPH by SW8015 Mod

Seq Number: 3122934

Parent Sample Id: 658613-006

Matrix: Soil

MS Sample Id: 658613-006 S

Prep Method: SW8015P

Date Prep: 04.13.2020

MSD Sample Id: 658613-006 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)	<50.0	1000	1020	102	1010	102	70-135	1	35	mg/kg	04.14.2020 03:24	
Diesel Range Organics (DRO)	<50.0	1000	1180	118	1160	117	70-135	2	35	mg/kg	04.14.2020 03:24	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		116		70-135	%	04.14.2020 03:24
o-Terphenyl	114		112		70-135	%	04.14.2020 03:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3122895

MB Sample Id: 7701119-1-BLK

Matrix: Solid

LCS Sample Id: 7701119-1-BKS

Prep Method: SW5030B

Date Prep: 04.13.2020

LCSD Sample Id: 7701119-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.121	121	0.110	110	70-130	10	35	mg/kg	04.13.2020 10:29	
Toluene	<0.00200	0.100	0.109	109	0.0994	99	70-130	9	35	mg/kg	04.13.2020 10:29	
Ethylbenzene	<0.00200	0.100	0.100	100	0.0909	91	71-129	10	35	mg/kg	04.13.2020 10:29	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.176	88	70-135	10	35	mg/kg	04.13.2020 10:29	
o-Xylene	<0.00200	0.100	0.100	100	0.0906	91	71-133	10	35	mg/kg	04.13.2020 10:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	113		108		108		70-130	%	04.13.2020 10:29
4-Bromofluorobenzene	91		85		87		70-130	%	04.13.2020 10:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3122895

Parent Sample Id: 658610-003

Matrix: Soil

MS Sample Id: 658610-003 S

Prep Method: SW5030B

Date Prep: 04.13.2020

MSD Sample Id: 658610-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00197	0.0986	0.106	108	0.104	104	70-130	2	35	mg/kg	04.13.2020 11:10	
Toluene	<0.00197	0.0986	0.0968	98	0.0936	94	70-130	3	35	mg/kg	04.13.2020 11:10	
Ethylbenzene	<0.00197	0.0986	0.0907	92	0.0854	85	71-129	6	35	mg/kg	04.13.2020 11:10	
m,p-Xylenes	<0.00394	0.197	0.176	89	0.165	83	70-135	6	35	mg/kg	04.13.2020 11:10	
o-Xylene	<0.00197	0.0986	0.0875	89	0.0852	85	71-133	3	35	mg/kg	04.13.2020 11:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	04.13.2020 11:10
4-Bromofluorobenzene	88		84		70-130	%	04.13.2020 11:10

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

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

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

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



Chain of Custody

Work Order No: 658691

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)565-3443 Lubbock, TX (806)794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	wmather@ltenv.com, dmoir@ltenv.com
Project Name:	BEU 156 (BEGS) CS	Turn Around	
Project Number:	012920051	Routine	<input type="checkbox"/>
P.O. Number:	Eddy	Rush:	24hr
Sampler's Name:	William Mather	Due Date:	

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No	
Temperature (°C):	1.5	Thermometer ID	TMM007					
Received Intact:	Yes	No						
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.2			
Sample Custody Seals:	Yes	No	N/A	Total Containers:	1			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	ANALYSIS REQUEST																Work Order Notes			
BH01	s	4/13/2020	10:45	9"	1	Number of Containers	TPH (EPA 8015)	X	BTEX (EPA 0-8021)	X	Chloride (EPA 300.0)	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 1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		4/13/20 13:30			

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** LT Environmental, Inc.**Date/ Time Received:** 04.13.2020 01.30.00 PM**Work Order #:** 658691**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)?	.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Martha Castro

Date: 04.13.2020

Checklist reviewed by:

Jessica Kramer

Date: 04.14.2020