LT Environmental, Inc.
3300 North "A" Street, Building 1, Unit 103
Midland, Texas 79705
432.704.5178

October 23, 2018

Ms. Olivia Yu
New Mexico Oil Conservation District
1625 North French Drive
Hobbs, New Mexico 88240

RE: Closure Request
XTO Energy, Inc.
Severus CTB
Remediation Permit Number 1RP-5219
Lea County, New Mexico

Dear Ms. Yu:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following letter report detailing excavation of impacted soil and confirmation soil sampling activities at the Severus Central Tank Battery (CTB; Site) located in Unit O, Section 30, Township 20 South, Range 34 East, in Lea County, New Mexico (Figure 1).

The purpose of the excavation activities was to address impact to soil after a small fire started when the vapor recovery tower plugged with hydraulic fracturing (frac) sand, causing oil to escape the flare stack and release less than 1 barrel (bbl) of crude oil through the flare. The crude oil misted onto the well pad, ignited in the flare, and then self-extinguished. The release was discovered on September 12, 2018, and affected approximately 940-square feet of the caliche well pad. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on September 26, 2018, and was assigned Remediation Permit Number (RP) 1RP-5219 (Attachment 1).

Initial assessment and remediation activities at the Site were conducted in accordance with the New Mexico Administration Code (NMAC) Title 19, Chapter 15, Part 29 Remediation and Closure Guidelines for Oil and Gas Releases, dated August 14, 2018 (19.15.29 NMAC). Based on the results of the confirmation sampling event conducted after impacted soil was removed, XTO is requesting no further action for this release.

BACKGROUND

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 and known aquifer properties. The nearest permitted water well, water well number CP1289POD1, is located approximately 3.77 miles east of the Site. Depth to groundwater in the water well is 651 feet bgs and total depth of the water well is 1,222 feet bgs. The Site is located greater than 300 feet from any continuously flowing watercourse,

greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet to a permanent residence, school, hospital, institution, church, or wetland. The Site is greater than 500 feet from a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes and greater than 1,000 feet to a freshwater well or spring. The Site is not within an unstable area, 100-year floodplain, or overlying a subsurface mine. Based on these criteria, the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 1,000 mg/kg gasoline range organics (GRO) and diesel range organics (DRO); 2,500 mg/kg total petroleum hydrocarbons (TPH); and 20,000 mg/kg chloride.

SOIL SAMPLING

On September 19, 2018, an LTE scientist collected four soil samples (SS01 through SS04) from a depth of 0.5 feet bgs to assess the lateral and vertical extent of soil impacts. The soil sample locations, depicted on Figure 2, were based on information provided in the initial Form C-141 and field observations. Soil samples were screened for volatile aromatic hydrocarbons using a photo-ionization detector (PID) equipped with a 10.6 electron volt lamp. The soil samples were collected and 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-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-motor oil range organics (MRO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.

Laboratory analytical results for soil samples SS01 through SS04 indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD site-specific remediation action levels. Laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the laboratory analytical report is included as Attachment 2.

EXCAVATION ACTIVITIES

On October 9, 2018, LTE personnel returned to the Site to initiate and oversee excavation of impacted soil as indicated by visual surface staining. To delineate visual impacts to soil and to direct excavation activities, LTE field-screened soil using a PID and visual observations of stained soil.

Following the removal of visually impacted soil, LTE collected 5-point composite soil samples every 200 square feet from the floor of the excavation to document removal of impacted soil. Four composite floor soil samples (SS05, SS06, SS07, and SS08) were collected at a depth of 0.5 feet bgs, the vertical limit of the excavation, as sidewall samples were not obtainable. The soil samples were collected, handled, and analyzed as described above and submitted to Xenco in Midland, Texas.

The final excavation measured approximately 940 square feet in area with a depth of approximately 0.5 feet bgs throughout the excavation. The horizontal extent of the excavation and the soil sample locations are illustrated on Figure 2. Approximately 17 cubic yards of impacted soil were removed using a skid steer. Visually impacted soil was transported and properly disposed of at the Lea Land Landfill, in Eunice, New Mexico.

ANALYTICAL RESULTS

Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were either below the laboratory detection limit or compliant with NMOCD Table 1 closure criteria in all soil samples. Laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the complete laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

Approximately 17 cubic yards of impacted soil were excavated from the release footprint, and laboratory analytical results of eight confirmation soil samples indicated compliance with NMOCD-Table 1 closure criteria. Following the receipt of soil sample laboratory analytical results, the excavation area was backfilled with clean imported fill material to match the pre-existing grade. Based on the data collected, XTO is requesting closure and no further action of NMOCD 1RP-5219 per NMAC Rule 19.15.29.12 Amended August 2018. The final NMOCD Form C-141 is included as Attachment 1, and a photographic log is included as Attachment 3.

If you have any questions or comments, please do not hesitate to contact Ms. Adrian Baker at (432) 887-1255 or abaker@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Adrian Baker
Project Geologist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Jim Amos, BLM
Shelly Tucker, BLM

Attachments:

Figure 1	Site Location Map
Figure 2	Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/Final NMOCD Form C-141 (1RP-5219)
Attachment 2	Laboratory Analytical Reports
Attachment 3	Photographic Log
Attachment 4	Water Well Data

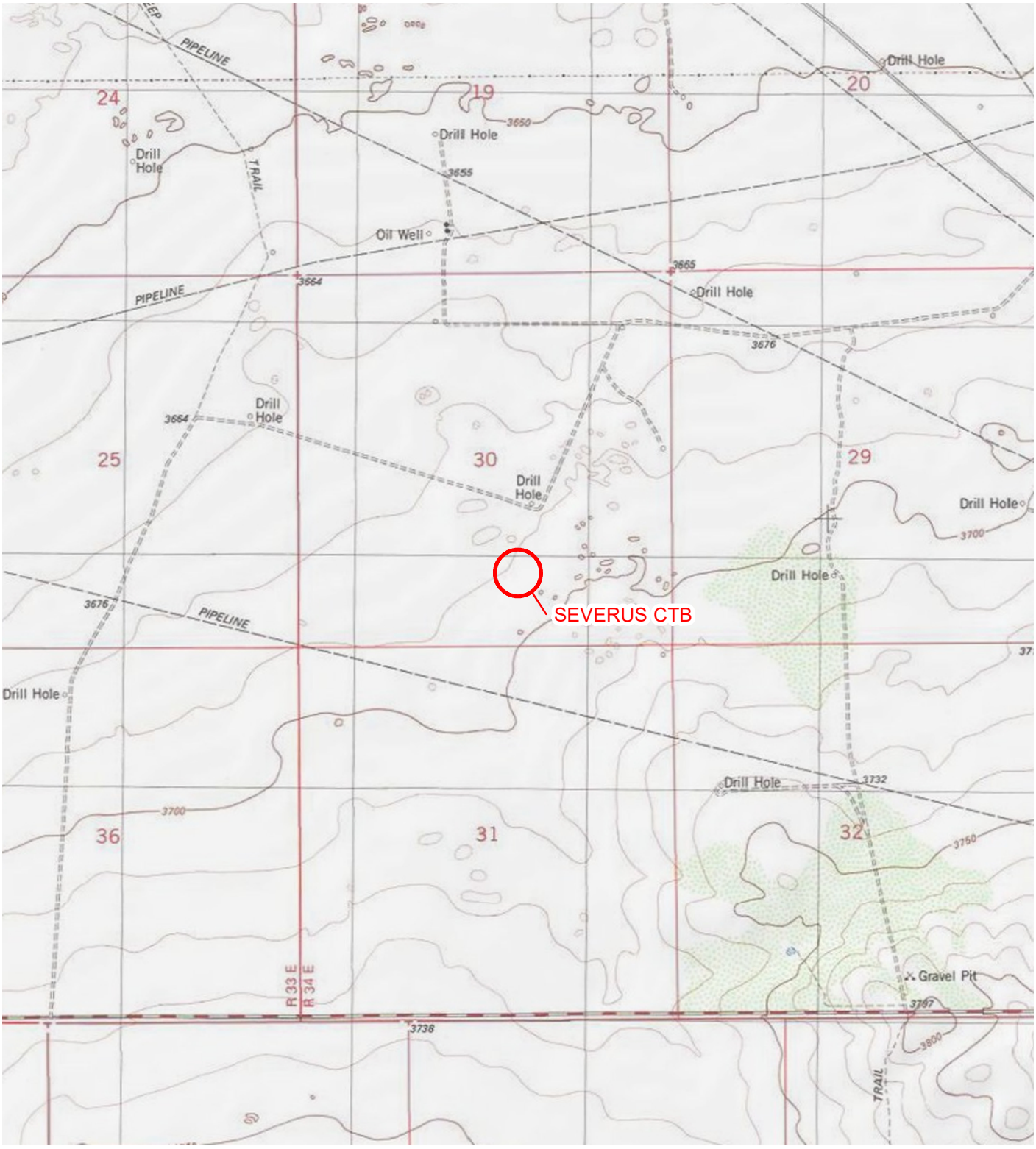

IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 1RP-5219

FIGURE 1
SITE LOCATION MAP
SEVERUS CTB
UNIT O SEC 30 T20S R34E
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918149_SEVERUS_CTB_5219\012918149_FIG01_SL_2018_5219.mxd

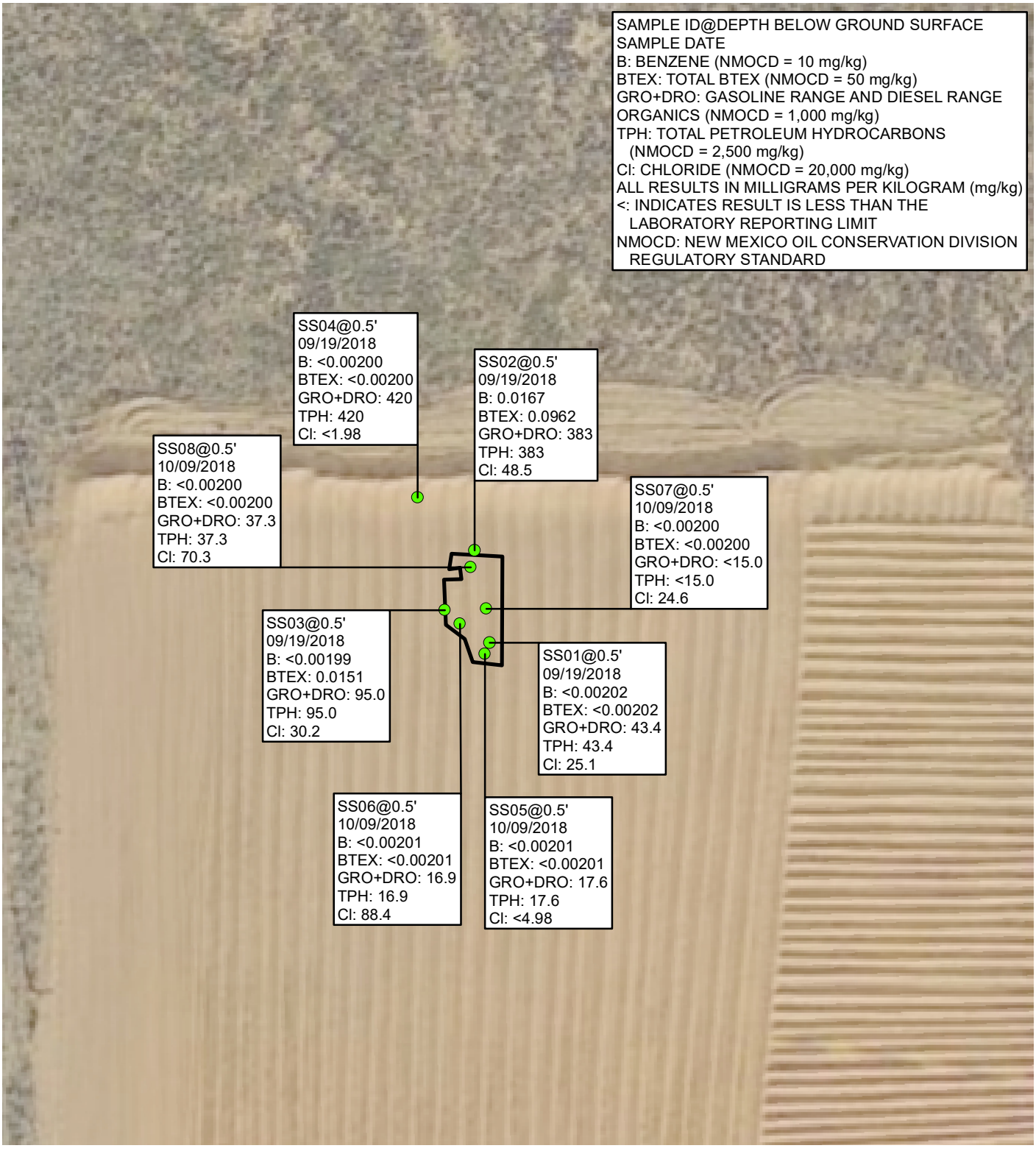

IMAGE COURTESY OF GOOGLE EARTH 2017

LEGEND

- FINAL CONFIRMATION SOIL SAMPLE
- EXCAVATION EXTENT

0 60 120
Feet

N

FIGURE 2
SOIL SAMPLE LOCATIONS
SEVERUS CTB
UNIT O SEC 30 T20S R34E
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.

NOTE: REMEDIATION PERMIT NUMBER 1RP-5219

P:\XTO Energy\GIS\MXD\012918149_SEVERUS_CTB_5219\012918149_FIG02_SITE_2018_5219.mxd

TABLE 1
SOIL ANALYTICAL RESULTS

SEVERUS CTB
REMEDIATION PERMIT NUMBER 1RP-5219
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS01	0.5	09/19/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<14.9	43.4	<14.9	43.4	43.4	25.1
SS02	0.5	09/19/2018	0.0167	0.0301	0.00608	0.0433	0.0962	21.5	361	<15.0	383	383	48.5
SS03	0.5	09/19/2018	<0.00199	0.00385	<0.00199	0.0113	0.0151	<15.0	95.0	<15.0	95.0	95.0	30.2
SS04	0.5	09/19/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	20.7	399	<15.0	420	420	<1.98
SS05	0.5	10/09/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	17.6	<15.0	<15.0	17.6	17.6	<4.98
SS06	0.5	10/09/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	16.9	<15.0	<15.0	16.9	16.9	88.4
SS07	0.5	10/09/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	24.6
SS08	0.5	10/09/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	17.3	20.0	<15.0	37.3	37.3	70.3
NMOCD Remediation Action Levels			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
mg/kg - milligrams per kilogram
NE - not established
NMOCD - New Mexico Oil Conservation Division
DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits
Bold - indicates result exceeds the applicable regulatory standard.

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	nCH1827457034
District RP	1RP-5219
Facility ID	fCH1827456667
Application ID	pCH1827457443

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 # NCH1827457034 SEVERUS CTB @ FCH1827456667
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.53972 Longitude -103.59796

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Severus CTB	Site Type Tank Battery
Date Release 9/12/2018	API# 30-025-43415 (API for Severus 31 Fed Com 001H)

Unit Letter	Section	Township	Range	County
O	30	20S	34E	Lea

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

Federal Minerals

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) < 1	Volume Recovered (bbls) 0
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A small fire started when vapor recover tower plugged with frac sand, causing oil to escape the flare stack. Less than 1 barrel of oil was released through the flare and ignited. The fire extinguished itself quickly.

State of New Mexico
Oil Conservation Division

Incident ID	nCH1827457034
District RP	1RP-5219
Facility ID	fCH1827456667
Application ID	pCH1827457443

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, Kyle Littrell notified Jim Griswold, Olivia Yu, Christina Hernandez (NMOCD), Shelly Tucker and Jim Amos (BLM) via email, 9/12/18, 12:05 PM	

Initial Response

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

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

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

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: Bryan Jacob Foust Title: SH&E Coordinator

Signature: [signature] Date: 9/26/2018

email: Bryan_Foust@xtoenergy.com Telephone: 432-266-2663

OCD Only

Received by: RECEIVED By CHernandez at 4:00 pm, Oct 01, 2018 Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Bryan Jacob Foust Title: SH&E Coordinator

Signature: Date: 9/26/2018

email: Bryan_Foust@xtoenergy.com Telephone: 432-266-2663

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	nCH1827457034
District RP	1RP-5219
Facility ID	fCH1827456667
Application ID	pCH1827457443

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: 10/23/2018

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

OCD Only

Received by: Dylan Rose-Coss Date: 07/23/2019

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: 07/26/2019

Printed Name: Dylan Rose-Coss Title: NMOCD D1 Environmental Specialist

ATTACHMENT 2: LABORATORY ANALYTICAL REPORTS

Analytical Report 599706

for

LT Environmental, Inc.

Project Manager: Adrian Baker

Severus TB Flare 012918149

27-SEP-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-16)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

27-SEP-18

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

Reference: XENCO Report No(s): **599706**
Severus TB Flare 012918149
Project Address: Lea County

Adrian Baker:

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) 599706. 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. 599706 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	09-19-18 08:40	6 In	599706-001
SS02	S	09-19-18 08:45	6 In	599706-002
SS03	S	09-19-18 08:50	6 In	599706-003
SS04	S	09-19-18 09:00	6 In	599706-004

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3064169 BTEX by EPA 8021B

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

Certificate of Analysis Summary 599706

LT Environmental, Inc., Arvada, CO

Project Name: Severus TB Flare 012918149

Project Id:
Contact: Adrian Baker
Project Location: Lea County

Date Received in Lab: Thu Sep-20-18 10:53 am
Report Date: 27-SEP-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	599706-001		599706-002		599706-003		599706-004					
	Field Id:	SS01		SS02		SS03		SS04					
	Depth:	6- In		6- In		6- In		6- In					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Sep-19-18 08:40		Sep-19-18 08:45		Sep-19-18 08:50		Sep-19-18 09:00					
BTEX by EPA 8021B	***Extracted:***	Sep-22-18 08:30		Sep-22-18 08:30		Sep-22-18 08:30		Sep-22-18 08:30					
	Analyzed:	Sep-22-18 16:24		Sep-22-18 16:45		Sep-22-18 17:05		Sep-22-18 17:25					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00202	0.00202	0.0167	0.00200	<0.00199	0.00199	<0.00200	0.00200				
Toluene		<0.00202	0.00202	0.0301	0.00200	0.00385	0.00199	<0.00200	0.00200				
Ethylbenzene		<0.00202	0.00202	0.00608	0.00200	<0.00199	0.00199	<0.00200	0.00200				
m,p-Xylenes		<0.00403	0.00403	0.0294	0.00401	0.00804	0.00398	<0.00399	0.00399				
o-Xylene		<0.00202	0.00202	0.0139	0.00200	0.00325	0.00199	<0.00200	0.00200				
Total Xylenes		<0.00202	0.00202	0.0433	0.00200	0.0113	0.00199	<0.00200	0.00200				
Total BTEX		<0.00202	0.00202	0.0962	0.00200	0.0151	0.00199	<0.00200	0.00200				
Inorganic Anions by EPA 300	***Extracted:***	Sep-24-18 10:00		Sep-24-18 10:00		Sep-24-18 10:00		Sep-24-18 10:00					
	Analyzed:	Sep-24-18 20:34		Sep-24-18 20:51		Sep-24-18 20:56		Sep-24-18 21:02					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		25.1	1.98	48.5	1.99	30.2	2.00	<1.98	1.98				
TPH by SW8015 Mod	***Extracted:***	Sep-21-18 16:00		Sep-21-18 16:00		Sep-21-18 16:00		Sep-21-18 16:00					
	Analyzed:	Sep-21-18 23:34		Sep-21-18 23:54		Sep-22-18 00:14		Sep-22-18 00:34					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<14.9	14.9	21.5	15.0	<15.0	15.0	20.7	15.0				
Diesel Range Organics (DRO)		43.4	14.9	361	15.0	95.0	15.0	399	15.0				
Motor Oil Range Hydrocarbons (MRO)		<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0				
Total TPH		43.4	14.9	383	15.0	95.0	15.0	420	15.0				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-001	Date Collected:	09.19.18 08.40	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	09.24.18 10.00	Basis:	Wet Weight
Seq Number:	3064310				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.1**	1.98	mg/kg	09.24.18 20.34		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064207				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	09.21.18 23.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	**43.4**	14.9	mg/kg	09.21.18 23.34		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.21.18 23.34	U	1
Total TPH	PHC635	**43.4**	14.9	mg/kg	09.21.18 23.34		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	09.21.18 23.34	
o-Terphenyl	84-15-1	94	%	70-135	09.21.18 23.34	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-001	Date Collected:	09.19.18 08.40	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.22.18 08.30	Basis:	Wet Weight
Seq Number:	3064169				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.22.18 16.24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.22.18 16.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	09.22.18 16.24	
1,4-Difluorobenzene	540-36-3	89	%	70-130	09.22.18 16.24	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-002	Date Collected:	09.19.18 08.45	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	09.24.18 10.00	Basis:	Wet Weight
Seq Number:	3064310				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**48.5**	1.99	mg/kg	09.24.18 20.51		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064207				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**21.5**	15.0	mg/kg	09.21.18 23.54		1
Diesel Range Organics (DRO)	C10C28DRO	**361**	15.0	mg/kg	09.21.18 23.54		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.21.18 23.54	U	1
Total TPH	PHC635	**383**	15.0	mg/kg	09.21.18 23.54		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	09.21.18 23.54	
o-Terphenyl	84-15-1	101	%	70-135	09.21.18 23.54	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-002	Date Collected:	09.19.18 08.45	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.22.18 08.30	Basis:	Wet Weight
Seq Number:	3064169				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.0167**	0.00200	mg/kg	09.22.18 16.45		1
Toluene	108-88-3	**0.0301**	0.00200	mg/kg	09.22.18 16.45		1
Ethylbenzene	100-41-4	**0.00608**	0.00200	mg/kg	09.22.18 16.45		1
m,p-Xylenes	179601-23-1	**0.0294**	0.00401	mg/kg	09.22.18 16.45		1
o-Xylene	95-47-6	**0.0139**	0.00200	mg/kg	09.22.18 16.45		1
Total Xylenes	1330-20-7	**0.0433**	0.00200	mg/kg	09.22.18 16.45		1
Total BTEX		**0.0962**	0.00200	mg/kg	09.22.18 16.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	99	%	70-130	09.22.18 16.45	
4-Bromofluorobenzene	460-00-4	105	%	70-130	09.22.18 16.45	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-003	Date Collected:	09.19.18 08.50	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	09.24.18 10.00	Basis:	Wet Weight
Seq Number:	3064310				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.2**	2.00	mg/kg	09.24.18 20.56		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064207				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.22.18 00.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	**95.0**	15.0	mg/kg	09.22.18 00.14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 00.14	U	1
Total TPH	PHC635	**95.0**	15.0	mg/kg	09.22.18 00.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	09.22.18 00.14	
o-Terphenyl	84-15-1	90	%	70-135	09.22.18 00.14	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-003	Date Collected:	09.19.18 08.50	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.22.18 08.30	Basis:	Wet Weight
Seq Number:	3064169				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.22.18 17.05	U	1
Toluene	108-88-3	**0.00385**	0.00199	mg/kg	09.22.18 17.05		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.22.18 17.05	U	1
m,p-Xylenes	179601-23-1	**0.00804**	0.00398	mg/kg	09.22.18 17.05		1
o-Xylene	95-47-6	**0.00325**	0.00199	mg/kg	09.22.18 17.05		1
Total Xylenes	1330-20-7	**0.0113**	0.00199	mg/kg	09.22.18 17.05		1
Total BTEX		**0.0151**	0.00199	mg/kg	09.22.18 17.05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	09.22.18 17.05	
1,4-Difluorobenzene	540-36-3	84	%	70-130	09.22.18 17.05	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS04**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-004	Date Collected:	09.19.18 09.00	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	09.24.18 10.00	Basis:	Wet Weight
Seq Number:	3064310				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<1.98	1.98	mg/kg	09.24.18 21.02	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064207				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**20.7**	15.0	mg/kg	09.22.18 00.34		1
Diesel Range Organics (DRO)	C10C28DRO	**399**	15.0	mg/kg	09.22.18 00.34		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 00.34	U	1
Total TPH	PHC635	**420**	15.0	mg/kg	09.22.18 00.34		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	09.22.18 00.34	
o-Terphenyl	84-15-1	91	%	70-135	09.22.18 00.34	

Certificate of Analytical Results 599706

LT Environmental, Inc., Arvada, CO

Severus TB Flare 012918149

Sample Id:	**SS04**	Matrix:	Soil	Date Received:	09.20.18 10.53
Lab Sample Id:	599706-004	Date Collected:	09.19.18 09.00	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.22.18 08.30	Basis:	Wet Weight
Seq Number:	3064169				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.22.18 17.25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.22.18 17.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	70-130	09.22.18 17.25	
1,4-Difluorobenzene	540-36-3	83	%	70-130	09.22.18 17.25	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 599706

LT Environmental, Inc.

Severus TB Flare 012918149

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3064310 Matrix: Solid Date Prep: 09.24.18
MB Sample Id: 7662884-1-BLK LCS Sample Id: 7662884-1-BKS LCSD Sample Id: 7662884-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<2.00	100	105	105	104	104	90-110	1	20	mg/kg	09.24.18 19:48	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3064310 Matrix: Soil Date Prep: 09.24.18
Parent Sample Id: 599704-004 MS Sample Id: 599704-004 S MSD Sample Id: 599704-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.1	99.2	118	103	118	103	90-110	0	20	mg/kg	09.24.18 20:05	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3064310 Matrix: Soil Date Prep: 09.24.18
Parent Sample Id: 599709-004 MS Sample Id: 599709-004 S MSD Sample Id: 599709-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	452	99.6	531	79	533	81	90-110	0	20	mg/kg	09.24.18 21:25	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064207 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662832-1-BLK LCS Sample Id: 7662832-1-BKS LCSD Sample Id: 7662832-1-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	935	94	982	98	70-135	5	20	mg/kg	09.21.18 16:37	
Diesel Range Organics (DRO)	<8.13	1000	924	92	986	99	70-135	6	20	mg/kg	09.21.18 16:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		123		126		70-135	%	09.21.18 16:37
o-Terphenyl	113		106		115		70-135	%	09.21.18 16:37

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

QC Summary 599706

LT Environmental, Inc.

Severus TB Flare 012918149

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064207 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599709-002 MS Sample Id: 599709-002 S MSD Sample Id: 599709-002 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)	<7.99	998	907	91	917	92	70-135	1	20	mg/kg	09.21.18 17:56	
Diesel Range Organics (DRO)	<8.11	998	904	91	910	91	70-135	1	20	mg/kg	09.21.18 17:56	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		116		70-135	%	09.21.18 17:56
o-Terphenyl	105		104		70-135	%	09.21.18 17:56

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3064169 Matrix: Solid Date Prep: 09.22.18
MB Sample Id: 7662855-1-BLK LCS Sample Id: 7662855-1-BKS LCSD Sample Id: 7662855-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.107	107	0.117	117	70-130	9	35	mg/kg	09.22.18 14:24	
Toluene	<0.00199	0.0996	0.100	100	0.110	110	70-130	10	35	mg/kg	09.22.18 14:24	
Ethylbenzene	<0.00199	0.0996	0.104	104	0.113	113	70-130	8	35	mg/kg	09.22.18 14:24	
m,p-Xylenes	<0.00398	0.199	0.213	107	0.231	116	70-130	8	35	mg/kg	09.22.18 14:24	
o-Xylene	<0.00199	0.0996	0.104	104	0.113	113	70-130	8	35	mg/kg	09.22.18 14:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		95		93		70-130	%	09.22.18 14:24
4-Bromofluorobenzene	97		96		97		70-130	%	09.22.18 14:24

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3064169 Matrix: Soil Date Prep: 09.22.18
Parent Sample Id: 599706-001 MS Sample Id: 599706-001 S MSD Sample Id: 599706-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.102	103	0.108	108	70-130	6	35	mg/kg	09.22.18 15:04	
Toluene	0.000796	0.0994	0.0964	96	0.102	101	70-130	6	35	mg/kg	09.22.18 15:04	
Ethylbenzene	<0.00199	0.0994	0.0942	95	0.101	101	70-130	7	35	mg/kg	09.22.18 15:04	
m,p-Xylenes	0.00120	0.199	0.195	97	0.207	103	70-130	6	35	mg/kg	09.22.18 15:04	
o-Xylene	0.000565	0.0994	0.0943	94	0.101	101	70-130	7	35	mg/kg	09.22.18 15:04	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		92		70-130	%	09.22.18 15:04
4-Bromofluorobenzene	99		99		70-130	%	09.22.18 15:04

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

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

Setting the Standard since 1990

Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)

www.xenco.com

Xenco Quote #

Xenco Job # 599706

Client / Reporting Information

Company Name / Branch: LT Environmental, Inc. Permian Office
Company Address: 3300 N "A" St. Building 1 Unit 103 Midland, TX 79705
Email: abaker@ltenv.com Phone No: (432) 704-5178
Project Contact: Adrian Baker
Samplers's Name: Lynda Lambeth

Project Information

Project Name/Number: Severus TB Flare 012918149
Project Location: LEA County
Invoice To: XTO Energy - Kyle Littrell
PO Number:

Analytical Information

BTEX (only BTEX) 8021
TPH (DRO, GRO, MRO) 8015
Chloride (300.0)

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	BTEX (only BTEX) 8021	TPH (DRO, GRO, MRO) 8015	Chloride (300.0)	Field Comments
1	SS01	6"	09/19/18	08:40	S	1								Y	X	X	X	
2	SS02	↓	↓	8:45	S	1								↓	↓	↓	↓	
3	SS03			8:50	S	1												
4	SS04			9:00	S	1												
5																		
6																		
7																		
8																		
9																		
10																		

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☒ Contract TAT
- ☐ 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- ☐ Level II Std QC
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		09/19/18 14:30	Timothy R. Echo			
2					9/19 15:30	
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: ☒ Cooler Temp. 0.7 Thermo. Corr. Factor 0.0

Notice: 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 loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

ORIGIN ID:CAOA (575) 887-6245
XENCO
PAC N MAIL
910 W PIERCE ST
CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 19SEP18
ACTWGT: 49.00 LB
CAD: 101813706/INET4040
DIMS: 24x16x16 IN
BILL RECIPIENT

TO HOLD FOR XENCO
FEDEX EXPRESS SHIP CENTER
FEDEX SHIP CENTER
3600 COUNTY RD 1276 S
MIDLAND TX 79711
(806) 794-1296
INV:
PO:
REF:
DEPT:

J1821180815011uv

552J1/F78C/DCA5

THU - 20 SEP HOLD

STANDARD OVERNIGHT

TRK# 0201 7732 7701 1476

HLD

41 MAFA

MAFA
LBB
TX-US

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 09/20/2018 10:53:00 AM

Work Order #: 599706

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)?	.2
#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)?	**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: Katie Lowe Date: 09/20/2018

Checklist reviewed by: Jessica Kramer Date: 09/20/2018

Analytical Report 602093

for

LT Environmental, Inc.

Project Manager: Adrian Baker

Severus CTB

19-OCT-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)
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-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

19-OCT-18

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

Reference: XENCO Report No(s): **602093**
Severus CTB
Project Address: Delaware Basin

Adrian Baker:

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) 602093. 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. 602093 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS05	S	10-09-18 10:30	.5 ft	602093-001
SS06	S	10-09-18 10:35	.5 ft	602093-002
SS07	S	10-09-18 10:40	.5 ft	602093-003
SS08	S	10-09-18 10:45	.5 ft	602093-004

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066649 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3066785 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 602093

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Oct-11-18 10:50 am
Report Date: 19-OCT-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	602093-001		602093-002		602093-003		602093-004					
	Field Id:	SS05		SS06		SS07		SS08					
	Depth:	.5- ft		.5- ft		.5- ft		.5- ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Oct-09-18 10:30		Oct-09-18 10:35		Oct-09-18 10:40		Oct-09-18 10:45					
BTEX by EPA 8021B	***Extracted:***	Oct-17-18 14:00		Oct-16-18 17:00		Oct-16-18 17:00		Oct-16-18 17:00					
	Analyzed:	Oct-17-18 23:58		Oct-17-18 05:26		Oct-17-18 05:48		Oct-17-18 06:09					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
Toluene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
Ethylbenzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
m,p-Xylenes		<0.00402	0.00402	<0.00402	0.00402	<0.00401	0.00401	<0.00399	0.00399				
o-Xylene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
Total Xylenes		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
Total BTEX		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200				
Inorganic Anions by EPA 300	***Extracted:***	Oct-16-18 13:30		Oct-16-18 13:30		Oct-16-18 13:30		Oct-16-18 13:30					
	Analyzed:	Oct-17-18 00:30		Oct-17-18 00:36		Oct-17-18 00:41		Oct-17-18 00:47					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		<4.98	4.98	88.4	4.97	24.6	4.97	70.3	5.00				
TPH by SW8015 Mod	***Extracted:***	Oct-15-18 14:00		Oct-15-18 14:00		Oct-15-18 14:00		Oct-15-18 14:00					
	Analyzed:	Oct-16-18 01:18		Oct-16-18 01:37		Oct-16-18 01:56		Oct-16-18 02:15					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		17.6	15.0	16.9	15.0	<15.0	15.0	17.3	15.0				
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	20.0	15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0				
Total TPH		17.6	15.0	16.9	15.0	<15.0	15.0	37.3	15.0				

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS05**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-001	Date Collected:	10.09.18 10.30	Sample Depth:	.5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.16.18 13.30	Basis:	Wet Weight
Seq Number:	3066605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	10.17.18 00.30	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.15.18 14.00	Basis:	Wet Weight
Seq Number:	3066668				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**17.6**	15.0	mg/kg	10.16.18 01.18		1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.16.18 01.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.16.18 01.18	U	1
Total TPH	PHC635	**17.6**	15.0	mg/kg	10.16.18 01.18		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	10.16.18 01.18	
o-Terphenyl	84-15-1	83	%	70-135	10.16.18 01.18	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS05**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-001	Date Collected:	10.09.18 10.30	Sample Depth:	.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.17.18 14.00	Basis:	Wet Weight
Seq Number:	3066785				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.17.18 23.58	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.17.18 23.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	10.17.18 23.58	
1,4-Difluorobenzene	540-36-3	130	%	70-130	10.17.18 23.58	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS06**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-002	Date Collected:	10.09.18 10.35	Sample Depth:	.5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.16.18 13.30	Basis:	Wet Weight
Seq Number:	3066605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**88.4**	4.97	mg/kg	10.17.18 00.36		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.15.18 14.00	Basis:	Wet Weight
Seq Number:	3066668				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**16.9**	15.0	mg/kg	10.16.18 01.37		1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.16.18 01.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.16.18 01.37	U	1
Total TPH	PHC635	**16.9**	15.0	mg/kg	10.16.18 01.37		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	10.16.18 01.37	
o-Terphenyl	84-15-1	84	%	70-135	10.16.18 01.37	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS06**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-002	Date Collected:	10.09.18 10.35	Sample Depth:	.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.16.18 17.00	Basis:	Wet Weight
Seq Number:	3066649				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.17.18 05.26	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.17.18 05.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	111	%	70-130	10.17.18 05.26	
1,4-Difluorobenzene	540-36-3	123	%	70-130	10.17.18 05.26	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id: **SS07** Matrix: Soil Date Received:10.11.18 10.50

Lab Sample Id: 602093-003 Date Collected: 10.09.18 10.40 Sample Depth: .5 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 10.16.18 13.30 Basis: Wet Weight

Seq Number: 3066605

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.6**	4.97	mg/kg	10.17.18 00.41		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 10.15.18 14.00 Basis: Wet Weight

Seq Number: 3066668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.16.18 01.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.16.18 01.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.16.18 01.56	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.16.18 01.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	10.16.18 01.56	
o-Terphenyl	84-15-1	82	%	70-135	10.16.18 01.56	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS07**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-003	Date Collected:	10.09.18 10.40	Sample Depth:	.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.16.18 17.00	Basis:	Wet Weight
Seq Number:	3066649				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.17.18 05.48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.17.18 05.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.17.18 05.48	
1,4-Difluorobenzene	540-36-3	113	%	70-130	10.17.18 05.48	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS08**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-004	Date Collected:	10.09.18 10.45	Sample Depth:	.5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.16.18 13.30	Basis:	Wet Weight
Seq Number:	3066605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**70.3**	5.00	mg/kg	10.17.18 00.47		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.15.18 14.00	Basis:	Wet Weight
Seq Number:	3066668				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**17.3**	15.0	mg/kg	10.16.18 02.15		1
Diesel Range Organics (DRO)	C10C28DRO	**20.0**	15.0	mg/kg	10.16.18 02.15		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.16.18 02.15	U	1
Total TPH	PHC635	**37.3**	15.0	mg/kg	10.16.18 02.15		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	10.16.18 02.15	
o-Terphenyl	84-15-1	82	%	70-135	10.16.18 02.15	

Certificate of Analytical Results 602093

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS08**	Matrix:	Soil	Date Received:	10.11.18 10.50
Lab Sample Id:	602093-004	Date Collected:	10.09.18 10.45	Sample Depth:	.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	10.16.18 17.00	Basis:	Wet Weight
Seq Number:	3066649				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.17.18 06.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.17.18 06.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.17.18 06.09	
1,4-Difluorobenzene	540-36-3	120	%	70-130	10.17.18 06.09	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 602093

LT Environmental, Inc.

Severus CTB

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3066605 Matrix: Solid Date Prep: 10.16.18
MB Sample Id: 7664248-1-BLK LCS Sample Id: 7664248-1-BKS LCSD Sample Id: 7664248-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	259	104	253	101	90-110	2	20	mg/kg	10.16.18 22:13	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3066605 Matrix: Soil Date Prep: 10.16.18
Parent Sample Id: 602090-001 MS Sample Id: 602090-001 S MSD Sample Id: 602090-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	256	102	260	104	90-110	2	20	mg/kg	10.16.18 22:30	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3066605 Matrix: Soil Date Prep: 10.16.18
Parent Sample Id: 602092-001 MS Sample Id: 602092-001 S MSD Sample Id: 602092-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	147	250	404	103	398	100	90-110	1	20	mg/kg	10.16.18 23:50	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3066668 Matrix: Solid Date Prep: 10.15.18
MB Sample Id: 7664241-1-BLK LCS Sample Id: 7664241-1-BKS LCSD Sample Id: 7664241-1-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	953	95	947	95	70-135	1	20	mg/kg	10.15.18 19:35	
Diesel Range Organics (DRO)	<8.13	1000	987	99	973	97	70-135	1	20	mg/kg	10.15.18 19:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		116		126		70-135	%	10.15.18 19:35
o-Terphenyl	103		96		101		70-135	%	10.15.18 19:35

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

QC Summary 602093

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3066668 Matrix: Soil Date Prep: 10.15.18
Parent Sample Id: 602090-001 MS Sample Id: 602090-001 S MSD Sample Id: 602090-001 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)	14.3	999	850	84	892	88	70-135	5	20	mg/kg	10.15.18 20:32	
Diesel Range Organics (DRO)	<8.12	999	923	92	973	98	70-135	5	20	mg/kg	10.15.18 20:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		122		70-135	%	10.15.18 20:32
o-Terphenyl	84		89		70-135	%	10.15.18 20:32

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3066649 Matrix: Solid Date Prep: 10.16.18
MB Sample Id: 7664316-1-BLK LCS Sample Id: 7664316-1-BKS LCSD Sample Id: 7664316-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.116	115	0.117	117	70-130	1	35	mg/kg	10.17.18 03:18	
Toluene	<0.00202	0.101	0.100	99	0.104	104	70-130	4	35	mg/kg	10.17.18 03:18	
Ethylbenzene	<0.00202	0.101	0.112	111	0.114	114	70-130	2	35	mg/kg	10.17.18 03:18	
m,p-Xylenes	<0.00102	0.202	0.225	111	0.234	116	70-130	4	35	mg/kg	10.17.18 03:18	
o-Xylene	<0.00202	0.101	0.111	110	0.114	114	70-130	3	35	mg/kg	10.17.18 03:18	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	123		122		124		70-130	%	10.17.18 03:18
4-Bromofluorobenzene	110		110		118		70-130	%	10.17.18 03:18

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3066785 Matrix: Solid Date Prep: 10.17.18
MB Sample Id: 7664390-1-BLK LCS Sample Id: 7664390-1-BKS LCSD Sample Id: 7664390-1-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	0.0998	0.116	116	0.0976	98	70-130	17	35	mg/kg	10.17.18 14:19	
Toluene	<0.00200	0.0998	0.0997	100	0.0891	89	70-130	11	35	mg/kg	10.17.18 14:19	
Ethylbenzene	<0.00200	0.0998	0.118	118	0.0923	92	70-130	24	35	mg/kg	10.17.18 14:19	
m,p-Xylenes	<0.00399	0.200	0.236	118	0.202	101	70-130	16	35	mg/kg	10.17.18 14:19	
o-Xylene	<0.00200	0.0998	0.110	110	0.0904	90	70-130	20	35	mg/kg	10.17.18 14:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	126		103		82		70-130	%	10.17.18 14:19
4-Bromofluorobenzene	101		115		80		70-130	%	10.17.18 14:19

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

QC Summary 602093

LT Environmental, Inc.

Severus CTB

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3066649 Matrix: Soil Date Prep: 10.16.18

Parent Sample Id: 602093-002 MS Sample Id: 602093-002 S MSD Sample Id: 602093-002 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	0.0996	0.116	116	0.108	108	70-130	7	35	mg/kg	10.17.18 04:01	
Toluene	<0.00199	0.0996	0.103	103	0.0969	97	70-130	6	35	mg/kg	10.17.18 04:01	
Ethylbenzene	<0.00199	0.0996	0.112	112	0.115	115	70-130	3	35	mg/kg	10.17.18 04:01	
m,p-Xylenes	<0.00398	0.199	0.230	116	0.241	121	70-130	5	35	mg/kg	10.17.18 04:01	
o-Xylene	<0.00199	0.0996	0.113	113	0.120	120	70-130	6	35	mg/kg	10.17.18 04:01	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	128		124		70-130	%	10.17.18 04:01
4-Bromofluorobenzene	119		126		70-130	%	10.17.18 04:01

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3066785 Matrix: Soil Date Prep: 10.17.18

Parent Sample Id: 602472-001 MS Sample Id: 602472-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0838	83	70-130	mg/kg	10.17.18 15:02	
Toluene	<0.00202	0.101	0.0721	71	70-130	mg/kg	10.17.18 15:02	
Ethylbenzene	<0.00202	0.101	0.0748	74	70-130	mg/kg	10.17.18 15:02	
m,p-Xylenes	<0.00403	0.202	0.153	76	70-130	mg/kg	10.17.18 15:02	
o-Xylene	<0.00202	0.101	0.0714	71	70-130	mg/kg	10.17.18 15:02	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		70-130	%	10.17.18 15:02
4-Bromofluorobenzene	102		70-130	%	10.17.18 15:02

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Work Order No: 602093

XENCO LABORATORIES

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

www.xenco.com Page 1 of 1

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental	Company Name:	XTO
Address:	3300 'A' Street, Building 1, #103	Address:	
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	
Phone:	(432)704-5178	Email:	ABaker@LTenv.com

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:		Routine	☑
P.O. Number:	1RP-5219	Rush:	
Sampler's Name:	Fabian Urbarri	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	3.0	Thermometer ID:	R8	
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	0.0	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX (only BTEX)	TPH (DRO)(GRO)(MRO)	Chlorides (300.00)	Sample Comments
SS05	S	10/9/18	1030	.5'	1	x	x	x	Composite sample
SS06	S	10/9/18	1035	.5'	1	x	x	x	"
SS07	S	10/9/18	1040	.5'	1	x	x	x	"
SS08	S	10/9/18	1045	.5'	1	x	x	x	"

10/9/2018

ANALYSIS REQUEST

Work Order Notes

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

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		10/9/2018 16:06	2	10/11/18 1050	10/10/18 15:30
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Final 1.000

Page 18 of 20

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/11/2018 10:50:00 AM

Work Order #: 602093

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 Date: 10/11/2018

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 10/11/2018

Jessica Kramer

PHOTOGRAPHIC LOG

Photograph 1: View east of flare and excavation.

Photograph 2: View southeast of excavation.

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	CP 01289 POD1	4	4	2	34	20S	34E	637037	3600261

Driller License: 421 **Driller Company:** GLENN'S WATER WELL SERVICE

Driller Name: GLENN, CLARK A."CORKY"

Drill Start Date:	05/01/2014	**Drill Finish Date:**	05/06/2014	**Plug Date:**	
Log File Date:	05/19/2014	**PCW Rcv Date:**		**Source:**	Artesian
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	50 GPM
Casing Size:	9.63	**Depth Well:**	1222 feet	**Depth Water:**	651 feet

Water Bearing Stratifications:	Top	Bottom	Description
	1026	1031	Sandstone/Gravel/Conglomerate
	1026	1031	Sandstone/Gravel/Conglomerate
	1031	1151	Sandstone/Gravel/Conglomerate
	1031	1151	Shale/Mudstone/Siltstone
	1151	1161	Sandstone/Gravel/Conglomerate
	1151	1161	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	0	950

New Mexico Office of the State Engineer
Transaction Summary

EXPL Permit To Explore

Transaction Number: 604678 **Transaction Desc:** CP 01289 **File Date:** 02/19/2014

Primary Status: PMT Permit
Secondary Status: LOG Well Log Received
Person Assigned: *******
Agent: ATKINS ENGINEERING ASSOCIATES
Contact: JESSICA ATKINS
Applicant: BERRY RANCH/GLENNS WW SERV INC
Contact: CORKY GLENN

x
Events

	Date	Type	Description	Comment	Processed By
get images	02/19/2014	APP	Application Received	*	*******
	03/11/2014	FTN	Finalize non-published Trans.		*******
get images	05/06/2014	LGI	Well Log Image	*DRILLING	*******
get images	05/19/2014	LOG	Well Log Received	*	*******
get images	03/27/2017	TEC	Technical Report	*WELL PLAN OF	*******
	03/27/2017	QAT	Quality Assurance Completed	SQ2	*******
	03/30/2017	QAT	Quality Assurance Completed	IMAGE	*******
	10/05/2017	QAT	Quality Assurance Completed		*******
	10/11/2017	QAT	Quality Assurance Completed	IMAGE	*******

x
Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
CP 01289	0	0		EXP EXPLORATION
**Point of Diversion				
CP 01289 POD1		637037	3600261	in NON Grant

x
Remarks

"WELL IS BEING DRILLED TO DETERMINE OF SUFFICIENT WATER IS AVAILABLE FOR COMMERCIAL USE. AN ARTESIAN WELL PLAN OF OPERATIONS IS BEING FILED CONCURRENTLY WITH THIS APPLICATION."

x
Conditions

2 The well shall be constructed to artesian well specifications and the State Engineer shall be notified before casing is landed or cemented

4 No water shall be appropriated and beneficially used under this permit.

7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

B

The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.

C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, and well shall be plugged or capped on or before , unless a permit to use water from this well is acquired from the Office of the State Engineer.

G If artesian water is encountered, all rules and regulations pertaining to the drilling and casing of artesian wells shall be complied with.

P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.

x

Action of the State Engineer

**** See Image For Any Additional Conditions of Approval ****

Approval Code: A - Approved

Action Date: 03/11/2014

Log Due Date: 03/31/2015

State Engineer: Tom Blaine, P.E.

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER): CP-1289	OSE FILE NUMBER(S):
WELL OWNER NAME(S): Berry Ranch/Glenn's Water Well Service, Inc.	PHONE (OPTIONAL): (575)398-2424
WELL OWNER MAILING ADDRESS: P.O. Box 692	CITY: Tatum / STATE: NM / ZIP: 88267

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	31	52.50	N
LONGITUDE	103	32	26.80	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS:

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	SE ¼	NE ¼	34	20 ☐ NORTH ☑ SOUTH	34 ☑ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD 421	Corky Glenn	Glenn's Water Well Service, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
5/1/2014	5/6/2014	1222'	1222'	1026'

COMPLETED WELL IS: ☒ ARTESIAN ☐ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 651'

DRILLING FLUID: ☐ AIR ☐ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
0	40'	20"	16"	none	15 1/2"	.250	
0	950'	14 3/4"	9 5/8"	Thread and Collar	8.921"	.352	

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
1026'	1161'	135'	Water, brown shale with stringers of rock, light blue & red clay, sandstone	50

2014 MAY 19 PM 12:01

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA	TOTAL ESTIMATED WELL YIELD (GPM)

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	CP-1289	POD NUMBER	1	TRN NUMBER	542442
LOCATION	20S.34E.34.24				PAGE 1 OF 2

5. SEAL AND PUMP

TYPE OF PUMP: ☑ SUBMERSIBLE ☐ JET ☐ NO PUMP – WELL NOT EQUIPPED
☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	0	40'	20"	cemented	2 yds.	Top Pour
	0	950'	14 3/4"	Float and shoe cemented to surface	740 sacks (992cf)	pumped

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0'	2'	2'	Soil	☐ YES ☑ NO
2'	12'	10'	Caliche	☐ YES ☑ NO
12'	65'	53'	Sand	☐ YES ☑ NO
65'	147'	82'	Red Clay	☐ YES ☑ NO
147'	719'	572'	Red Clay /Red sandy shale with rock stringers	☐ YES ☑ NO
718'	915'	197'	Brown shale with stringers of rock, light blue and red clay	☐ YES ☑ NO
915'	947'	32'	Clay with shale	☐ YES ☑ NO
947'	954'	7'	Hard shale	☐ YES ☑ NO
954'	985'	31'	Shale with rock	☐ YES ☑ NO
985'	1018'	33'	Brown sandrock with brown shale stringers	☐ YES ☑ NO
1018'	1022'	4'	Coarse light brown sandstone	☐ YES ☑ NO
1022'	1026'	4'	Light red sandstone with brown shale	☐ YES ☑ NO
1026'	1031'	5'	Loose brown sandrock	☑ YES ☐ NO
1031'	1151'	20'	Brown shale with stringers of rock, light blue and red clay	☑ YES ☐ NO
1151'	1161'	10'	Blue sand rock - soft	☑ YES ☐ NO
1161'	1222'	61'	Brown shale	☐ YES ☑ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST: METHOD: ☐ BAILER ☑ PUMP ☐ AIR LIFT ☐ OTHER – SPECIFY:

TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

ADDITIONAL STATEMENTS OR EXPLANATIONS:

0 to 955' drilled with mud. 955' to 1222' drilled with air and foam.

8. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Tron Helm — SIGNATURE OF DRILLER

5/16/2014 — DATE

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER CP-1289	POD NUMBER 1	TRN NUMBER 542942
LOCATION 20S. 34E. 34.24		PAGE 2 OF 2