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	NAB1916935288
District RP	1RP-5552
Facility ID	
Application ID	pAB1916934497

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)* NAB1916935288
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.539262 Longitude -103.597391

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Severus Central Tank Battery	Site Type Bulk Storage and Separation Facility
Date Release Discovered 5/18/2019	API# *(if applicable)* 30-025-43415 (Severus 31 Fed Com 1H)

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

Incorrect county listed on original document

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

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) 17.66	Volume Recovered (bbls) 15
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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

During installation of a load line, crew neglected to isolate all tanks and fluid escaped to the facility pad surface. Tanks were properly isolated and repairs were made. A vacuum truck recovered free fluids. Additional third party resources have been retained to assist with remediation.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1916935288
District RP	1RP-5552
Facility ID	
Application ID	pAB1916934497

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

Initial Response

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

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

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

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

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

Printed Name: Amy C. Ruth
Title: SH&E Coordinator
Signature:
Date: 5/31/2019
email: Amy_Ruth@xtoenergy.com
Telephone: 575-689-3380

OCD Only

Received by: Amalia Bustamante
Date: 6/18/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5552
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	1RP-5552
Facility ID	
Application ID	

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

Printed Name: _____Kyle Littrell_____ Title: ____SH&E Supervisor_____

Signature:_____ Date: __10/11/2019_____

email: _____Kyle_Littrell@xtoenergy.com_____ Telephone: ___432-221-7331_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5552
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☐ Detailed description of proposed remediation technique
☐ Scaled sitemap with GPS coordinates showing delineation points
☐ Estimated volume of material to be remediated
☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated.

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 10/11/2019

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

OCD Only

Received by: Date:

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date:

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

October 11, 2019

District 1
New Mexico Oil Conservation Division
1220 South St. Francis Drive, #3
Santa Fe, New Mexico 87505

RE: Deferral Request
Severus Central Tank Battery
Remediation Permit Number 1RP-5552
Lea County, New Mexico

To Whom It May Concern:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing site assessment, soil sampling, and excavation activities at the Severus Central Tank Battery (Site) located in Unit O, Section 30, Township 20 South, Range 34 East, in Lea County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil following a release of crude oil at the Site. Based on the excavation activities and results from soil sampling activities, XTO is submitting this Deferral Request and requesting no further action for Remediation Permit (RP) Number 1RP-5552 until the Site is reconstructed or the production well is plugged and abandoned and the well pad is reclaimed.

RELEASE BACKGROUND

On May 18, 2019, aboveground storage tanks (ASTs) were not properly isolated during installation of a load line, causing the release of approximately 17.66 barrels (bbls) of crude oil onto the caliche well pad. The ASTs were properly isolated, repairs were made, and a vacuum truck was dispatched to the Site to recover free-standing fluid; approximately 15 bbls of fluid was 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 May 31, 2019, and was subsequently assigned RP Number 1RP-5552 (Attachment 1).

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 water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 323335103370601, located

approximately 1.84 miles north-northwest of the Site. The water well has a depth to groundwater of approximately 173 feet bgs and a total depth of 676 feet bgs. Ground surface elevation at the water well location is 3,641 feet above mean seal level (AMSL), which is approximately 67 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an New Mexico Office of State Engineers (NM OSE)-identified water body located approximately 6,435 feet south of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a low potential karst area.

CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg);
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg;
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg;
- TPH: 2,500 mg/kg; and
- Chloride: 20,000 mg/kg.

SITE ASSESSMENT, EXCAVATION, AND SOIL SAMPLING ACTIVITIES

On June 6, 2019, LTE personnel was at the Site to evaluate the release extent based on information provided on the Form C-141 and visual observations. LTE personnel collected two preliminary soil samples (SS01 and SS02) within the release extent at a depth of approximately 0.5 feet bgs to assess for the presence or absence of soil impacts. Soil was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. The release extent and preliminary soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were shipped at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX following United States Environmental Protection Agency (USEPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil

range organics (ORO) following USEPA Method 8015M/D; and chloride following USEPA Method 300.0.

Based on laboratory analytical results for the preliminary soil samples, delineation and excavation of impacted soil appeared to be warranted. Borehole advancement via hand augering was conducted to delineate the lateral and vertical extent of impacts and direct excavation activities, which occurred simultaneously. Photographic documentation was conducted during the Site visit. Photographs are included in Attachment 2.

On July 17, 2019, LTE personnel returned to the Site to conduct soil assessment activities to delineate impacted soil as indicated by laboratory analytical results and field screening. One borehole was advanced via hydro-vacuum within the release extent near the point of release. Borehole BH01 was advanced to a depth of approximately 4 feet bgs. Two delineation soil samples were collected from the borehole at depths of 1 foot (BH01) and 4 feet bgs (BH01A). Soil from the borehole was field screened for volatile aromatic hydrocarbons and chloride. Field screening results and observations for each borehole were logged on lithologic/soil sampling logs, which are included in Attachment 3. The delineation soil samples were collected, handled, and analyzed as described above at Xenco in Midland, Texas. The borehole was backfilled with the soil removed. The borehole and delineation soil sample locations are depicted on Figure 3.

From July 17 through August 20, 2019, LTE personnel returned to the Site to oversee excavation of impacted soil as indicated by visual observations, field screening results, and laboratory analytical results for the preliminary and delineation soil samples. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride. Following removal of impacted soil, LTE collected 5-point composite samples every 200 square feet from the sidewalls and floor of the excavation. The 5-point composite samples were collected by depositing five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths from the ground surface to approximately 1 foot and 3 feet bgs. Composite soil samples FS01 through FS20 were collected from the floor of the excavation at depths at approximately 1 foot and 2 feet bgs.

On August 6 and August 20, 2019, LTE personnel returned to the Site to oversee the further excavation of impacted soil in the areas of floor soil samples FS19 and FS20 and sidewall soil sample SW01 collected from the ongoing excavation. Confirmation soil samples FS19A and FS20A were collected from the floor of the final excavation extent at approximately 3.5 feet bgs. Soil sample SW01A was collected at a depth from the ground surface to approximately 2 feet bgs. Further excavation of soil in this area was required; and subsequent confirmation soil sample SW01B was collected at a depth from the ground surface to approximately 3 feet bgs. The excavation soil samples were collected, handled, and analyzed as described above. The excavation extent and excavation soil samples locations are depicted on Figure 4.

The final excavation extent measured approximately 7,880 square feet in area. A total of approximately 580 cubic yards of impacted soil were removed from the excavation. The impacted soil was transported and properly disposed of at the R360 landfill facility located in Hobbs, New Mexico.

On October 2, 2019, LTE personnel returned to the Site to oversee soil assessment activities to delineate impacted soil as indicated by the laboratory analytical results for excavation soil sample SW02. Boreholes were advanced via hand auger at four locations surrounding the tank battery containment, located immediately north of the point of release and release extent. Boreholes BH02 through BH05 were advanced to a depth of approximately 4 feet bgs. Two soil samples were collected from each borehole at depths of approximately 1 foot and 4 feet bgs. Soil from the boreholes was field screened for volatile aromatic hydrocarbons and chloride. Field screening results and observations for each borehole were logged on lithologic/soil sampling logs, which are included in Attachment 3. The delineation soil samples were collected, handled, and analyzed as described above. The boreholes were backfilled with the soil removed. The borehole and delineation soil sample locations are depicted on Figure 3.

ANALYTICAL RESULTS

Laboratory analytical results indicated benzene, BTEX, TPH-GRO and TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in delineation soil sample BH01A collected at 4 feet bgs. Laboratory analytical results indicated THP-GRO and TPH-DRO and TPH concentrations exceeded the Closure Criteria in preliminary and delineation soil samples SS01, SS02, and BH01 collected at approximately 0.5 feet and 1 foot bgs. Impacted soil in these areas was excavated, and laboratory analytical results indicated benzene, BTEX, TPH-GRO and TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in excavation soil samples FS01 through FS18 and FS20. Laboratory analytical results indicated TPH-GRO and TPH-DRO and/or TPH concentrations exceeded the Closure Criteria in SW01, SW02, and FS19.

Additional soil was excavated in the vicinities of sidewall sample SW01 and floor sample FS19. Laboratory analytical results for subsequent sidewall sample SW01A indicated further excavation was still warranted. Laboratory analytical results for subsequent sidewall sample SW01B and floor sample FS19A indicated benzene, BTEX, GRO and DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and no further excavation appeared warranted in these areas. Laboratory analytical results for sidewall sample SW02 indicated TPH-GRO and TPH-DRO and TPH concentrations continued to exceed the Closure Criteria. Further excavation of impacted soil beyond excavation sidewall sample SW02 was limited due to the presence of active pipelines and processing equipment, specifically the tank battery and associated processing equipment and flowlines. XTO safety policy restricts soil disturbing activities within a 2-foot radius of any active pipeline and/or processing equipment. This XTO safety policy is established to protect workers and reduce the likelihood of compromising the foundation of the active

pipeline/equipment. This policy was enforced where impacted soil was identified within 2 feet of an active pipeline and processing equipment in soil sample SW02.

Delineation boreholes BH02 through BH05 were advanced in the area surrounding sidewall soil sample SW02, immediately surrounding the tank battery containment, to assess the extent of impacted soil remaining in place. Laboratory analytical results for the delineation soil samples collected from BH02 through BH05 indicated benzene, BTEX, TPH-GRO and TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and the extent of impacted soil was defined. While BH01 collected from 1 foot bgs exceeded Closure Criteria, BH01A collected from 4' bgs did not. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

DEFERRAL REQUEST

Approximately 580 cubic yards of impacted soil was excavated from the Site; however, residual impacted soil was left in place for compliance with the XTO safety policy regarding earth moving activities within 2 feet of active pipelines and/or processing equipment. Impacted soil was excavated to the extent possible, and laboratory analytical results for excavation sidewall soil sample SW02 collected from the final excavation extent indicated soil with TPH-GRO and TPH-DRO and TPH concentrations exceeding the Closure Criteria was left in place within 2 feet of an active pipeline and/or processing equipment.

The impacted soil remaining in place in the vicinity of sidewall soil sample SW02 is delineated vertically and laterally by excavation soil samples FS19A and FS20A, collected from the floor of the final excavation extent, and delineation soil samples BH01A and BH02/BH02A through BH05/BH05A, collected from boreholes surrounding the tank battery containment. An estimated 3,700 cubic yards of impacted soil remains in place, assuming a maximum 4 foot depth based on soil samples BH01A and BH02 through BH05 collected at 4 feet bgs. XTO used an excavator and hydro-vacuum to remove as much soil as safely possible from the release, and all impacts remain beneath or immediately surrounding the tank battery containment.

XTO requests to complete remediation during any future major construction/alteration or final plugging and abandonment, whichever occurs first. LTE and XTO do not believe deferment will result in imminent risk to human health, the environment, or groundwater. No saturated soil remains in place and gross source removal has occurred. Remaining impact is delineated vertically and laterally. Initial response efforts and excavation of impacted soil have mitigated impacts at this Site. XTO requests deferral of final remediation for RP Number 1RP-5552. An updated Form C-141 is included as Attachment 1.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Carol Ann Whaley
Staff Geologist

Ashley L. Ager, P.G.
Senior Geologist

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

Attachments:

Figure 1	Site Location Map
Figure 2	Preliminary Soil Sample Locations
Figure 3	Delineation Soil Sample Locations
Figure 4	Excavation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/Final NMOCD Form C-141 (1RP-5552)
Attachment 2	Photographic Log
Attachment 3	Lithologic / Soil Sampling Logs
Attachment 4	Laboratory Analytical Reports

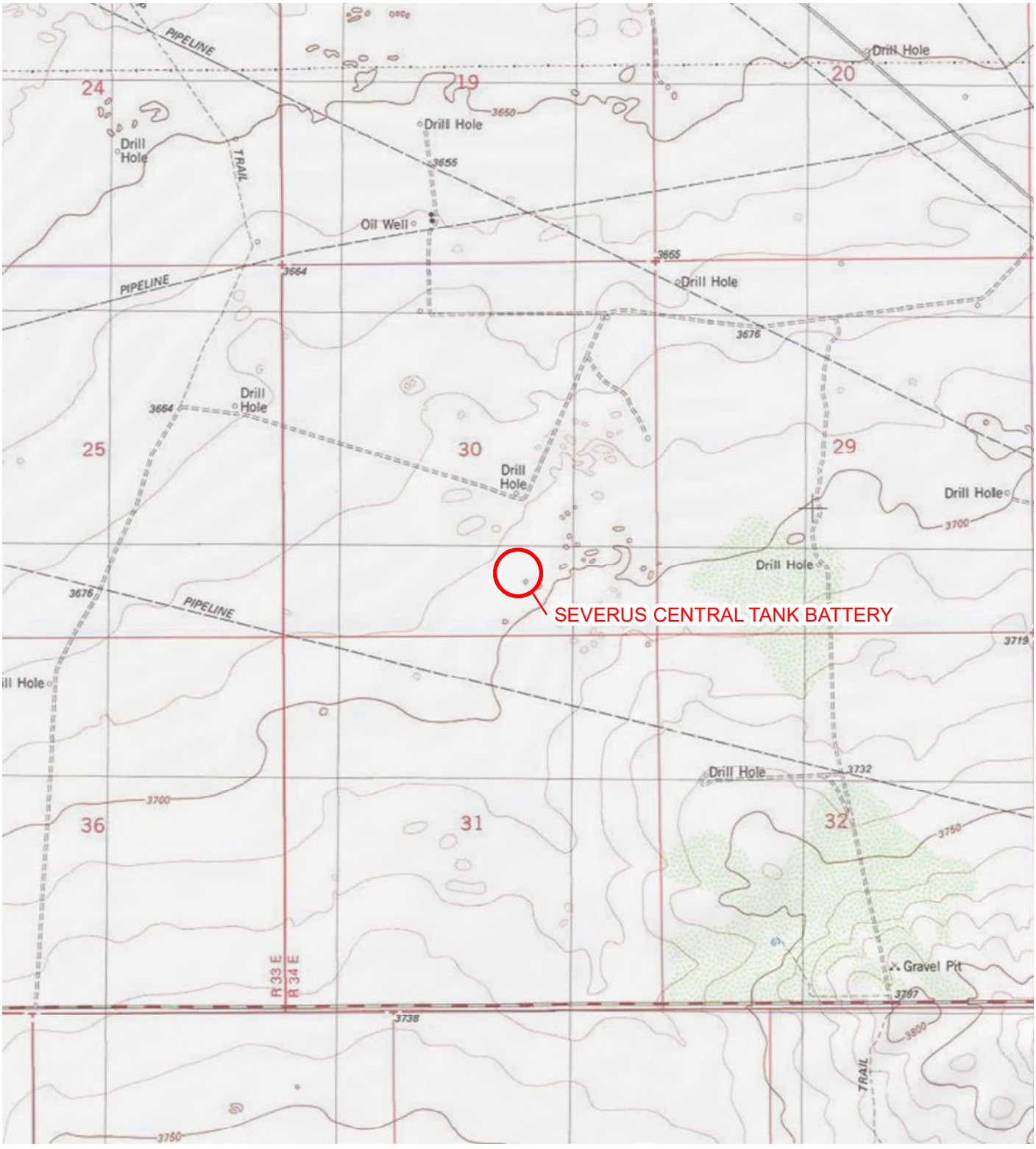

IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 1RP-5552

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

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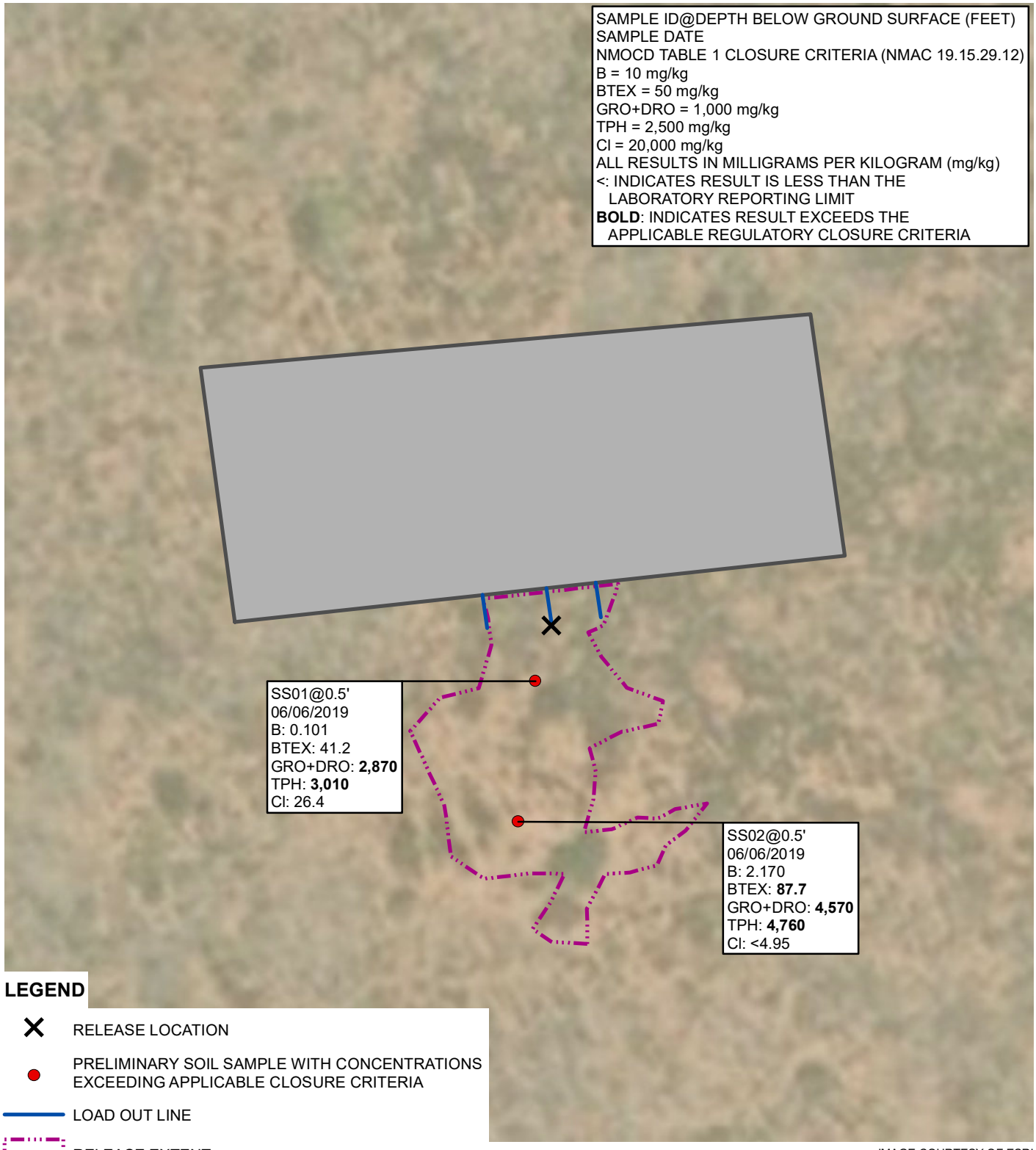
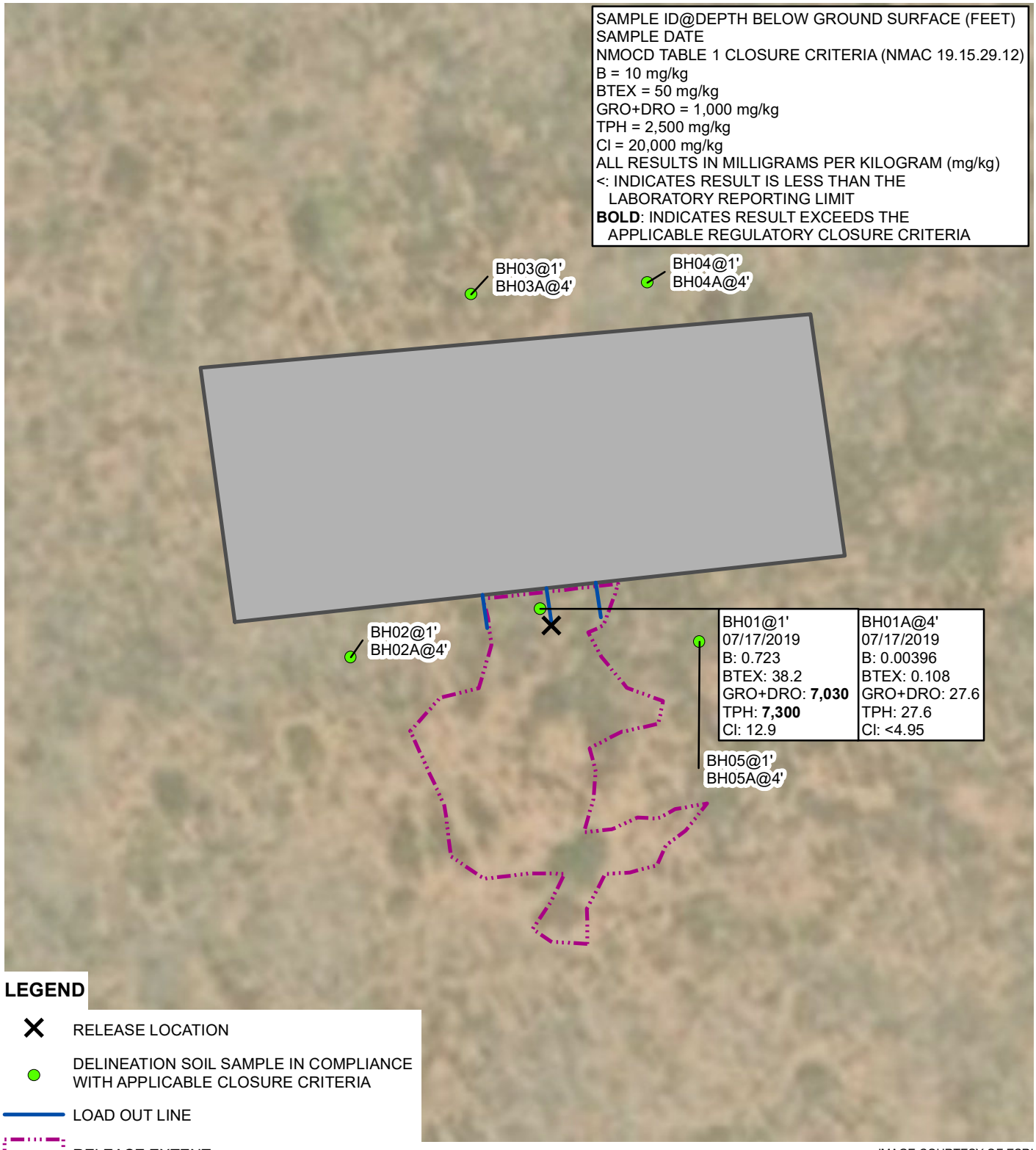


B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 1RP-5552

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

P:\XTO Energy\GIS\MXD\012919109_SEVERUS CTB\012919109_FIG02_PRELIMINARY_5552.mxd



B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 1RP-5552

FIGURE 3
DELINEATION SOIL SAMPLE LOCATIONS
SEVERUS CENTRAL TANK BATTERY
UNIT O SEC 30 T20S R34E
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.

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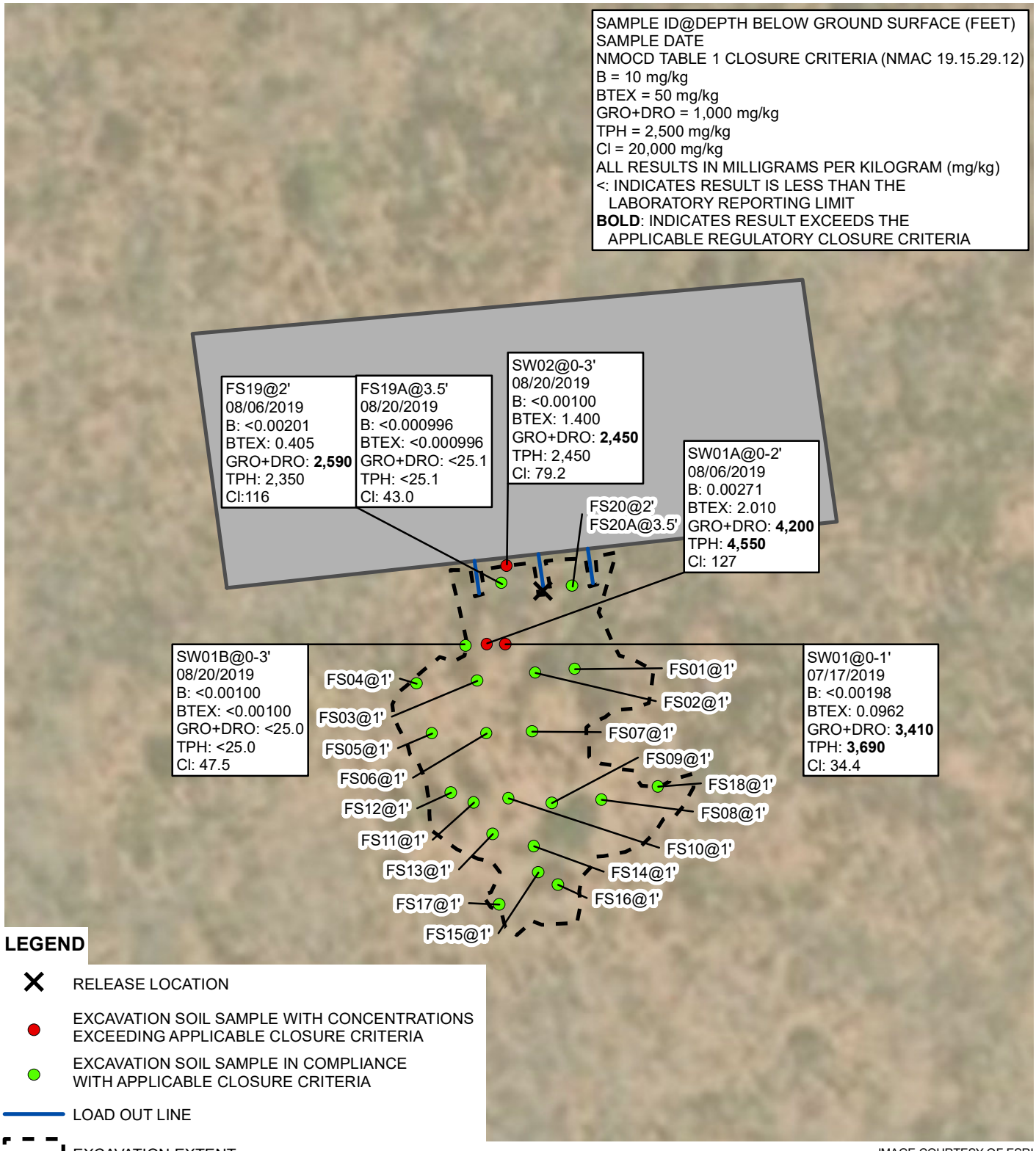

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 1RP-5552

FIGURE 4
EXCAVATION SOIL SAMPLE LOCATIONS
SEVERUS CENTRAL TANK BATTERY
UNIT O SEC 30 T20S R34E
LEA COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012919109_SEVERUS CTB\012919109_FIG04_EXCAVATION_5552.mxd

TABLE 1
SOIL ANALYTICAL RESULTS

SEVERUS CENTRAL TANK BATTERY
REMEDIATION PERMIT NUMBER 1RP-5552
LEA 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)
SS01	0.5	06/06/2019	0.101	3.65	7.59	29.9	41.2	696	2,170	141	**2,870**	**3,010**	26.4
SS02	0.5	06/06/2019	2.170	13.0	15.6	56.9	**87.7**	1,500	3,070	192	**4,570**	**4,760**	<4.95
BH01	1	07/17/2019	0.723	9.53	5.07	22.9	38.2	2,460	4,570	273	**7,030**	**7,300**	12.9
BH01A	4	07/17/2019	0.00396	0.0254	0.0130	0.0660	0.108	<15.0	27.6	<15.0	27.6	27.6	<4.95
BH02	1	10/02/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	757	57.8	757	815	44.8
BH02A	4	10/02/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	<5.02
BH03	1	10/02/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	5.57
BH03A	4	10/02/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	<5.05
BH04	1	10/02/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	60.5
BH04A	4	10/02/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	<5.05
BH05	1	10/02/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	<4.99
BH05A	4	10/02/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<5.05
FS01	1	07/17/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	34.2
FS02	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	15.6
FS03	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	7.66
FS04	1	07/17/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	48.6	<15.0	48.6	48.6	19.5
FS05	1	07/17/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	36.8	<15.0	36.8	36.8	6.01
FS06	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	9.27
FS07	1	07/17/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	17.9
FS08	1	07/17/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	17.1	<15.0	17.1	17.1	<5.05
FS09	1	07/17/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	21.2
FS10	1	07/17/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	5.60
FS11	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	35.8	<15.0	35.8	35.8	<5.02
FS12	1	07/17/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	168	<15.0	168	168	9.13
FS13	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	17.6
FS14	1	07/17/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	9.08
FS15	1	07/17/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	141	<15.0	141	141	<5.00
FS16	1	07/17/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.98
FS17	1	07/17/2019	<0.00199	<0.00199	0.0171	<0.00199	0.0171	<15.0	<15.0	<15.0	<15.0	<15.0	<4.95

TABLE 1
SOIL ANALYTICAL RESULTS

SEVERUS CENTRAL TANK BATTERY
REMEDIATION PERMIT NUMBER 1RP-5552
LEA 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)
FS18	1	07/18/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	33.6	<15.0	33.6	33.6	13.9
FS19	2	08/06/2019	<0.00201	0.0435	0.0588	0.303	0.405	489	1,860	236	**2,590**	2,350	116
FS19A	3.5	08/20/2019	<0.000996	<0.000996	<0.000996	<0.000996	<0.000996	<25.1	<25.1	<25.1	<25.1	<25.1	43.0
FS20	2	08/06/2019	<0.00199	0.00224	0.00312	0.0477	0.0531	52.2	457	64.6	509	574	112
FS20A	3.5	08/20/2019	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<25.0	<25.0	<25.0	<25.0	<25.0	66.6
SW01	0 - 1	07/17/2019	<0.00198	0.00407	0.00789	0.0842	0.0962	109	3,300	276	**3,410**	**3,690**	34.4
SW01A	0 - 2	08/06/2019	0.00271	0.208	0.361	1.440	2.010	355	3,840	355	**4,200**	**4,550**	127
SW01B	0 - 3	08/20/2019	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<25.0	<25.0	<25.0	<25.0	<25.0	47.5
SW02	0 - 3	08/20/2019	<0.00100	0.110	0.204	1.080	1.400	363	2,090	<25.0	**2,450**	2,450	79.2
NMOCD Table 1 Closure Criteria			**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**

Notes:

bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
ORO - motor oil range organics
NMAC - New Mexico Administrative Code
NMOCD - New Mexico Oil Conservation Division
TPH - total petroleum hydrocarbons
Bold - indicates result exceeds the applicable regulatory standard
< - indicates result is below laboratory reporting limits
Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018
NE - not established

ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141 (1RP-5552)

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	NAB1916935288
District RP	1RP-5552
Facility ID	
Application ID	pAB1916934497

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)* NAB1916935288
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.539262 Longitude -103.597391
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Severus Central Tank Battery	Site Type Bulk Storage and Separation Facility
Date Release Discovered 5/18/2019	API# *(if applicable)* 30-025-43415 (Severus 31 Fed Com 1H)

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

Incorrect county listed on original document

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

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) 17.66	Volume Recovered (bbls) 15
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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

During installation of a load line, crew neglected to isolate all tanks and fluid escaped to the facility pad surface. Tanks were properly isolated and repairs were made. A vacuum truck recovered free fluids. Additional third party resources have been retained to assist with remediation.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1916935288
District RP	1RP-5552
Facility ID	
Application ID	pAB1916934497

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

Initial Response

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

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

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

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

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

Printed Name: Amy C. Ruth
Title: SH&E Coordinator
Signature:
Date: 5/31/2019
email: Amy_Ruth@xtoenergy.com
Telephone: 575-689-3380

OCD Only

Received by: Amalia Bustamante
Date: 6/18/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5552
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	1RP-5552
Facility ID	
Application ID	

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

Printed Name: _____Kyle Littrell_____ Title: ____SH&E Supervisor_____

Signature:_____ Date: __10/11/2019_____

email: _____Kyle_Littrell@xtoenergy.com_____ Telephone: ___432-221-7331_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5552
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☐ Detailed description of proposed remediation technique
☐ Scaled sitemap with GPS coordinates showing delineation points
☐ Estimated volume of material to be remediated
☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated.

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 10/11/2019

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

OCD Only

Received by: Date:

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date:

Northern view of point of release area and tank battery containment during site assessment activities.

Project: 012919109	XTO Energy, Inc. Severus Central Tank Battery	LTE Advancing Opportunity
June 6, 2019	Photographic Log	

Eastern view of final excavation extent during confirmation soil sampling activities.

Project: 012919109	XTO Energy, Inc. Severus Central Tank Battery	LTE Advancing Opportunity
August 20, 2019	Photographic Log	

ATTACHMENT 3: LITHOLOGIC / SOIL SMAPLING LOGS

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

Identifier: BH01	Date: 07/17/19
Project Name: Severus CTB	RP Number:
Logged By: Robert M.	Method: Hand Auger
Hole Diameter: 3"	Total Depth: 4'
Lat/Long:	Field Screening:

LITHOLOGIC / SOIL SAMPLING LOG

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	380	932	Y	BH01	0–1	1'	S	SP-SC/CHCE Brown tan
D	<124	187.5	N		2	2'	S	SP-SC Reddish Brown
D	<124	181	N		3	3'	S	SP-SC Reddish Brown
D	<124	196	N	BH01A	4	4'	S	SC Red Brown
					5–12			EOB

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

Compliance · Engineering · Remediation

Identifier: BH02	Date: 10/2/19
Project Name: Severus CTB	RP Number: 1RP-5219
Logged By: Will Mather	Method: Hand Auger
Lat/Long:	Field Screening: PID + Cl⁻
Hole Diameter: 4.0	Total Depth: 4ft

LITHOLOGIC / SOIL SAMPLING LOG

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Dry	<128	5.0	NO	BH02	0–1		CCHE	Caliche, WM ~~Lt~~ some gravel, trace cobble, White, Dry, Well sorted. (0–1)
		2.4			2		SP	Medium grain SAND, trace gravel, Rd/Br, Dry, Poorly sorted, very Poorly cemented. (1–2)
		1.6			3			Medium grain SAND, few clay, low Plasticity, cohesive, Rd/Br, Poorly sorted, cemented (2–4)
	<128	1.2		BH02A	4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

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

Compliance · Engineering · Remediation

Identifier: BH03	Date: 10/2/19
Project Name: SeverusCTB	RP Number: IRP-5219
Logged By: JM	Method: Hand Auger
Hole Diameter: 4in	Total Depth: 4ft

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: PID + Cl⁻

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
			NO		0			
DRY	4128	0.0		BH03	1		SP	Medium/Fine SAND, Trace gravel, Rd/BC, ~~DRY~~ DRX, Poorly sorted (1-4)
		0.0			2			
		0.0			3			
	4128	0.0		BH03A	4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

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

Compliance · Engineering · Remediation

Identifier: BH04	Date: 10/2/19
Project Name: Severus CTB	RP Number: 1RP-5219
Logged By: WM	Method: HAND Auger
Hole Diameter: 4in	Total Depth: 4ft

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: PID Cl⁻

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Moist	<128	NO	0.0	BH04	0 1		SP	Med/fine SAND, Trace large grain SAND, BR/Rd, Moist, Poorly sorted (1-2)
			0.0		2			Med/fine SAND, Rd/BR, Moist, Poorly Sorted (2-3)
			0.0		3			
	<128		0.0	BH04A	4			med/lg grain sand, little clay, low plasticity, cohesive, Rd/BR, moist Poorly Sorted, cemented (4)
					5 6 7 8 9 10 11 12			

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

Compliance · Engineering · Remediation

Identifier: BH05	Date: 10/2/19
Project Name: Stevens CTB	RP Number: IRP-5219
Logged By: WM	Method: Hand Augers
Hole Diameter: 4in	Total Depth: 4ft

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Field Screening: PID, Cl

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Moist	<126	No	0.0	BH05	0–1		Sp WM	~~Caliche~~, Med/Fine SAND, Rd/Br, Moist, Poorly cemented, Poorly sorted (1–4)
			0.0		2			
			0.0		3			
	<135		0.0	BH05A	4			cemented (4)
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS

Analytical Report 627207

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

12919109

19-JUN-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

19-JUN-19

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

Reference: XENCO Report No(s): **627207**
Severus CTB
Project Address: Delaware Basin

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 627207. 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. 627207 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 627207

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	06-06-19 11:55	0.5 ft	627207-001
SS02	S	06-06-19 12:05	0.5 ft	627207-002

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3092736 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 627207-002,627207-001.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 627207

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 12919109
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Tue Jun-11-19 11:20 am
Report Date: 19-JUN-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	627207-001		627207-002					
	Field Id:	SS01		SS02					
	Depth:	0.5- ft		0.5- ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Jun-06-19 11:55		Jun-06-19 12:05					
BTEX by EPA 8021B	***Extracted:***	Jun-14-19 14:00		Jun-14-19 14:00					
	Analyzed:	Jun-18-19 15:18		Jun-18-19 15:38					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		0.101	0.0998	2.17	0.400				
Toluene		3.65	0.0998	13.0	0.400				
Ethylbenzene		7.59	0.0998	15.6	0.400				
m,p-Xylenes		21.6	0.200	39.7	0.800				
o-Xylene		8.28	0.0998	17.2	0.400				
Total Xylenes		29.9	0.0998	56.9	0.400				
Total BTEX		41.2	0.0998	87.7	0.400				
Chloride by EPA 300	***Extracted:***	Jun-12-19 08:30		Jun-12-19 08:30					
	Analyzed:	Jun-12-19 12:17		Jun-12-19 12:24					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		26.4	5.00	<4.95	4.95				
TPH by SW8015 Mod	***Extracted:***	Jun-12-19 14:00		Jun-12-19 14:00					
	Analyzed:	Jun-13-19 07:44		Jun-13-19 08:08					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		696	15.0	1500	14.9				
Diesel Range Organics (DRO)		2170	15.0	3070	14.9				
Motor Oil Range Hydrocarbons (MRO)		141	15.0	192	14.9				
Total TPH		3010	15.0	4760	14.9				
Total GRO-DRO		2870	15.0	4570	14.9				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 627207

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	06.11.19 11.20
Lab Sample Id:	627207-001	Date Collected:	06.06.19 11.55	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	06.12.19 08.30	Basis:	Wet Weight
Seq Number:	3092072				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**26.4**	5.00	mg/kg	06.12.19 12.17		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.12.19 14.00	Basis:	Wet Weight
Seq Number:	3092131				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**696**	15.0	mg/kg	06.13.19 07.44		1
Diesel Range Organics (DRO)	C10C28DRO	**2170**	15.0	mg/kg	06.13.19 07.44		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**141**	15.0	mg/kg	06.13.19 07.44		1
Total TPH	PHC635	**3010**	15.0	mg/kg	06.13.19 07.44		1
Total GRO-DRO	PHC628	**2870**	15.0	mg/kg	06.13.19 07.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	06.13.19 07.44	
o-Terphenyl	84-15-1	102	%	70-135	06.13.19 07.44	

Certificate of Analytical Results 627207

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	06.11.19 11.20
Lab Sample Id:	627207-001	Date Collected:	06.06.19 11.55	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DVM			% Moisture:	
Analyst:	DVM	Date Prep:	06.14.19 14.00	Basis:	Wet Weight
Seq Number:	3092736				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.101**	0.0998	mg/kg	06.18.19 15.18		50
Toluene	108-88-3	**3.65**	0.0998	mg/kg	06.18.19 15.18		50
Ethylbenzene	100-41-4	**7.59**	0.0998	mg/kg	06.18.19 15.18		50
m,p-Xylenes	179601-23-1	**21.6**	0.200	mg/kg	06.18.19 15.18		50
o-Xylene	95-47-6	**8.28**	0.0998	mg/kg	06.18.19 15.18		50
Total Xylenes	1330-20-7	**29.9**	0.0998	mg/kg	06.18.19 15.18		50
Total BTEX		**41.2**	0.0998	mg/kg	06.18.19 15.18		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	06.18.19 15.18	
4-Bromofluorobenzene	460-00-4	292	%	70-130	06.18.19 15.18	**

Certificate of Analytical Results 627207

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	06.11.19 11.20
Lab Sample Id:	627207-002	Date Collected:	06.06.19 12.05	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	06.12.19 08.30	Basis:	Wet Weight
Seq Number:	3092072				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	06.12.19 12.24	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.12.19 14.00	Basis:	Wet Weight
Seq Number:	3092131				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1500**	14.9	mg/kg	06.13.19 08.08		1
Diesel Range Organics (DRO)	C10C28DRO	**3070**	14.9	mg/kg	06.13.19 08.08		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**192**	14.9	mg/kg	06.13.19 08.08		1
Total TPH	PHC635	**4760**	14.9	mg/kg	06.13.19 08.08		1
Total GRO-DRO	PHC628	**4570**	14.9	mg/kg	06.13.19 08.08		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	06.13.19 08.08	
o-Terphenyl	84-15-1	109	%	70-135	06.13.19 08.08	

Certificate of Analytical Results 627207

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	06.11.19 11.20
Lab Sample Id:	627207-002	Date Collected:	06.06.19 12.05	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DVM			% Moisture:	
Analyst:	DVM	Date Prep:	06.14.19 14.00	Basis:	Wet Weight
Seq Number:	3092736				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**2.17**	0.400	mg/kg	06.18.19 15.38		200
Toluene	108-88-3	**13.0**	0.400	mg/kg	06.18.19 15.38		200
Ethylbenzene	100-41-4	**15.6**	0.400	mg/kg	06.18.19 15.38		200
m,p-Xylenes	179601-23-1	**39.7**	0.800	mg/kg	06.18.19 15.38		200
o-Xylene	95-47-6	**17.2**	0.400	mg/kg	06.18.19 15.38		200
Total Xylenes	1330-20-7	**56.9**	0.400	mg/kg	06.18.19 15.38		200
Total BTEX		**87.7**	0.400	mg/kg	06.18.19 15.38		200

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	150	%	70-130	06.18.19 15.38	**
1,4-Difluorobenzene	540-36-3	99	%	70-130	06.18.19 15.38	

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 627207

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3092072 Matrix: Solid Date Prep: 06.12.19
MB Sample Id: 7679680-1-BLK LCS Sample Id: 7679680-1-BKS LCSD Sample Id: 7679680-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	242	97	243	97	90-110	0	20	mg/kg	06.12.19 09:01	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3092072 Matrix: Soil Date Prep: 06.12.19
Parent Sample Id: 627091-008 MS Sample Id: 627091-008 S MSD Sample Id: 627091-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.36	249	271	108	271	108	90-110	0	20	mg/kg	06.12.19 09:23	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3092072 Matrix: Soil Date Prep: 06.12.19
Parent Sample Id: 627091-016 MS Sample Id: 627091-016 S MSD Sample Id: 627091-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.855	249	242	97	242	97	90-110	0	20	mg/kg	06.12.19 11:04	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3092131 Matrix: Solid Date Prep: 06.12.19
MB Sample Id: 7679805-1-BLK LCS Sample Id: 7679805-1-BKS LCSD Sample Id: 7679805-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1050	105	1020	102	70-135	3	20	mg/kg	06.12.19 23:04	
Diesel Range Organics (DRO)	<8.13	1000	1000	100	1020	102	70-135	2	20	mg/kg	06.12.19 23:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		98		97		70-135	%	06.12.19 23:04
o-Terphenyl	85		87		90		70-135	%	06.12.19 23:04

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

QC Summary 627207

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3092131 Matrix: Soil Date Prep: 06.12.19
Parent Sample Id: 627201-001 MS Sample Id: 627201-001 S MSD Sample Id: 627201-001 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)	10.2	999	940	93	1050	104	70-135	11	20	mg/kg	06.13.19 00:18	
Diesel Range Organics (DRO)	<8.12	999	889	89	996	100	70-135	11	20	mg/kg	06.13.19 00:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		105		70-135	%	06.13.19 00:18
o-Terphenyl	83		87		70-135	%	06.13.19 00:18

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3092736 Matrix: Solid Date Prep: 06.14.19
MB Sample Id: 7680039-1-BLK LCS Sample Id: 7680039-1-BKS LCSD Sample Id: 7680039-1-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	0.0743	74	0.0838	84	70-130	12	35	mg/kg	06.18.19 05:06	
Toluene	<0.000455	0.0998	0.0765	77	0.0843	84	70-130	10	35	mg/kg	06.18.19 05:06	
Ethylbenzene	<0.000564	0.0998	0.0883	88	0.0964	96	70-130	9	35	mg/kg	06.18.19 05:06	
m,p-Xylenes	<0.00101	0.200	0.177	89	0.192	96	70-130	8	35	mg/kg	06.18.19 05:06	
o-Xylene	<0.00200	0.0998	0.0850	85	0.0924	92	70-130	8	35	mg/kg	06.18.19 05:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		95		96		70-130	%	06.18.19 05:06
4-Bromofluorobenzene	110		106		103		70-130	%	06.18.19 05:06

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3092736 Matrix: Soil Date Prep: 06.14.19
Parent Sample Id: 627205-007 MS Sample Id: 627205-007 S MSD Sample Id: 627205-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.0813	80	0.0862	86	70-130	6	35	mg/kg	06.18.19 05:46	
Toluene	<0.00201	0.101	0.0826	82	0.0840	84	70-130	2	35	mg/kg	06.18.19 05:46	
Ethylbenzene	<0.00201	0.101	0.0942	93	0.0944	94	70-130	0	35	mg/kg	06.18.19 05:46	
m,p-Xylenes	<0.00102	0.201	0.189	94	0.188	94	70-130	1	35	mg/kg	06.18.19 05:46	
o-Xylene	<0.00201	0.101	0.0921	91	0.0911	91	70-130	1	35	mg/kg	06.18.19 05:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		98		70-130	%	06.18.19 05:46
4-Bromofluorobenzene	110		104		70-130	%	06.18.19 05:46

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: 627707

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

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:	12919109	Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	Lynda Laumbach	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	0.4, 0.4	Thermometer ID	Pe	
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
SS01	S	06/06/2019	11:55	0.5'	1	X	X	X
SS02	S	06/06/2019	12:05	0.5'	1	X	X	X

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			06.07-19 16:46			
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

Final 1.000

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 06/11/2019 11:20:00 AM

Work Order #: 627207

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)?	.4
#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: 06/11/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 06/11/2019

Jessica Kramer

Analytical Report 631464

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

22-JUL-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

22-JUL-19

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

Reference: XENCO Report No(s): **631464**
Severus CTB
Project Address: Delaware Basin

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 631464. 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. 631464 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 631464

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	07-17-19 10:10	1 ft	631464-001
BH01A	S	07-17-19 10:25	4 ft	631464-002

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3096078 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 631464-001.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 631464

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Thu Jul-18-19 03:33 pm
Report Date: 22-JUL-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	631464-001		631464-002					
	Field Id:	BH01		BH01A					
	Depth:	1- ft		4- ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Jul-17-19 10:10		Jul-17-19 10:25					
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Jul-19-19 15:04		Jul-19-19 15:04					
	Analyzed:	Jul-22-19 12:39		Jul-22-19 11:41					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		0.723	0.100	0.00396	0.00199				
Toluene		9.53	0.100	0.0254	0.00199				
Ethylbenzene		5.07	0.100	0.0130	0.00199				
m,p-Xylenes		16.7	0.200	0.0437	0.00398				
o-Xylene		6.19	0.100	0.0223	0.00199				
Total Xylenes		22.9	0.100	0.0660	0.00199				
Total BTEX		38.2	0.100	0.108	0.00199				
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Jul-19-19 15:00		Jul-19-19 15:00					
	Analyzed:	Jul-20-19 01:09		Jul-20-19 01:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		12.9	4.96	<4.95	4.95				
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Jul-21-19 09:00		Jul-20-19 11:00					
	Analyzed:	Jul-21-19 20:38		Jul-21-19 05:24					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		2460	15.0	<15.0	15.0				
Diesel Range Organics (DRO)		4570	15.0	27.6	15.0				
Motor Oil Range Hydrocarbons (MRO)		273	15.0	<15.0	15.0				
Total TPH		7300	15.0	27.6	15.0				
Total GRO-DRO		7030	15.0	27.6	15.0				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 631464

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631464-001	Date Collected:	07.17.19 10.10	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.19.19 15.00	Basis:	Wet Weight
Seq Number:	3096017			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.9**	4.96	mg/kg	07.20.19 01.09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**2460**	15.0	mg/kg	07.21.19 20.38		1
Diesel Range Organics (DRO)	C10C28DRO	**4570**	15.0	mg/kg	07.21.19 20.38		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**273**	15.0	mg/kg	07.21.19 20.38		1
Total TPH	PHC635	**7300**	15.0	mg/kg	07.21.19 20.38		1
Total GRO-DRO	PHC628	**7030**	15.0	mg/kg	07.21.19 20.38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	07.21.19 20.38	
o-Terphenyl	84-15-1	118	%	70-135	07.21.19 20.38	

Certificate of Analytical Results 631464

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631464-001	Date Collected:	07.17.19 10.10	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.723**	0.100	mg/kg	07.22.19 12.39		50
Toluene	108-88-3	**9.53**	0.100	mg/kg	07.22.19 12.39		50
Ethylbenzene	100-41-4	**5.07**	0.100	mg/kg	07.22.19 12.39		50
m,p-Xylenes	179601-23-1	**16.7**	0.200	mg/kg	07.22.19 12.39		50
o-Xylene	95-47-6	**6.19**	0.100	mg/kg	07.22.19 12.39		50
Total Xylenes	1330-20-7	**22.9**	0.100	mg/kg	07.22.19 12.39		50
Total BTEX		**38.2**	0.100	mg/kg	07.22.19 12.39		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	154	%	70-130	07.22.19 12.39	**
1,4-Difluorobenzene	540-36-3	126	%	70-130	07.22.19 12.39	

Final 1.000

Certificate of Analytical Results 631464

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH01A**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631464-002	Date Collected:	07.17.19 10.25	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.19.19 15.00	Basis:	Wet Weight
Seq Number:	3096017			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	07.20.19 01.28	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.20.19 11.00	Basis:	Wet Weight
Seq Number:	3096049			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 05.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	**27.6**	15.0	mg/kg	07.21.19 05.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 05.24	U	1
Total TPH	PHC635	**27.6**	15.0	mg/kg	07.21.19 05.24		1
Total GRO-DRO	PHC628	**27.6**	15.0	mg/kg	07.21.19 05.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	07.21.19 05.24	
o-Terphenyl	84-15-1	93	%	70-135	07.21.19 05.24	

Certificate of Analytical Results 631464

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH01A**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631464-002	Date Collected:	07.17.19 10.25	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.00396**	0.00199	mg/kg	07.22.19 11.41		1
Toluene	108-88-3	**0.0254**	0.00199	mg/kg	07.22.19 11.41		1
Ethylbenzene	100-41-4	**0.0130**	0.00199	mg/kg	07.22.19 11.41		1
m,p-Xylenes	179601-23-1	**0.0437**	0.00398	mg/kg	07.22.19 11.41		1
o-Xylene	95-47-6	**0.0223**	0.00199	mg/kg	07.22.19 11.41		1
Total Xylenes	1330-20-7	**0.0660**	0.00199	mg/kg	07.22.19 11.41		1
Total BTEX		**0.108**	0.00199	mg/kg	07.22.19 11.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	106	%	70-130	07.22.19 11.41	
1,4-Difluorobenzene	540-36-3	102	%	70-130	07.22.19 11.41	

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 631464

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096017 Matrix: Solid Date Prep: 07.19.19
MB Sample Id: 7682394-1-BLK LCS Sample Id: 7682394-1-BKS LCSD Sample Id: 7682394-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	250	100	250	100	90-110	0	20	mg/kg	07.19.19 23:03	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096017 Matrix: Soil Date Prep: 07.19.19
Parent Sample Id: 631454-001 MS Sample Id: 631454-001 S MSD Sample Id: 631454-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	130	250	377	99	377	99	90-110	0	20	mg/kg	07.19.19 23:22	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096017 Matrix: Soil Date Prep: 07.19.19
Parent Sample Id: 631454-011 MS Sample Id: 631454-011 S MSD Sample Id: 631454-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	180	250	427	99	426	98	90-110	0	20	mg/kg	07.20.19 00:50	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096049 Matrix: Solid Date Prep: 07.20.19
MB Sample Id: 7682447-1-BLK LCS Sample Id: 7682447-1-BKS LCSD Sample Id: 7682447-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1160	116	1100	110	70-135	5	20	mg/kg	07.20.19 22:36	
Diesel Range Organics (DRO)	<15.0	1000	1150	115	1080	108	70-135	6	20	mg/kg	07.20.19 22:36	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		99		106		70-135	%	07.20.19 22:36
o-Terphenyl	92		95		105		70-135	%	07.20.19 22:36

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 631464

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096051 Matrix: Solid Date Prep: 07.21.19
MB Sample Id: 7682448-1-BLK LCS Sample Id: 7682448-1-BKS LCSD Sample Id: 7682448-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1110	111	1180	118	70-135	6	20	mg/kg	07.21.19 11:00	
Diesel Range Organics (DRO)	<15.0	1000	1160	116	1130	113	70-135	3	20	mg/kg	07.21.19 11:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		111		102		70-135	%	07.21.19 11:00
o-Terphenyl	76		94		82		70-135	%	07.21.19 11:00

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096049 Matrix: Soil Date Prep: 07.20.19
Parent Sample Id: 631454-001 MS Sample Id: 631454-001 S MSD Sample Id: 631454-001 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)	11.1	1000	1160	115	1060	105	70-135	9	20	mg/kg	07.20.19 23:47	
Diesel Range Organics (DRO)	44.6	1000	1150	111	1100	106	70-135	4	20	mg/kg	07.20.19 23:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		90		70-135	%	07.20.19 23:47
o-Terphenyl	88		81		70-135	%	07.20.19 23:47

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096051 Matrix: Soil Date Prep: 07.21.19
Parent Sample Id: 631480-001 MS Sample Id: 631480-001 S MSD Sample Id: 631480-001 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)	<7.98	997	1070	107	1100	110	70-135	3	20	mg/kg	07.21.19 12:12	
Diesel Range Organics (DRO)	14.7	997	1070	106	1180	117	70-135	10	20	mg/kg	07.21.19 12:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		97		70-135	%	07.21.19 12:12
o-Terphenyl	76		88		70-135	%	07.21.19 12:12

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

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

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

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

QC Summary 631464

LT Environmental, Inc.

Severus CTB

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

Seq Number: 3096078 Matrix: Solid Date Prep: 07.19.19

MB Sample Id: 7682418-1-BLK LCS Sample Id: 7682418-1-BKS LCSD Sample Id: 7682418-1-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	0.106	106	0.105	105	70-130	1	35	mg/kg	07.21.19 07:39	
Toluene	<0.00200	0.100	0.0892	89	0.0974	97	70-130	9	35	mg/kg	07.21.19 07:39	
Ethylbenzene	<0.00200	0.100	0.0844	84	0.0965	97	70-130	13	35	mg/kg	07.21.19 07:39	
m,p-Xylenes	<0.00400	0.200	0.166	83	0.199	100	70-130	18	35	mg/kg	07.21.19 07:39	
o-Xylene	<0.00200	0.100	0.0810	81	0.0966	97	70-130	18	35	mg/kg	07.21.19 07:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		110		108		70-130	%	07.21.19 07:39
4-Bromofluorobenzene	90		86		99		70-130	%	07.21.19 07:39

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

Seq Number: 3096078 Matrix: Soil Date Prep: 07.19.19

Parent Sample Id: 631480-001 MS Sample Id: 631480-001 S MSD Sample Id: 631480-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.108	107	0.0977	98	70-130	10	35	mg/kg	07.21.19 08:20	
Toluene	<0.000459	0.101	0.0944	93	0.0842	85	70-130	11	35	mg/kg	07.21.19 08:20	
Ethylbenzene	<0.00202	0.101	0.0857	85	0.0745	75	70-130	14	35	mg/kg	07.21.19 08:20	
m,p-Xylenes	<0.00102	0.202	0.176	87	0.154	78	70-130	13	35	mg/kg	07.21.19 08:20	
o-Xylene	<0.00202	0.101	0.0865	86	0.0768	77	70-130	12	35	mg/kg	07.21.19 08:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		112		70-130	%	07.21.19 08:20
4-Bromofluorobenzene	105		103		70-130	%	07.21.19 08:20

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

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)

Work Order No: 603/4164

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178	Email:	dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ 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:	IRP-5552	Rush: 3day	
Sampler's Name:	Robert McAfee	Due Date:	

SAMPLE RECEIPT				
Temperature (°C):	1.4	Temp Blank:	Yes (No)	Wet Ice: (Yes) No
Received Intact:	(Yes) No	Thermometer ID	T-NM-007	
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes (No) N/A	Total Containers:	2	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Work Order Notes / Sample Comments
BH01	S	07/17/19	1010	1'	1	X	X	X	discrete
BH01A	S	07/17/19	1025	4'	1	X	X	X	discrete

ANALYSIS REQUEST

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

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	Robert McAfee		7/19/19 3:33	2		
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

Inter-Office Shipment

IOS Number **43781**

Date/Time: 07/18/19 16:55
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 7757 8077 6800

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

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
631464-001	S	BH01	07/17/19 10:10	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	08/01/19	JKR	GRO-DRO PHCC10C28 PI	
631464-001	S	BH01	07/17/19 10:10	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631464-001	S	BH01	07/17/19 10:10	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631464-002	S	BH01A	07/17/19 10:25	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631464-002	S	BH01A	07/17/19 10:25	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631464-002	S	BH01A	07/17/19 10:25	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	08/01/19	JKR	GRO-DRO PHCC10C28 PI	

Inter Office Shipment or Sample Comments:

Relinquished By: Elizabeth McClellan

Date Relinquished: 07/18/2019

Received By: Katie Lowe

Date Received: 07/19/2019 11:45

Cooler Temperature: 4.2

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 43781

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

Sent By: Elizabeth McClellan **Date Sent:** 07/18/2019 04:55 PM

Received By: Katie Lowe **Date Received:** 07/19/2019 11:45 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 *Custody Seals Signed and dated for Containers/coolers	**Yes**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: _____ Date: 07/19/2019
Katie Lowe

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 07/18/2019 03:33:00 PM

Work Order #: 631464

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

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 Custody Seals intact on sample bottles?	**No**	
#6*Custody Seals Signed and dated?	**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)?	**Yes**	Subbed to Xenco Midland.
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 07/18/2019

Checklist reviewed by: Jessica Kramer Date: 07/19/2019

Analytical Report 631480

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

23-JUL-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

23-JUL-19

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

Reference: XENCO Report No(s): **631480**
Severus CTB
Project Address: Delaware Basin

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 631480. 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. 631480 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 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	07-17-19 12:40	1 ft	631480-001
FS02	S	07-17-19 12:45	1 ft	631480-002
FS03	S	07-17-19 12:50	1 ft	631480-003
FS04	S	07-17-19 13:00	1 ft	631480-004
FS05	S	07-17-19 13:05	1 ft	631480-005
FS06	S	07-17-19 13:10	1 ft	631480-006
FS07	S	07-17-19 13:15	1 ft	631480-007
FS08	S	07-17-19 13:35	1 ft	631480-008
FS09	S	07-17-19 13:40	1 ft	631480-009
FS10	S	07-17-19 13:45	1 ft	631480-010
FS11	S	07-17-19 13:55	1 ft	631480-011
FS12	S	07-17-19 14:00	1 ft	631480-012
FS13	S	07-17-19 14:15	1 ft	631480-013
FS14	S	07-17-19 14:20	1 ft	631480-014
FS15	S	07-17-19 14:25	1 ft	631480-015
FS16	S	07-17-19 14:30	1 ft	631480-016
FS17	S	07-17-19 14:40	1 ft	631480-017
FS18	S	07-18-19 08:20	1 ft	631480-018
SW01	S	07-17-19 13:50	0 - 1 ft	631480-019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3095990 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 631480-019.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3096051 TPH by SW8015 Mod
Surrogate o-Terphenyl recovered below QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 631480-008.

Batch: LBA-3096078 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 631480

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Thu Jul-18-19 03:33 pm
Report Date: 23-JUL-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	631480-001		631480-002		631480-003		631480-004		631480-005		631480-006	
	Field Id:	FS01		FS02		FS03		FS04		FS05		FS06	
	Depth:	1- ft		1- ft		1- ft		1- ft		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-17-19 12:40		Jul-17-19 12:45		Jul-17-19 12:50		Jul-17-19 13:00		Jul-17-19 13:05		Jul-17-19 13:10	
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04	
	Analyzed:	Jul-21-19 09:50		Jul-21-19 10:10		Jul-21-19 18:14		Jul-21-19 10:51		Jul-21-19 11:11		Jul-22-19 09:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Toluene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Ethylbenzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398	<0.00400	0.00400	<0.00399	0.00399	<0.00398	0.00398	<0.00397	0.00397	<0.00399	0.00399
o-Xylene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total BTEX		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00	
	Analyzed:	Jul-22-19 12:22		Jul-22-19 12:40		Jul-22-19 12:47		Jul-22-19 12:53		Jul-22-19 12:59		Jul-22-19 13:18	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		34.2	5.04	15.6	4.98	7.66	5.00	19.5	5.00	6.01	5.00	9.27	5.00
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00	
	Analyzed:	Jul-21-19 11:48		Jul-21-19 13:00		Jul-21-19 13:24		Jul-21-19 13:48		Jul-21-19 14:13		Jul-21-19 14:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	48.6	15.0	36.8	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0	48.6	15.0	36.8	15.0	<15.0	15.0
Total GRO-DRO		<15.0	15.0	<15.0	15.0	<15.0	15.0	48.6	15.0	36.8	15.0	<15.0	15.0

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 631480

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Thu Jul-18-19 03:33 pm
Report Date: 23-JUL-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	631480-007		631480-008		631480-009		631480-010		631480-011		631480-012	
	Field Id:	FS07		FS08		FS09		FS10		FS11		FS12	
	Depth:	1- ft		1- ft		1- ft		1- ft		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-17-19 13:15		Jul-17-19 13:35		Jul-17-19 13:40		Jul-17-19 13:45		Jul-17-19 13:55		Jul-17-19 14:00	
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04	
	Analyzed:	Jul-21-19 18:54		Jul-22-19 09:40		Jul-21-19 19:34		Jul-22-19 10:00		Jul-21-19 21:34		Jul-22-19 10:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
Toluene		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
Ethylbenzene		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
m,p-Xylenes		<0.00398	0.00398	<0.00396	0.00396	<0.00397	0.00397	<0.00398	0.00398	<0.00399	0.00399	<0.00403	0.00403
o-Xylene		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
Total Xylenes		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
Total BTEX		<0.00199	0.00199	<0.00198	0.00198	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00	
	Analyzed:	Jul-22-19 13:25		Jul-22-19 13:31		Jul-22-19 13:37		Jul-22-19 13:44		Jul-22-19 13:50		Jul-22-19 14:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		17.9	5.03	<5.05	5.05	21.2	5.00	5.60	4.95	<5.02	5.02	9.13	5.05
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00	
	Analyzed:	Jul-21-19 15:01		Jul-21-19 15:25		Jul-21-19 15:49		Jul-21-19 16:13		Jul-21-19 17:02		Jul-21-19 17:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	17.1	15.0	<15.0	15.0	<15.0	15.0	35.8	15.0	168	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	17.1	15.0	<15.0	15.0	<15.0	15.0	35.8	15.0	168	15.0
Total GRO-DRO		<15.0	15.0	17.1	15.0	<15.0	15.0	<15.0	15.0	35.8	15.0	168	15.0

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 631480

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Thu Jul-18-19 03:33 pm
Report Date: 23-JUL-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	631480-013		631480-014		631480-015		631480-016		631480-017		631480-018	
	Field Id:	FS13		FS14		FS15		FS16		FS17		FS18	
	Depth:	1- ft		1- ft		1- ft		1- ft		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-17-19 14:15		Jul-17-19 14:20		Jul-17-19 14:25		Jul-17-19 14:30		Jul-17-19 14:40		Jul-18-19 08:20	
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04		Jul-19-19 15:04	
	Analyzed:	Jul-21-19 22:14		Jul-21-19 22:34		Jul-21-19 22:54		Jul-21-19 23:14		Jul-22-19 10:40		Jul-22-19 11:01	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	0.0171	0.00199	<0.00200	0.00200
m,p-Xylenes		<0.00400	0.00400	<0.00402	0.00402	<0.00404	0.00404	<0.00400	0.00400	<0.00398	0.00398	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00201	0.00201	<0.00202	0.00202	<0.00200	0.00200	0.0171	0.00199	<0.00200	0.00200
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00		Jul-22-19 11:00	
	Analyzed:	Jul-22-19 14:15		Jul-22-19 14:34		Jul-22-19 14:41		Jul-22-19 14:47		Jul-22-19 14:53		Jul-22-19 15:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		17.6	4.99	9.08	4.96	<5.00	5.00	<4.98	4.98	<4.95	4.95	13.9	4.97
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00		Jul-21-19 09:00	
	Analyzed:	Jul-21-19 17:50		Jul-21-19 18:14		Jul-21-19 18:38		Jul-21-19 19:02		Jul-21-19 19:26		Jul-21-19 19:50	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	<14.9	14.9	141	15.0	<15.0	15.0	<15.0	15.0	33.6	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<14.9	14.9	141	15.0	<15.0	15.0	<15.0	15.0	33.6	15.0
Total GRO-DRO		<15.0	15.0	<14.9	14.9	141	15.0	<15.0	15.0	<15.0	15.0	33.6	15.0

Certificate of Analysis Summary 631480

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id:
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Thu Jul-18-19 03:33 pm
Report Date: 23-JUL-19
Project Manager: Jessica Kramer

Analysis Requested							
	Lab Id:	631480-019					
	Field Id:	SW01					
	Depth:	0-1 ft					
	Matrix:	SOIL					
	Sampled:	Jul-17-19 13:50					
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Jul-21-19 16:00					
	Analyzed:	Jul-22-19 07:35					
	Units/RL:	mg/kg	RL				
Benzene		<0.00198	0.00198				
Toluene		0.00407	0.00198				
Ethylbenzene		0.00789	0.00198				
m,p-Xylenes		0.0533	0.00397				
o-Xylene		0.0309	0.00198				
Total Xylenes		0.0842	0.00198				
Total BTEX		0.0962	0.00198				
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Jul-22-19 11:00					
	Analyzed:	Jul-22-19 15:06					
	Units/RL:	mg/kg	RL				
Chloride		34.4	5.00				
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Jul-21-19 09:00					
	Analyzed:	Jul-21-19 20:14					
	Units/RL:	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		109	14.9				
Diesel Range Organics (DRO)		3300	14.9				
Motor Oil Range Hydrocarbons (MRO)		276	14.9				
Total TPH		3690	14.9				
Total GRO-DRO		3410	14.9				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-001	Date Collected:	07.17.19 12.40	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.2**	5.04	mg/kg	07.22.19 12.22		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 11.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 11.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 11.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 11.48	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 11.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	07.21.19 11.48	
o-Terphenyl	84-15-1	71	%	70-135	07.21.19 11.48	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-001	Date Collected:	07.17.19 12.40	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.19 09.50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.21.19 09.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	07.21.19 09.50	
4-Bromofluorobenzene	460-00-4	109	%	70-130	07.21.19 09.50	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-002	Date Collected:	07.17.19 12.45	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.6**	4.98	mg/kg	07.22.19 12.40		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 13.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 13.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 13.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 13.00	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 13.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	07.21.19 13.00	
o-Terphenyl	84-15-1	88	%	70-135	07.21.19 13.00	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-002	Date Collected:	07.17.19 12.45	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.21.19 10.10	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.19 10.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	70-130	07.21.19 10.10	
1,4-Difluorobenzene	540-36-3	112	%	70-130	07.21.19 10.10	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-003	Date Collected:	07.17.19 12.50	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.66**	5.00	mg/kg	07.22.19 12.47		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 13.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 13.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 13.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 13.24	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 13.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	07.21.19 13.24	
o-Terphenyl	84-15-1	83	%	70-135	07.21.19 13.24	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-003	Date Collected:	07.17.19 12.50	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.21.19 18.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.19 18.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	07.21.19 18.14	
4-Bromofluorobenzene	460-00-4	90	%	70-130	07.21.19 18.14	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-004	Date Collected:	07.17.19 13.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**19.5**	5.00	mg/kg	07.22.19 12.53		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 13.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	**48.6**	15.0	mg/kg	07.21.19 13.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 13.48	U	1
Total TPH	PHC635	**48.6**	15.0	mg/kg	07.21.19 13.48		1
Total GRO-DRO	PHC628	**48.6**	15.0	mg/kg	07.21.19 13.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	07.21.19 13.48	
o-Terphenyl	84-15-1	81	%	70-135	07.21.19 13.48	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-004	Date Collected:	07.17.19 13.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.19 10.51	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.21.19 10.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	70-130	07.21.19 10.51	
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.21.19 10.51	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS05**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-005	Date Collected:	07.17.19 13.05	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.01**	5.00	mg/kg	07.22.19 12.59		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 14.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	**36.8**	15.0	mg/kg	07.21.19 14.13		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 14.13	U	1
Total TPH	PHC635	**36.8**	15.0	mg/kg	07.21.19 14.13		1
Total GRO-DRO	PHC628	**36.8**	15.0	mg/kg	07.21.19 14.13		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	07.21.19 14.13	
o-Terphenyl	84-15-1	81	%	70-135	07.21.19 14.13	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS05**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-005	Date Collected:	07.17.19 13.05	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.21.19 11.11	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.21.19 11.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	88	%	70-130	07.21.19 11.11	
1,4-Difluorobenzene	540-36-3	104	%	70-130	07.21.19 11.11	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-006	Date Collected:	07.17.19 13.10	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.27**	5.00	mg/kg	07.22.19 13.18		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 14.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 14.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 14.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 14.37	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 14.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	07.21.19 14.37	
o-Terphenyl	84-15-1	76	%	70-135	07.21.19 14.37	

Certificate of Analytical Results 631480

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-006	Date Collected:	07.17.19 13.10	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.22.19 09.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.19 09.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91	%	70-130	07.22.19 09.20	
1,4-Difluorobenzene	540-36-3	110	%	70-130	07.22.19 09.20	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-007	Date Collected:	07.17.19 13.15	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.9**	5.03	mg/kg	07.22.19 13.25		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 15.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 15.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 15.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 15.01	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 15.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	07.21.19 15.01	
o-Terphenyl	84-15-1	70	%	70-135	07.21.19 15.01	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-007	Date Collected:	07.17.19 13.15	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.19 18.54	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.21.19 18.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	07.21.19 18.54	
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.21.19 18.54	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-008	Date Collected:	07.17.19 13.35	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	07.22.19 13.31	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 15.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	**17.1**	15.0	mg/kg	07.21.19 15.25		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 15.25	U	1
Total TPH	PHC635	**17.1**	15.0	mg/kg	07.21.19 15.25		1
Total GRO-DRO	PHC628	**17.1**	15.0	mg/kg	07.21.19 15.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	07.21.19 15.25	
o-Terphenyl	84-15-1	68	%	70-135	07.21.19 15.25	**

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-008	Date Collected:	07.17.19 13.35	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.22.19 09.40	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.22.19 09.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	07.22.19 09.40	
4-Bromofluorobenzene	460-00-4	100	%	70-130	07.22.19 09.40	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-009	Date Collected:	07.17.19 13.40	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.2**	5.00	mg/kg	07.22.19 13.37		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 15.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 15.49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 15.49	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 15.49	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 15.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	07.21.19 15.49	
o-Terphenyl	84-15-1	74	%	70-135	07.21.19 15.49	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-009	Date Collected:	07.17.19 13.40	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.21.19 19.34	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.21.19 19.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	07.21.19 19.34	
4-Bromofluorobenzene	460-00-4	93	%	70-130	07.21.19 19.34	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS10**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-010	Date Collected:	07.17.19 13.45	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.60**	4.95	mg/kg	07.22.19 13.44		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 16.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 16.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 16.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 16.13	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 16.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	07.21.19 16.13	
o-Terphenyl	84-15-1	72	%	70-135	07.21.19 16.13	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS10**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-010	Date Collected:	07.17.19 13.45	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.19 10.00	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.22.19 10.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	70-130	07.22.19 10.00	
1,4-Difluorobenzene	540-36-3	113	%	70-130	07.22.19 10.00	

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Severus CTB

Sample Id:	**FS11**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-011	Date Collected:	07.17.19 13.55	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	07.22.19 13.50	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 17.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	**35.8**	15.0	mg/kg	07.21.19 17.02		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 17.02	U	1
Total TPH	PHC635	**35.8**	15.0	mg/kg	07.21.19 17.02		1
Total GRO-DRO	PHC628	**35.8**	15.0	mg/kg	07.21.19 17.02		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	07.21.19 17.02	
o-Terphenyl	84-15-1	72	%	70-135	07.21.19 17.02	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS11**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-011	Date Collected:	07.17.19 13.55	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.21.19 21.34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.19 21.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	07.21.19 21.34	
4-Bromofluorobenzene	460-00-4	94	%	70-130	07.21.19 21.34	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS12**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-012	Date Collected:	07.17.19 14.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.13**	5.05	mg/kg	07.22.19 14.09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 17.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	**168**	15.0	mg/kg	07.21.19 17.26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 17.26	U	1
Total TPH	PHC635	**168**	15.0	mg/kg	07.21.19 17.26		1
Total GRO-DRO	PHC628	**168**	15.0	mg/kg	07.21.19 17.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	07.21.19 17.26	
o-Terphenyl	84-15-1	82	%	70-135	07.21.19 17.26	

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Severus CTB

Sample Id:	**FS12**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-012	Date Collected:	07.17.19 14.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.22.19 10.20	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.22.19 10.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	116	%	70-130	07.22.19 10.20	
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.22.19 10.20	

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Severus CTB

Sample Id:	**FS13**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-013	Date Collected:	07.17.19 14.15	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.6**	4.99	mg/kg	07.22.19 14.15		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 17.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 17.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 17.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 17.50	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 17.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	07.21.19 17.50	
o-Terphenyl	84-15-1	71	%	70-135	07.21.19 17.50	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS13**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-013	Date Collected:	07.17.19 14.15	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.21.19 22.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.19 22.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	07.21.19 22.14	
1,4-Difluorobenzene	540-36-3	112	%	70-130	07.21.19 22.14	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS14**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-014	Date Collected:	07.17.19 14.20	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.08**	4.96	mg/kg	07.22.19 14.34		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.21.19 18.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.21.19 18.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	07.21.19 18.14	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.21.19 18.14	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	07.21.19 18.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	07.21.19 18.14	
o-Terphenyl	84-15-1	71	%	70-135	07.21.19 18.14	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS14**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-014	Date Collected:	07.17.19 14.20	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.21.19 22.34	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.21.19 22.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	07.21.19 22.34	
4-Bromofluorobenzene	460-00-4	91	%	70-130	07.21.19 22.34	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS15**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-015	Date Collected:	07.17.19 14.25	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	07.22.19 14.41	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 18.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	**141**	15.0	mg/kg	07.21.19 18.38		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 18.38	U	1
Total TPH	PHC635	**141**	15.0	mg/kg	07.21.19 18.38		1
Total GRO-DRO	PHC628	**141**	15.0	mg/kg	07.21.19 18.38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	07.21.19 18.38	
o-Terphenyl	84-15-1	89	%	70-135	07.21.19 18.38	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS15**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-015	Date Collected:	07.17.19 14.25	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	07.21.19 22.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.21.19 22.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	07.21.19 22.54	
4-Bromofluorobenzene	460-00-4	96	%	70-130	07.21.19 22.54	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS16**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-016	Date Collected:	07.17.19 14.30	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	07.22.19 14.47	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 19.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 19.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 19.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 19.02	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 19.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-135	07.21.19 19.02	
o-Terphenyl	84-15-1	88	%	70-135	07.21.19 19.02	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS16**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-016	Date Collected:	07.17.19 14.30	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.21.19 23.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.19 23.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	109	%	70-130	07.21.19 23.14	
4-Bromofluorobenzene	460-00-4	94	%	70-130	07.21.19 23.14	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS17**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-017	Date Collected:	07.17.19 14.40	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	07.22.19 14.53	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 19.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.21.19 19.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 19.26	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.21.19 19.26	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	07.21.19 19.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	07.21.19 19.26	
o-Terphenyl	84-15-1	80	%	70-135	07.21.19 19.26	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS17**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-017	Date Collected:	07.17.19 14.40	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.19 10.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.19 10.40	U	1
Ethylbenzene	100-41-4	**0.0171**	0.00199	mg/kg	07.22.19 10.40		1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.19 10.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.19 10.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.19 10.40	U	1
Total BTEX		**0.0171**	0.00199	mg/kg	07.22.19 10.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	119	%	70-130	07.22.19 10.40	
4-Bromofluorobenzene	460-00-4	125	%	70-130	07.22.19 10.40	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS18**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-018	Date Collected:	07.18.19 08.20	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.9**	4.97	mg/kg	07.22.19 15.00		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.21.19 19.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	**33.6**	15.0	mg/kg	07.21.19 19.50		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	07.21.19 19.50	U	1
Total TPH	PHC635	**33.6**	15.0	mg/kg	07.21.19 19.50		1
Total GRO-DRO	PHC628	**33.6**	15.0	mg/kg	07.21.19 19.50		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	07.21.19 19.50	
o-Terphenyl	84-15-1	82	%	70-135	07.21.19 19.50	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS18**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-018	Date Collected:	07.18.19 08.20	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALG			% Moisture:	
Analyst:	FOV	Date Prep:	07.19.19 15.04	Basis:	Wet Weight
Seq Number:	3096078			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.19 11.01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.19 11.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	07.22.19 11.01	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.22.19 11.01	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-019	Date Collected:	07.17.19 13.50	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.22.19 11.00	Basis:	Wet Weight
Seq Number:	3096162			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.4**	5.00	mg/kg	07.22.19 15.06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.21.19 09.00	Basis:	Wet Weight
Seq Number:	3096051			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**109**	14.9	mg/kg	07.21.19 20.14		1
Diesel Range Organics (DRO)	C10C28DRO	**3300**	14.9	mg/kg	07.21.19 20.14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**276**	14.9	mg/kg	07.21.19 20.14		1
Total TPH	PHC635	**3690**	14.9	mg/kg	07.21.19 20.14		1
Total GRO-DRO	PHC628	**3410**	14.9	mg/kg	07.21.19 20.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	07.21.19 20.14	
o-Terphenyl	84-15-1	111	%	70-135	07.21.19 20.14	

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LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	07.18.19 15.33
Lab Sample Id:	631480-019	Date Collected:	07.17.19 13.50	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	FOV			% Moisture:	
Analyst:	FOV	Date Prep:	07.21.19 16.00	Basis:	Wet Weight
Seq Number:	3095990			SUB:	T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.22.19 07.35	U	1
Toluene	108-88-3	**0.00407**	0.00198	mg/kg	07.22.19 07.35		1
Ethylbenzene	100-41-4	**0.00789**	0.00198	mg/kg	07.22.19 07.35		1
m,p-Xylenes	179601-23-1	**0.0533**	0.00397	mg/kg	07.22.19 07.35		1
o-Xylene	95-47-6	**0.0309**	0.00198	mg/kg	07.22.19 07.35		1
Total Xylenes	1330-20-7	**0.0842**	0.00198	mg/kg	07.22.19 07.35		1
Total BTEX		**0.0962**	0.00198	mg/kg	07.22.19 07.35		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	148	%	70-130	07.22.19 07.35	**
1,4-Difluorobenzene	540-36-3	95	%	70-130	07.22.19 07.35	

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 631480

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096162 Matrix: Solid Date Prep: 07.22.19
MB Sample Id: 7682485-1-BLK LCS Sample Id: 7682485-1-BKS LCSD Sample Id: 7682485-1-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	236	94	237	95	90-110	0	20	mg/kg	07.22.19 12:01	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096162 Matrix: Soil Date Prep: 07.22.19
Parent Sample Id: 631480-001 MS Sample Id: 631480-001 S MSD Sample Id: 631480-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.2	252	277	96	276	96	90-110	0	20	mg/kg	07.22.19 12:28	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096162 Matrix: Soil Date Prep: 07.22.19
Parent Sample Id: 631480-011 MS Sample Id: 631480-011 S MSD Sample Id: 631480-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.68	251	247	97	247	97	90-110	0	20	mg/kg	07.22.19 13:56	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096051 Matrix: Solid Date Prep: 07.21.19
MB Sample Id: 7682448-1-BLK LCS Sample Id: 7682448-1-BKS LCSD Sample Id: 7682448-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1110	111	1180	118	70-135	6	20	mg/kg	07.21.19 11:00	
Diesel Range Organics (DRO)	<15.0	1000	1160	116	1130	113	70-135	3	20	mg/kg	07.21.19 11:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		111		102		70-135	%	07.21.19 11:00
o-Terphenyl	76		94		82		70-135	%	07.21.19 11:00

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

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

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

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

QC Summary 631480

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096051 Matrix: Soil Date Prep: 07.21.19
Parent Sample Id: 631480-001 MS Sample Id: 631480-001 S MSD Sample Id: 631480-001 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)	<7.98	997	1070	107	1100	110	70-135	3	20	mg/kg	07.21.19 12:12	
Diesel Range Organics (DRO)	14.7	997	1070	106	1180	117	70-135	10	20	mg/kg	07.21.19 12:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		97		70-135	%	07.21.19 12:12
o-Terphenyl	76		88		70-135	%	07.21.19 12:12

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3096078 Matrix: Solid Date Prep: 07.19.19
MB Sample Id: 7682418-1-BLK LCS Sample Id: 7682418-1-BKS LCSD Sample Id: 7682418-1-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	0.106	106	0.105	105	70-130	1	35	mg/kg	07.21.19 07:39	
Toluene	<0.00200	0.100	0.0892	89	0.0974	97	70-130	9	35	mg/kg	07.21.19 07:39	
Ethylbenzene	<0.00200	0.100	0.0844	84	0.0965	97	70-130	13	35	mg/kg	07.21.19 07:39	
m,p-Xylenes	<0.00400	0.200	0.166	83	0.199	100	70-130	18	35	mg/kg	07.21.19 07:39	
o-Xylene	<0.00200	0.100	0.0810	81	0.0966	97	70-130	18	35	mg/kg	07.21.19 07:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		110		108		70-130	%	07.21.19 07:39
4-Bromofluorobenzene	90		86		99		70-130	%	07.21.19 07:39

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3095990 Matrix: Solid Date Prep: 07.21.19
MB Sample Id: 7682452-1-BLK LCS Sample Id: 7682452-1-BKS LCSD Sample Id: 7682452-1-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	0.107	107	0.103	103	70-130	4	35	mg/kg	07.22.19 02:44	
Toluene	<0.00200	0.100	0.104	104	0.101	101	70-130	3	35	mg/kg	07.22.19 02:44	
Ethylbenzene	<0.00200	0.100	0.118	118	0.115	115	70-130	3	35	mg/kg	07.22.19 02:44	
m,p-Xylenes	<0.00400	0.200	0.243	122	0.236	118	70-130	3	35	mg/kg	07.22.19 02:44	
o-Xylene	<0.00200	0.100	0.114	114	0.115	115	70-130	1	35	mg/kg	07.22.19 02:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		91		101		70-130	%	07.22.19 02:44
4-Bromofluorobenzene	99		100		122		70-130	%	07.22.19 02:44

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

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

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

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

QC Summary 631480

LT Environmental, Inc.

Severus CTB

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

Seq Number: 3096078 Matrix: Soil Date Prep: 07.19.19

Parent Sample Id: 631480-001 MS Sample Id: 631480-001 S MSD Sample Id: 631480-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.108	107	0.0977	98	70-130	10	35	mg/kg	07.21.19 08:20	
Toluene	<0.000459	0.101	0.0944	93	0.0842	85	70-130	11	35	mg/kg	07.21.19 08:20	
Ethylbenzene	<0.00202	0.101	0.0857	85	0.0745	75	70-130	14	35	mg/kg	07.21.19 08:20	
m,p-Xylenes	<0.00102	0.202	0.176	87	0.154	78	70-130	13	35	mg/kg	07.21.19 08:20	
o-Xylene	<0.00202	0.101	0.0865	86	0.0768	77	70-130	12	35	mg/kg	07.21.19 08:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		112		70-130	%	07.21.19 08:20
4-Bromofluorobenzene	105		103		70-130	%	07.21.19 08:20

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

Seq Number: 3095990 Matrix: Soil Date Prep: 07.21.19

Parent Sample Id: 631065-001 MS Sample Id: 631065-001 S MSD Sample Id: 631065-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.102	102	0.0940	94	70-130	8	35	mg/kg	07.22.19 03:24	
Toluene	<0.00200	0.100	0.0988	99	0.0930	93	70-130	6	35	mg/kg	07.22.19 03:24	
Ethylbenzene	<0.00200	0.100	0.111	111	0.106	106	70-130	5	35	mg/kg	07.22.19 03:24	
m,p-Xylenes	<0.00400	0.200	0.228	114	0.217	109	70-130	5	35	mg/kg	07.22.19 03:24	
o-Xylene	<0.00200	0.100	0.111	111	0.104	104	70-130	7	35	mg/kg	07.22.19 03:24	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		103		70-130	%	07.22.19 03:24
4-Bromofluorobenzene	126		120		70-130	%	07.22.19 03:24

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: ~~603475~~ e631480 07/18/19

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)

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178	Email:	dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:		Routine ☐	
P.O. Number:	IRP-5552	Rush: 3day	
Sampler's Name:	Robert McAfee	Due Date: 07/22/19	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	1-4	Thermometer ID		
Received Intact:	(Yes) No	TNM-007		
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Total Containers:	10	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
FS01	S	07/17/19	1240	1'	1	X	X	X
FS02			1245			X	X	X
FS03			1250			X	X	X
FS04			1300			X	X	X
FS05			1305			X	X	X
FS06			1310			X	X	X
FS07			1315			X	X	X
FS08			1335			X	X	X
FS09			1340			X	X	X
FS10			1345			X	X	X

Work Order Notes

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

Sample Comments

Composite

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	Robert McAfee		7/18/19 ~~3:33~~ 15:33	2		
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

Final 1.000

Chain of Custody

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)

Work Order No: 631480 ~~631475~~ 7/18/19

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178 Email:		dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

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

Project Name:	Severus CTB
Project Number:	
P.O. Number:	IRP-5552
Sampler's Name:	Robert McAfee

Turn Around
Routine ☐
Rush: 3 day
Due Date: 07/22/19

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	1.4	Thermometer ID		
Received Intact:	(Yes) No	TJM-007		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes (No) N/A	Total Containers:	10	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
FS11	S	07/17/19	1355	1'	1	X	X	X
FS12			1400			X	X	X
FS13			1415			X	X	X
FS14			1420			X	X	X
FS15			1425			X	X	X
FS16			1430			X	X	X
FS17			1440			X	X	X
FS18		07/18/19	0820			X	X	X

Work Order Notes

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

Sample Comments

Composite

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	Robert McAfee		7/18/19 ~~3:35~~ 15:35	2		
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

Inter-Office Shipment

IOS Number **43784**

Date/Time: 07/18/19 17:17
Created by: Elizabeth Mcclellan
Please send report to: Jessica Kramer

Lab# From: **Carlsbad**
Delivery Priority:
Address: 1089 N Canal Street

Lab# To: **Midland**
Air Bill No.: 7757 8077 6800
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
631480-001	S	FS01	07/17/19 12:40	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-001	S	FS01	07/17/19 12:40	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-001	S	FS01	07/17/19 12:40	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-002	S	FS02	07/17/19 12:45	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-002	S	FS02	07/17/19 12:45	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-002	S	FS02	07/17/19 12:45	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-003	S	FS03	07/17/19 12:50	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-003	S	FS03	07/17/19 12:50	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-003	S	FS03	07/17/19 12:50	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-004	S	FS04	07/17/19 13:00	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-004	S	FS04	07/17/19 13:00	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-004	S	FS04	07/17/19 13:00	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-005	S	FS05	07/17/19 13:05	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-005	S	FS05	07/17/19 13:05	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-005	S	FS05	07/17/19 13:05	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-006	S	FS06	07/17/19 13:10	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-006	S	FS06	07/17/19 13:10	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-006	S	FS06	07/17/19 13:10	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-007	S	FS07	07/17/19 13:15	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-007	S	FS07	07/17/19 13:15	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-007	S	FS07	07/17/19 13:15	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-008	S	FS08	07/17/19 13:35	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-008	S	FS08	07/17/19 13:35	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-008	S	FS08	07/17/19 13:35	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-009	S	FS09	07/17/19 13:40	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	

Inter-Office Shipment

IOS Number **43784**

Date/Time: 07/18/19 17:17
Created by: Elizabeth Mcclellan
Please send report to: Jessica Kramer

Lab# From: **Carlsbad**
Delivery Priority:
Address: 1089 N Canal Street

Lab# To: **Midland**
Air Bill No.: 7757 8077 6800
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
631480-009	S	FS09	07/17/19 13:40	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-009	S	FS09	07/17/19 13:40	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-010	S	FS10	07/17/19 13:45	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-010	S	FS10	07/17/19 13:45	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-010	S	FS10	07/17/19 13:45	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-011	S	FS11	07/17/19 13:55	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-011	S	FS11	07/17/19 13:55	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-011	S	FS11	07/17/19 13:55	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-012	S	FS12	07/17/19 14:00	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-012	S	FS12	07/17/19 14:00	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-012	S	FS12	07/17/19 14:00	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-013	S	FS13	07/17/19 14:15	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-013	S	FS13	07/17/19 14:15	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-013	S	FS13	07/17/19 14:15	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-014	S	FS14	07/17/19 14:20	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-014	S	FS14	07/17/19 14:20	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-014	S	FS14	07/17/19 14:20	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-015	S	FS15	07/17/19 14:25	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-015	S	FS15	07/17/19 14:25	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-015	S	FS15	07/17/19 14:25	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-016	S	FS16	07/17/19 14:30	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-016	S	FS16	07/17/19 14:30	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	
631480-016	S	FS16	07/17/19 14:30	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-017	S	FS17	07/17/19 14:40	SW8021B	BTEX by EPA 8021B	07/22/19	07/31/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-017	S	FS17	07/17/19 14:40	E300_CL	Chloride by EPA 300	07/22/19	01/13/20	JKR	CL	

Inter Office Shipment or Sample Comments:

Inter-Office Shipment

IOS Number **43784**

Date/Time: 07/18/19 17:17
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 7757 8077 6800

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

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
631480-017	S	FS17	07/17/19 14:40	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	07/31/19	JKR	GRO-DRO PHCC10C28 PI	
631480-018	S	FS18	07/18/19 08:20	SW8021B	BTEX by EPA 8021B	07/22/19	08/01/19	JKR	BR4FBZ BZ BZME EBZ X	
631480-018	S	FS18	07/18/19 08:20	E300_CL	Chloride by EPA 300	07/22/19	01/14/20	JKR	CL	
631480-018	S	FS18	07/18/19 08:20	SW8015MOD_NM	TPH by SW8015 Mod	07/22/19	08/01/19	JKR	GRO-DRO PHCC10C28 PI	

Inter Office Shipment or Sample Comments:

Relinquished By: Elizabeth McClellan

Date Relinquished: 07/18/2019

Received By: Katie Lowe

Date Received: 07/19/2019 11:45

Cooler Temperature: 4.2

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 43784

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

Sent By: Elizabeth McClellan **Date Sent:** 07/18/2019 05:17 PM

Received By: Katie Lowe **Date Received:** 07/19/2019 11:45 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 *Custody Seals Signed and dated for Containers/coolers	**Yes**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: Katie Lowe Date: 07/19/2019

Katie Lowe

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 07/18/2019 03:33:00 PM

Work Order #: 631480

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

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 Custody Seals intact on sample bottles?	**No**	
#6*Custody Seals Signed and dated?	**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)?	**Yes**	Subbed to Xenco Midland.
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 07/18/2019

Checklist reviewed by: Jessica Kramer Date: 07/19/2019

Analytical Report 633261

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

2RP-5552

10-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

10-OCT-19

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

Reference: XENCO Report No(s): **633261**
Severus CTB
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 633261. 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. 633261 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 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS19	S	08-06-19 11:15	2 ft	633261-001
FS20	S	08-06-19 11:20	2 ft	633261-002
SW01A	S	08-06-19 11:25	0 - 2 ft	633261-003

Sample receipt non conformances and comments:

Per clients request corrected sample 001 & 002 names. SEE BELOW JK 09/16/19 NEW VERSION GENERATED
FS18 ---- > FS19
FS19 ---- > FS20

Per clients request corrected sample 003 name from SW02 to SW01A. JK 10/10/019 NEW VERSION GENERATED

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3098254 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 633261-003,633261-001.

Certificate of Analysis Summary 633261

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 2RP-5552
Contact: Dan Moir
Project Location:

Date Received in Lab: Tue Aug-06-19 04:00 pm
Report Date: 10-OCT-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	633261-001		633261-002		633261-003			
	Field Id:	FS19		FS20		SW01A			
	Depth:	2- ft		2- ft		0-2 ft			
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Aug-06-19 11:15		Aug-06-19 11:20		Aug-06-19 11:25			
BTEX by EPA 8021B	***Extracted:***	Aug-08-19 12:00		Aug-08-19 12:00		Aug-08-19 12:00			
SUB: T104704400-19-19	***Analyzed:***	Aug-09-19 09:12		Aug-09-19 09:32		Aug-09-19 09:52			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.00201	0.00201	<0.00199	0.00199	0.00271	0.00199		
Toluene		0.0435	0.00201	0.00224	0.00199	0.208	0.00199		
Ethylbenzene		0.0588	0.00201	0.00312	0.00199	0.361	0.00199		
m,p-Xylenes		0.137	0.00402	0.00819	0.00398	0.848	0.00398		
o-Xylene		0.166	0.00201	0.0395	0.00199	0.590	0.00199		
Total Xylenes		0.303	0.00201	0.0477	0.00199	1.44	0.00199		
Total BTEX		0.405	0.00201	0.0531	0.00199	2.01	0.00199		
Chloride by EPA 300	***Extracted:***	Aug-08-19 14:40		Aug-08-19 14:40		Aug-08-19 13:40			
SUB: T104704400-19-19	***Analyzed:***	Aug-09-19 08:43		Aug-09-19 08:49		Aug-08-19 14:42			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		116	4.96	112	5.00	127	5.03		
TPH by SW8015 Mod	***Extracted:***	Aug-09-19 15:00		Aug-09-19 15:00		Aug-09-19 15:00			
SUB: T104704400-19-19	***Analyzed:***	Aug-11-19 03:59		Aug-11-19 04:17		Aug-11-19 04:36			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		489	15.0	52.2	15.0	355	15.0		
Diesel Range Organics (DRO)		1860	15.0	457	15.0	3840	15.0		
Motor Oil Range Hydrocarbons (MRO)		236	15.0	64.6	15.0	355	15.0		
Total TPH		2590	15.0	574	15.0	4550	15.0		
Total GRO-DRO		2350	15.0	509	15.0	4200	15.0		

Jessica Kramer
Project Assistant

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS19**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-001	Date Collected:	08.06.19 11.15	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.08.19 14.40	Basis:	Wet Weight
Seq Number:	3098080			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**116**	4.96	mg/kg	08.09.19 08.43		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	08.09.19 15.00	Basis:	Wet Weight
Seq Number:	3098133			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**489**	15.0	mg/kg	08.11.19 03.59		1
Diesel Range Organics (DRO)	C10C28DRO	**1860**	15.0	mg/kg	08.11.19 03.59		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**236**	15.0	mg/kg	08.11.19 03.59		1
Total TPH	PHC635	**2590**	15.0	mg/kg	08.11.19 03.59		1
Total GRO-DRO	PHC628	**2350**	15.0	mg/kg	08.11.19 03.59		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	08.11.19 03.59	
o-Terphenyl	84-15-1	127	%	70-135	08.11.19 03.59	

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS19**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-001	Date Collected:	08.06.19 11.15	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	ALG	Date Prep:	08.08.19 12.00	Basis:	Wet Weight
Seq Number:	3098254			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.09.19 09.12	U	1
Toluene	108-88-3	**0.0435**	0.00201	mg/kg	08.09.19 09.12		1
Ethylbenzene	100-41-4	**0.0588**	0.00201	mg/kg	08.09.19 09.12		1
m,p-Xylenes	179601-23-1	**0.137**	0.00402	mg/kg	08.09.19 09.12		1
o-Xylene	95-47-6	**0.166**	0.00201	mg/kg	08.09.19 09.12		1
Total Xylenes	1330-20-7	**0.303**	0.00201	mg/kg	08.09.19 09.12		1
Total BTEX		**0.405**	0.00201	mg/kg	08.09.19 09.12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	154	%	70-130	08.09.19 09.12	**
1,4-Difluorobenzene	540-36-3	91	%	70-130	08.09.19 09.12	

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS20**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-002	Date Collected:	08.06.19 11.20	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.08.19 14.40	Basis:	Wet Weight
Seq Number:	3098080			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**112**	5.00	mg/kg	08.09.19 08.49		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	08.09.19 15.00	Basis:	Wet Weight
Seq Number:	3098133			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**52.2**	15.0	mg/kg	08.11.19 04.17		1
Diesel Range Organics (DRO)	C10C28DRO	**457**	15.0	mg/kg	08.11.19 04.17		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**64.6**	15.0	mg/kg	08.11.19 04.17		1
Total TPH	PHC635	**574**	15.0	mg/kg	08.11.19 04.17		1
Total GRO-DRO	PHC628	**509**	15.0	mg/kg	08.11.19 04.17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	08.11.19 04.17	
o-Terphenyl	84-15-1	105	%	70-135	08.11.19 04.17	

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS20**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-002	Date Collected:	08.06.19 11.20	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	ALG	Date Prep:	08.08.19 12.00	Basis:	Wet Weight
Seq Number:	3098254			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.09.19 09.32	U	1
Toluene	108-88-3	**0.00224**	0.00199	mg/kg	08.09.19 09.32		1
Ethylbenzene	100-41-4	**0.00312**	0.00199	mg/kg	08.09.19 09.32		1
m,p-Xylenes	179601-23-1	**0.00819**	0.00398	mg/kg	08.09.19 09.32		1
o-Xylene	95-47-6	**0.0395**	0.00199	mg/kg	08.09.19 09.32		1
Total Xylenes	1330-20-7	**0.0477**	0.00199	mg/kg	08.09.19 09.32		1
Total BTEX		**0.0531**	0.00199	mg/kg	08.09.19 09.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	126	%	70-130	08.09.19 09.32	
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.09.19 09.32	

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01A**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-003	Date Collected:	08.06.19 11.25	Sample Depth:	0 - 2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.08.19 13.40	Basis:	Wet Weight
Seq Number:	3097986			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**127**	5.03	mg/kg	08.08.19 14.42		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	08.09.19 15.00	Basis:	Wet Weight
Seq Number:	3098133			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**355**	15.0	mg/kg	08.11.19 04.36		1
Diesel Range Organics (DRO)	C10C28DRO	**3840**	15.0	mg/kg	08.11.19 04.36		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**355**	15.0	mg/kg	08.11.19 04.36		1
Total TPH	PHC635	**4550**	15.0	mg/kg	08.11.19 04.36		1
Total GRO-DRO	PHC628	**4200**	15.0	mg/kg	08.11.19 04.36		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	128	%	70-135	08.11.19 04.36	
o-Terphenyl	84-15-1	130	%	70-135	08.11.19 04.36	

Certificate of Analytical Results 633261

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01A**	Matrix:	Soil	Date Received:	08.06.19 16.00
Lab Sample Id:	633261-003	Date Collected:	08.06.19 11.25	Sample Depth:	0 - 2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	ALG	Date Prep:	08.08.19 12.00	Basis:	Wet Weight
Seq Number:	3098254			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.00271**	0.00199	mg/kg	08.09.19 09.52		1
Toluene	108-88-3	**0.208**	0.00199	mg/kg	08.09.19 09.52		1
Ethylbenzene	100-41-4	**0.361**	0.00199	mg/kg	08.09.19 09.52		1
m,p-Xylenes	179601-23-1	**0.848**	0.00398	mg/kg	08.09.19 09.52		1
o-Xylene	95-47-6	**0.590**	0.00199	mg/kg	08.09.19 09.52		1
Total Xylenes	1330-20-7	**1.44**	0.00199	mg/kg	08.09.19 09.52		1
Total BTEX		**2.01**	0.00199	mg/kg	08.09.19 09.52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	360	%	70-130	08.09.19 09.52	**
1,4-Difluorobenzene	540-36-3	76	%	70-130	08.09.19 09.52	

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 633261

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3097986 Matrix: Solid Date Prep: 08.08.19
MB Sample Id: 7683801-1-BLK LCS Sample Id: 7683801-1-BKS LCSD Sample Id: 7683801-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	246	98	255	102	90-110	4	20	mg/kg	08.08.19 14:31	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098080 Matrix: Solid Date Prep: 08.08.19
MB Sample Id: 7683802-1-BLK LCS Sample Id: 7683802-1-BKS LCSD Sample Id: 7683802-1-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	261	104	261	104	90-110	0	20	mg/kg	08.09.19 08:12	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3097986 Matrix: Soil Date Prep: 08.08.19
Parent Sample Id: 633244-001 MS Sample Id: 633244-001 S MSD Sample Id: 633244-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	249	100	235	95	90-110	6	20	mg/kg	08.08.19 16:06	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3097986 Matrix: Soil Date Prep: 08.08.19
Parent Sample Id: 633261-003 MS Sample Id: 633261-003 S MSD Sample Id: 633261-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	127	252	381	101	388	104	90-110	2	20	mg/kg	08.08.19 14:47	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098080 Matrix: Soil Date Prep: 08.08.19
Parent Sample Id: 633244-003 MS Sample Id: 633244-003 S MSD Sample Id: 633244-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.2	250	267	103	267	103	90-110	0	20	mg/kg	08.09.19 09:59	

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 633261

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3098080 Matrix: Sludge Date Prep: 08.08.19
Parent Sample Id: 633426-001 MS Sample Id: 633426-001 S MSD Sample Id: 633426-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	198	253	456	102	456	102	90-110	0	20	mg/kg	08.09.19 08:31	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3098133 Matrix: Solid Date Prep: 08.09.19
MB Sample Id: 7683942-1-BLK LCS Sample Id: 7683942-1-BKS LCSD Sample Id: 7683942-1-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	1100	110	1130	113	70-135	3	20	mg/kg	08.11.19 02:06	
Diesel Range Organics (DRO)	<8.13	1000	993	99	1030	103	70-135	4	20	mg/kg	08.11.19 02:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		120		124		70-135	%	08.11.19 02:06
o-Terphenyl	91		98		107		70-135	%	08.11.19 02:06

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3098133 Matrix: Soil Date Prep: 08.09.19
Parent Sample Id: 633251-001 MS Sample Id: 633251-001 S MSD Sample Id: 633251-001 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)	<7.98	997	1190	119	1150	115	70-135	3	20	mg/kg	08.11.19 03:02	
Diesel Range Organics (DRO)	<8.10	997	1150	115	1170	117	70-135	2	20	mg/kg	08.11.19 03:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		126		70-135	%	08.11.19 03:02
o-Terphenyl	116		118		70-135	%	08.11.19 03:02

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

QC Summary 633261

LT Environmental, Inc.

Severus CTB

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

Seq Number: 3098254 Matrix: Solid Date Prep: 08.08.19

MB Sample Id: 7683789-1-BLK LCS Sample Id: 7683789-1-BKS LCSD Sample Id: 7683789-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.0911	91	0.0735	74	70-130	21	35	mg/kg	08.09.19 06:52	
Toluene	<0.000456	0.100	0.0860	86	0.0708	71	70-130	19	35	mg/kg	08.09.19 06:52	
Ethylbenzene	<0.00200	0.100	0.0871	87	0.0791	79	70-130	10	35	mg/kg	08.09.19 06:52	
m,p-Xylenes	<0.00101	0.200	0.174	87	0.153	77	70-130	13	35	mg/kg	08.09.19 06:52	
o-Xylene	<0.000344	0.100	0.0906	91	0.0816	82	70-130	10	35	mg/kg	08.09.19 06:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		102		103		70-130	%	08.09.19 06:52
4-Bromofluorobenzene	108		114		112		70-130	%	08.09.19 06:52

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

Seq Number: 3098254 Matrix: Soil Date Prep: 08.08.19

Parent Sample Id: 633251-001 MS Sample Id: 633251-001 S MSD Sample Id: 633251-001 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	0.0731	74	0.0691	69	70-130	6	35	mg/kg	08.09.19 07:32	X
Toluene	<0.00199	0.0994	0.0704	71	0.0678	68	70-130	4	35	mg/kg	08.09.19 07:32	X
Ethylbenzene	0.00266	0.0994	0.0786	76	0.0759	74	70-130	3	35	mg/kg	08.09.19 07:32	
m,p-Xylenes	<0.00101	0.199	0.152	76	0.148	74	70-130	3	35	mg/kg	08.09.19 07:32	
o-Xylene	0.00193	0.0994	0.0811	80	0.0807	79	70-130	0	35	mg/kg	08.09.19 07:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		103		70-130	%	08.09.19 07:32
4-Bromofluorobenzene	112		115		70-130	%	08.09.19 07:32

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: 633221

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:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178 Email:		dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:		Routine	☐
P.O. Number:	2RP-5552	Rush:	3 day
Sampler's Name:	Robert McAfee	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Temperature (°C):	2.2	Thermometer ID	T-NM-007 8/7/19	
Received Intact:	(Yes) No	Correction Factor:	-0.2	
Cooler Custody Seals:	Yes No (N/A)	Total Containers:	3	
Sample Custody Seals:	Yes No (N/A)			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
~~FS18~~ FS19	S	08/06/19	1115	2'	1	X	X	X
~~FS19~~ FS20	S		1120	2'	1	X	X	X
~~SW02~~ SW01A	S		1125	0-2'	1	X	X	X

Work Order Notes

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

Sample Comments

Composite

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			8/12/19 16:00	2		
3				4		
5				6		

Inter-Office Shipment

IOS Number **45747**

Date/Time: 08/07/19 10:55
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 7759305855567

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

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
633261-001	S	FS18	08/06/19 11:15	SW8021B	BTEX by EPA 8021B	08/08/19	08/20/19	JKR	BR4FBZ BZ BZME EBZ X	
633261-001	S	FS18	08/06/19 11:15	SW8015MOD_NM	TPH by SW8015 Mod	08/08/19	08/20/19	JKR	GRO-DRO PHCC10C28 PI	
633261-001	S	FS18	08/06/19 11:15	E300_CL	Chloride by EPA 300	08/08/19	02/02/20	JKR	CL	
633261-002	S	FS19	08/06/19 11:20	SW8015MOD_NM	TPH by SW8015 Mod	08/08/19	08/20/19	JKR	GRO-DRO PHCC10C28 PI	
633261-002	S	FS19	08/06/19 11:20	SW8021B	BTEX by EPA 8021B	08/08/19	08/20/19	JKR	BR4FBZ BZ BZME EBZ X	
633261-002	S	FS19	08/06/19 11:20	E300_CL	Chloride by EPA 300	08/08/19	02/02/20	JKR	CL	
633261-003	S	SW02	08/06/19 11:25	SW8015MOD_NM	TPH by SW8015 Mod	08/08/19	08/20/19	JKR	GRO-DRO PHCC10C28 PI	
633261-003	S	SW02	08/06/19 11:25	SW8021B	BTEX by EPA 8021B	08/08/19	08/20/19	JKR	BR4FBZ BZ BZME EBZ X	
633261-003	S	SW02	08/06/19 11:25	E300_CL	Chloride by EPA 300	08/08/19	02/02/20	JKR	CL	

Inter Office Shipment or Sample Comments:

Relinquished By: Elizabeth McClellan

Date Relinquished: 08/07/2019

Received By: Brianna Teel

Date Received: 08/08/2019 11:05

Cooler Temperature: 0.5

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 45747

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

Sent By: Elizabeth McClellan **Date Sent:** 08/07/2019 10:55 AM

Received By: Brianna Teel **Date Received:** 08/08/2019 11:05 AM

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

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: Brianna Teel Date: 08/08/2019

Brianna Teel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 08/06/2019 04:00:00 PM

Work Order #: 633261

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)?	2.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 Custody Seals intact on sample bottles?	**No**	
#6*Custody Seals Signed and dated?	**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)?	**Yes**	Subbed to Xenco Midland.
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 08/07/2019

Checklist reviewed by: Kalei Stout Date: 08/08/2019

Analytical Report 634674

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

2RP-5552

10-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

10-OCT-19

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

Reference: XENCO Report No(s): **634674**
Severus CTB
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 634674. 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. 634674 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 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS19A	S	08-20-19 11:10	3.5 ft	634674-001
FS20A	S	08-20-19 11:40	3.5 ft	634674-002
SW01B	S	08-20-19 09:57	0 - 3 ft	634674-003

Sample receipt non conformances and comments:

per clients email, corrected sample 001 & 002 names. see below. 09/16/19 NEW VERSION GENERATED
FS19 ---- > FS19A
FS20 ---- > FS20A

Per clients email, corrected sample 003 named from SW02 to SW01B. 10/10/19 NEW VERSION GENERATED

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3099423 Chloride by EPA 300
Lab Sample ID 634867-014 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 634674-001, -002, -003.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3099529 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 634914-007 SD.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 634674

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 2RP-5552
Contact: Dan Moir
Project Location:

Date Received in Lab: Tue Aug-20-19 04:05 pm
Report Date: 10-OCT-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	634674-001		634674-002		634674-003			
	Field Id:	FS19A		FS20A		SW01B			
	Depth:	3.5- ft		3.5- ft		0-3 ft			
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Aug-20-19 11:10		Aug-20-19 11:40		Aug-20-19 09:57			
BTEX by EPA 8021B	***Extracted:***	Aug-23-19 07:08		Aug-23-19 07:08		Aug-23-19 07:08			
	Analyzed:	Aug-23-19 18:19		Aug-23-19 18:45		Aug-23-19 19:05			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
Toluene		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
Ethylbenzene		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
m,p-Xylenes		<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200		
o-Xylene		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
Total Xylenes		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
Total BTEX		<0.000996	0.000996	<0.00100	0.00100	<0.00100	0.00100		
Chloride by EPA 300	***Extracted:***	Aug-22-19 10:08		Aug-22-19 10:08		Aug-22-19 10:08			
	Analyzed:	Aug-22-19 13:55		Aug-22-19 14:15		Aug-22-19 14:21			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		43.0	9.96	66.6	10.0	47.5	9.98		
TPH by SW8015 Mod	***Extracted:***	Aug-23-19 12:00		Aug-23-19 12:00		Aug-23-19 12:00			
	Analyzed:	Aug-23-19 20:51		Aug-23-19 21:52		Aug-23-19 22:12			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<25.1	25.1	<25.0	25.0	<25.0	25.0		
Diesel Range Organics (DRO)		<25.1	25.1	<25.0	25.0	<25.0	25.0		
Motor Oil Range Hydrocarbons (MRO)		<25.1	25.1	<25.0	25.0	<25.0	25.0		
Total TPH		<25.1	25.1	<25.0	25.0	<25.0	25.0		
Total GRO-DRO		<25.1	25.1	<25.0	25.0	<25.0	25.0		

Jessica Kramer
Project Assistant

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS19A**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-001	Date Collected:	08.20.19 11.10	Sample Depth:	3.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.22.19 10.08	Basis:	Wet Weight
Seq Number:	3099423				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**43.0**	9.96	mg/kg	08.22.19 13.55		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.23.19 12.00	Basis:	Wet Weight
Seq Number:	3099589				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.1	25.1	mg/kg	08.23.19 20.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.1	25.1	mg/kg	08.23.19 20.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.1	25.1	mg/kg	08.23.19 20.51	U	1
Total TPH	PHC635	<25.1	25.1	mg/kg	08.23.19 20.51	U	1
Total GRO-DRO	PHC628	<25.1	25.1	mg/kg	08.23.19 20.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.23.19 20.51	
o-Terphenyl	84-15-1	86	%	70-135	08.23.19 20.51	

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS19A**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-001	Date Collected:	08.20.19 11.10	Sample Depth:	3.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	CAC	Date Prep:	08.23.19 07.08	Basis:	Wet Weight
Seq Number:	3099529				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1
Toluene	108-88-3	<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1
Ethylbenzene	100-41-4	<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1
m,p-Xylenes	179601-23-1	<0.00199	0.00199	mg/kg	08.23.19 18.19	U	1
o-Xylene	95-47-6	<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1
Total Xylenes	1330-20-7	<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1
Total BTEX		<0.000996	0.000996	mg/kg	08.23.19 18.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	83	%	80-120	08.23.19 18.19	
1,4-Difluorobenzene	540-36-3	89	%	80-120	08.23.19 18.19	

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS20A**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-002	Date Collected:	08.20.19 11.40	Sample Depth:	3.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.22.19 10.08	Basis:	Wet Weight
Seq Number:	3099423				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**66.6**	10.0	mg/kg	08.22.19 14.15		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.23.19 12.00	Basis:	Wet Weight
Seq Number:	3099589				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.23.19 21.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.23.19 21.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.23.19 21.52	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.23.19 21.52	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.23.19 21.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	08.23.19 21.52	
o-Terphenyl	84-15-1	93	%	70-135	08.23.19 21.52	

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**FS20A**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-002	Date Collected:	08.20.19 11.40	Sample Depth:	3.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	CAC	Date Prep:	08.23.19 07.08	Basis:	Wet Weight
Seq Number:	3099529				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1
Toluene	108-88-3	<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1
Ethylbenzene	100-41-4	<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	08.23.19 18.45	U	1
o-Xylene	95-47-6	<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1
Total Xylenes	1330-20-7	<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1
Total BTEX		<0.00100	0.00100	mg/kg	08.23.19 18.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	80-120	08.23.19 18.45	
1,4-Difluorobenzene	540-36-3	111	%	80-120	08.23.19 18.45	

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01B**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-003	Date Collected:	08.20.19 09.57	Sample Depth:	0 - 3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.22.19 10.08	Basis:	Wet Weight
Seq Number:	3099423				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**47.5**	9.98	mg/kg	08.22.19 14.21		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.23.19 12.00	Basis:	Wet Weight
Seq Number:	3099589				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.23.19 22.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.23.19 22.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.23.19 22.12	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.23.19 22.12	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.23.19 22.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	08.23.19 22.12	
o-Terphenyl	84-15-1	92	%	70-135	08.23.19 22.12	

Certificate of Analytical Results 634674

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW01B**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634674-003	Date Collected:	08.20.19 09.57	Sample Depth:	0 - 3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	CAC	Date Prep:	08.23.19 07.08	Basis:	Wet Weight
Seq Number:	3099529				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1
Toluene	108-88-3	<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1
Ethylbenzene	100-41-4	<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	08.23.19 19.05	U	1
o-Xylene	95-47-6	<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1
Total Xylenes	1330-20-7	<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1
Total BTEX		<0.00100	0.00100	mg/kg	08.23.19 19.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117	%	80-120	08.23.19 19.05	
1,4-Difluorobenzene	540-36-3	106	%	80-120	08.23.19 19.05	

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 634674

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Solid Date Prep: 08.22.19
MB Sample Id: 7684725-1-BLK LCS Sample Id: 7684725-1-BKS LCSD Sample Id: 7684725-1-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	200	214	107	216	108	80-120	1	20	mg/kg	08.22.19 13:42	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Soil Date Prep: 08.22.19
Parent Sample Id: 634674-001 MS Sample Id: 634674-001 S MSD Sample Id: 634674-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.0	198	275	117	288	124	80-120	5	20	mg/kg	08.22.19 14:02	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Solid Date Prep: 08.22.19
Parent Sample Id: 634867-014 MS Sample Id: 634867-014 S MSD Sample Id: 634867-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2130	1000	3490	136	3490	136	80-120	0	20	mg/kg	08.22.19 17:12	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3099589 Matrix: Solid Date Prep: 08.23.19
MB Sample Id: 7684956-1-BLK LCS Sample Id: 7684956-1-BKS LCSD Sample Id: 7684956-1-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)	<9.88	1000	995	100	1050	105	70-135	5	35	mg/kg	08.23.19 20:11	
Diesel Range Organics (DRO)	<9.88	1000	810	81	1020	102	70-135	23	35	mg/kg	08.23.19 20:11	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		116		124		70-135	%	08.23.19 20:11
o-Terphenyl	86		113		108		70-135	%	08.23.19 20:11

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 634674

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3099589 Matrix: Soil Date Prep: 08.23.19
Parent Sample Id: 634674-001 MS Sample Id: 634674-001 S MSD Sample Id: 634674-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<9.88	1000	1060	106	1020	102	70-135	4	35	mg/kg	08.23.19 21:11	
Diesel Range Organics (DRO)	10.4	1000	1030	102	970	96	70-135	6	35	mg/kg	08.23.19 21:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	121		132		70-135	%	08.23.19 21:11
o-Terphenyl	110		109		70-135	%	08.23.19 21:11

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3099529 Matrix: Solid Date Prep: 08.23.19
MB Sample Id: 7684918-1-BLK LCS Sample Id: 7684918-1-BKS LCSD Sample Id: 7684918-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0909	91	0.0912	91	70-130	0	35	mg/kg	08.23.19 09:22	
Toluene	<0.000500	0.100	0.0950	95	0.0973	97	70-130	2	35	mg/kg	08.23.19 09:22	
Ethylbenzene	<0.000500	0.100	0.104	104	0.107	107	71-129	3	35	mg/kg	08.23.19 09:22	
m,p-Xylenes	<0.00100	0.200	0.215	108	0.219	110	70-135	2	35	mg/kg	08.23.19 09:22	
o-Xylene	0.000530	0.100	0.106	106	0.108	108	71-133	2	35	mg/kg	08.23.19 09:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		93		101		80-120	%	08.23.19 09:22
4-Bromofluorobenzene	115		117		118		80-120	%	08.23.19 09:22

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3099529 Matrix: Soil Date Prep: 08.23.19
Parent Sample Id: 634914-007 MS Sample Id: 634914-007 S MSD Sample Id: 634914-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00101	0.101	0.0866	86	0.0923	91	70-130	6	35	mg/kg	08.23.19 10:02	
Toluene	<0.000504	0.101	0.0910	90	0.0973	96	70-130	7	35	mg/kg	08.23.19 10:02	
Ethylbenzene	<0.000504	0.101	0.0999	99	0.107	106	71-129	7	35	mg/kg	08.23.19 10:02	
m,p-Xylenes	<0.00101	0.202	0.205	101	0.218	108	70-135	6	35	mg/kg	08.23.19 10:02	
o-Xylene	<0.000504	0.101	0.102	101	0.108	107	71-133	6	35	mg/kg	08.23.19 10:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		99		80-120	%	08.23.19 10:02
4-Bromofluorobenzene	114		122	**	80-120	%	08.23.19 10:02

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: 634674

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)

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178 Email:		dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:		Routine	☑
P.O. Number:	ZRP-5552	Rush:	
Sampler's Name:	Robert McAfee	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	2.8	Thermometer ID	
Received Intact:	(Yes) No		TNM007
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	3

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
FS19A	S	08/20/19	1110	3.5'	1	X	X	X	Composite
FS20A	↓	↓	1140	3.5'	↓	X	X	X	↓
SW02 SW01B	↓	↓	1150	0-3'	↓	X	X	X	

Work Order Notes

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

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		8/20/19 16:05	2		
3			4		
5			6		

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 08.20.2019 04.05.00 PM

Work Order #: 634674

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

Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	2.8	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 Custody Seals intact on sample bottles?	**No**	
#6*Custody Seals Signed and dated?	**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)?	**Yes**	Subbed to Xenco Midland.
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#: T-NM-007

Checklist completed by: Jessica Kramer Date: 08.21.2019
Jessica Kramer

Checklist reviewed by: Date: 08.22.2019
Elizabeth McClellan

Analytical Report 634675

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

2RP-5552

10-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

10-OCT-19

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

Reference: XENCO Report No(s): **634675**
Severus CTB
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 634675. 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. 634675 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 634675

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW02	S	08-20-19 11:55	0 - 3 ft	634675-001

Sample receipt non conformances and comments:

Per clients email correct sample name from SW03 to SW02. New Version generated JK 10/10/19

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3099530 BTEX by EPA 8021B

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

Lab Sample ID 634675-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 634675-001.

The Laboratory Control Sample for Toluene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analysis Summary 634675

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 2RP-5552
Contact: Dan Moir
Project Location:

Date Received in Lab: Tue Aug-20-19 04:05 pm
Report Date: 10-OCT-19
Project Manager: Jessica Kramer

Analysis Requested							
	Lab Id:	634675-001					
	Field Id:	SW02					
	Depth:	0-3 ft					
	Matrix:	SOIL					
	Sampled:	Aug-20-19 11:55					
BTEX by EPA 8021B	***Extracted:***	Aug-23-19 14:08					
	Analyzed:	Aug-24-19 12:54					
	Units/RL:	mg/kg	RL				
Benzene		<0.00100	0.00100				
Toluene		0.110	0.00100				
Ethylbenzene		0.204	0.00100				
m,p-Xylenes		0.690	0.00200				
o-Xylene		0.392	0.00100				
Total Xylenes		1.08	0.00100				
Total BTEX		1.40	0.00100				
Chloride by EPA 300	***Extracted:***	Aug-22-19 10:08					
	Analyzed:	Aug-22-19 14:28					
	Units/RL:	mg/kg	RL				
Chloride		79.2	9.98				
TPH by SW8015 Mod	***Extracted:***	Aug-23-19 10:00					
	Analyzed:	Aug-23-19 19:11					
	Units/RL:	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		363	25.0				
Diesel Range Organics (DRO)		2090	25.0				
Motor Oil Range Hydrocarbons (MRO)		<25.0	25.0				
Total TPH		2450	25.0				
Total GRO-DRO		2450	25.0				

Jessica Kramer
Project Assistant

Certificate of Analytical Results 634675

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW02**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634675-001	Date Collected:	08.20.19 11.55	Sample Depth:	0 - 3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.22.19 10.08	Basis:	Wet Weight
Seq Number:	3099423				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**79.2**	9.98	mg/kg	08.22.19 14.28		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.23.19 10.00	Basis:	Wet Weight
Seq Number:	3099584				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**363**	25.0	mg/kg	08.23.19 19.11		1
Diesel Range Organics (DRO)	C10C28DRO	**2090**	25.0	mg/kg	08.23.19 19.11		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.23.19 19.11	U	1
Total TPH	PHC635	**2450**	25.0	mg/kg	08.23.19 19.11		1
Total GRO-DRO	PHC628	**2450**	25.0	mg/kg	08.23.19 19.11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	08.23.19 19.11	
o-Terphenyl	84-15-1	121	%	70-135	08.23.19 19.11	

Certificate of Analytical Results 634675

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**SW02**	Matrix:	Soil	Date Received:	08.20.19 16.05
Lab Sample Id:	634675-001	Date Collected:	08.20.19 11.55	Sample Depth:	0 - 3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	CAC	Date Prep:	08.23.19 14.08	Basis:	Wet Weight
Seq Number:	3099530				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	08.24.19 12.54	U	1
Toluene	108-88-3	**0.110**	0.00100	mg/kg	08.24.19 12.54		1
Ethylbenzene	100-41-4	**0.204**	0.00100	mg/kg	08.24.19 12.54		1
m,p-Xylenes	179601-23-1	**0.690**	0.00200	mg/kg	08.24.19 12.54		1
o-Xylene	95-47-6	**0.392**	0.00100	mg/kg	08.24.19 12.54		1
Total Xylenes	1330-20-7	**1.08**	0.00100	mg/kg	08.24.19 12.54		1
Total BTEX		**1.40**	0.00100	mg/kg	08.24.19 12.54		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	80-120	08.24.19 12.54	
4-Bromofluorobenzene	460-00-4	115	%	80-120	08.24.19 12.54	

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 634675

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Solid Date Prep: 08.22.19
MB Sample Id: 7684725-1-BLK LCS Sample Id: 7684725-1-BKS LCSD Sample Id: 7684725-1-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	200	214	107	216	108	80-120	1	20	mg/kg	08.22.19 13:42	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Soil Date Prep: 08.22.19
Parent Sample Id: 634674-001 MS Sample Id: 634674-001 S MSD Sample Id: 634674-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.0	198	275	117	288	124	80-120	5	20	mg/kg	08.22.19 14:02	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3099423 Matrix: Solid Date Prep: 08.22.19
Parent Sample Id: 634867-014 MS Sample Id: 634867-014 S MSD Sample Id: 634867-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2130	1000	3490	136	3490	136	80-120	0	20	mg/kg	08.22.19 17:12	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3099584 Matrix: Solid Date Prep: 08.23.19
MB Sample Id: 7684955-1-BLK LCS Sample Id: 7684955-1-BKS LCSD Sample Id: 7684955-1-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)	<9.88	1000	1020	102	999	100	70-135	2	35	mg/kg	08.23.19 11:09	
Diesel Range Organics (DRO)	<9.88	1000	1010	101	998	100	70-135	1	35	mg/kg	08.23.19 11:09	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		126		121		70-135	%	08.23.19 11:09
o-Terphenyl	109		117		114		70-135	%	08.23.19 11:09

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 634675

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3099584 Matrix: Soil Date Prep: 08.23.19
Parent Sample Id: 634914-021 MS Sample Id: 634914-021 S MSD Sample Id: 634914-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<9.92	1000	1010	101	982	98	70-135	3	35	mg/kg	08.23.19 12:10	
Diesel Range Organics (DRO)	<9.92	1000	1030	103	956	96	70-135	7	35	mg/kg	08.23.19 12:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	129		126		70-135	%	08.23.19 12:10
o-Terphenyl	109		107		70-135	%	08.23.19 12:10

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3099530 Matrix: Solid Date Prep: 08.23.19
MB Sample Id: 7684919-1-BLK LCS Sample Id: 7684919-1-BKS LCSD Sample Id: 7684919-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0902	90	0.0906	91	70-130	0	35	mg/kg	08.23.19 19:45	
Toluene	<0.00100	0.100	0.0999	100	0.0950	95	70-130	5	35	mg/kg	08.23.19 19:45	
Ethylbenzene	<0.00100	0.100	0.114	114	0.110	110	71-129	4	35	mg/kg	08.23.19 19:45	
m,p-Xylenes	<0.00200	0.200	0.231	116	0.226	113	70-135	2	35	mg/kg	08.23.19 19:45	
o-Xylene	<0.00100	0.100	0.114	114	0.112	112	71-133	2	35	mg/kg	08.23.19 19:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		106		101		80-120	%	08.23.19 19:45
4-Bromofluorobenzene	118		112		114		80-120	%	08.23.19 19:45

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3099530 Matrix: Soil Date Prep: 08.23.19
Parent Sample Id: 634675-001 MS Sample Id: 634675-001 S MSD Sample Id: 634675-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000996	0.0996	0.0893	90	0.0936	94	70-130	5	35	mg/kg	08.23.19 20:25	
Toluene	0.110	0.0996	0.127	17	0.121	11	70-130	5	35	mg/kg	08.23.19 20:25	X
Ethylbenzene	0.204	0.0996	0.204	0	0.188	0	71-129	8	35	mg/kg	08.23.19 20:25	X
m,p-Xylenes	0.690	0.199	0.622	0	0.567	0	70-135	9	35	mg/kg	08.23.19 20:25	X
o-Xylene	0.392	0.0996	0.363	0	0.333	0	71-133	9	35	mg/kg	08.23.19 20:25	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		114		80-120	%	08.23.19 20:25
4-Bromofluorobenzene	119		117		80-120	%	08.23.19 20:25

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: 634675

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:	Dan Moir	Bill to: (if different)	Kyle Littrel
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:	Carlsbad, NM
Phone:	432.704.5178	Email:	dmoir@ltenv.com rmcafee@ltenv.com

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:		Routine	☑
P.O. Number:	2RP-5552	Rush:	
Sampler's Name:	Robert McAfee	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	2.8	Thermometer ID		
Received Intact:	(Yes) No	TNM007		
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	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
~~SW03~~ SW02	S	06/20/19	1155	0-3'	1	X	X	X	Composite

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 Robert McAfee	Courtney	8/20/19 16:05	2		
3			4		
5			6		

Analytical Report 638985

for

LT Environmental, Inc.

Project Manager: Dan Moir

Severus CTB

012918149

08-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

08-OCT-19

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

Reference: XENCO Report No(s): **638985**
Severus CTB
Project Address: Lee County

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 638985. 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. 638985 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 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH02	S	10-02-19 10:02	1 ft	638985-001
BH03	S	10-02-19 10:32	1 ft	638985-002
BH04	S	10-02-19 11:02	1 ft	638985-003
BH05	S	10-02-19 11:32	1 ft	638985-004
BH02A	S	10-02-19 10:12	4 ft	638985-005
BH03A	S	10-02-19 10:42	4 ft	638985-006
BH04A	S	10-02-19 11:12	4 ft	638985-007
BH05A	S	10-02-19 11:42	4 ft	638985-008

Sample receipt non conformances and comments:

Per clients email, corrected sample names. See below. NEW VERSION GENERATED. JK 10/08/19
BH01A -> BH02
BH02A -> BH03
BH03A -> BH04
BH04A -> BH05
BH01D -> BH02A
BH02D -> BH03A
BH03D -> BH04A
BH04D -> BH05A

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3103523 TPH by SW8015 Mod
Gasoline Range Hydrocarbons (GRO) recovered above QC limits Analyte was not detected in any of the associated samples and therefore the data was accepted.Diesel Range Organics (DRO) recovered above QC limits in the Blank Spike and Duplicate indicating a potential high bias. Samples in the analytical batch are: 638985-001, -002, -003, -004, -005, -006, -007, -008.The MS/MSD shows recovery for the batch.

Surrogate 1-Chlorooctane, Surrogate o-Terphenyl recovered above QC limits Data confirmed by re-analysis. Samples affected are: 7687566-1-BKS,7687566-1-BSD.

Batch: LBA-3103526 BTEX by EPA 8021B
m,p-Xylenes RPD was outside laboratory control limits.
Samples in the analytical batch are: 638985-001, -002, -003, -004, -005, -006, -007, -008
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 638985

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 012918149
Contact: Dan Moir
Project Location: Lee County

Date Received in Lab: Thu Oct-03-19 03:45 pm
Report Date: 08-OCT-19
Project Manager: Jessica Kramer

Analysis Requested	*Lab Id:*	638985-001		638985-002		638985-003		638985-004		638985-005		638985-006	
	Field Id:	BH02		BH03		BH04		BH05		BH02A		BH03A	
	Depth:	1- ft		1- ft		1- ft		1- ft		4- ft		4- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-02-19 10:02		Oct-02-19 10:32		Oct-02-19 11:02		Oct-02-19 11:32		Oct-02-19 10:12		Oct-02-19 10:42	
BTEX by EPA 8021B SUB: T104704400-19-19	*Extracted:*	Oct-04-19 13:30		Oct-04-19 13:30		Oct-04-19 13:30		Oct-04-19 13:30		Oct-04-19 13:30		Oct-04-19 13:30	
	Analyzed:	Oct-06-19 02:44		Oct-06-19 03:05		Oct-06-19 03:25		Oct-06-19 03:45		Oct-06-19 04:05		Oct-06-19 04:25	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
Toluene		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
Ethylbenzene		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
m,p-Xylenes		<0.00398	0.00398	<0.00404	0.00404	<0.00398	0.00398	<0.00396	0.00396	<0.00399	0.00399	<0.00397	0.00397
o-Xylene		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
Total Xylenes		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
Total BTEX		<0.00199	0.00199	<0.00202	0.00202	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198
Chloride by EPA 300 SUB: T104704400-19-19	*Extracted:*	Oct-04-19 16:30		Oct-04-19 16:30		Oct-04-19 16:30		Oct-04-19 16:30		Oct-04-19 16:30		Oct-04-19 16:30	
	Analyzed:	Oct-04-19 19:02		Oct-04-19 19:07		Oct-04-19 19:13		Oct-04-19 19:18		Oct-04-19 19:34		Oct-04-19 19:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		44.8	5.03	5.57	5.00	60.5	4.96	<4.99	4.99	<5.02	5.02	<5.05	5.05
TPH by SW8015 Mod SUB: T104704400-19-19	*Extracted:*	Oct-04-19 16:00		Oct-04-19 16:00		Oct-04-19 16:00		Oct-04-19 16:00		Oct-04-19 16:00		Oct-04-19 16:00	
	Analyzed:	Oct-05-19 01:15		Oct-05-19 01:36		Oct-05-19 01:56		Oct-05-19 02:38		Oct-05-19 02:59		Oct-05-19 03:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<49.9	49.9	<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.9	49.9
Diesel Range Organics (DRO)		757	49.9	<49.9	49.9	<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.9	49.9
Motor Oil Range Hydrocarbons (MRO)		57.8	49.9	<49.9	49.9	<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.9	49.9
Total GRO-DRO		757	49.9	<49.9	49.9	<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.9	49.9
Total TPH		815	49.9	<49.9	49.9	<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.9	49.9

Certificate of Analysis Summary 638985

LT Environmental, Inc., Arvada, CO

Project Name: Severus CTB

Project Id: 012918149
Contact: Dan Moir
Project Location: Lee County

Date Received in Lab: Thu Oct-03-19 03:45 pm
Report Date: 08-OCT-19
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	638985-007		638985-008					
	Field Id:	BH04A		BH05A					
	Depth:	4- ft		4- ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Oct-02-19 11:12		Oct-02-19 11:42					
BTEX by EPA 8021B SUB: T104704400-19-19	***Extracted:***	Oct-04-19 13:30		Oct-04-19 13:30					
	Analyzed:	Oct-06-19 04:45		Oct-06-19 05:05					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00199	0.00199				
Toluene		<0.00200	0.00200	<0.00199	0.00199				
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199				
m,p-Xylenes		<0.00401	0.00401	<0.00398	0.00398				
o-Xylene		<0.00200	0.00200	<0.00199	0.00199				
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199				
Total BTEX		<0.00200	0.00200	<0.00199	0.00199				
Chloride by EPA 300 SUB: T104704400-19-19	***Extracted:***	Oct-04-19 16:30		Oct-04-19 16:30					
	Analyzed:	Oct-04-19 19:44		Oct-04-19 19:50					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		<5.05	5.05	<5.05	5.05				
TPH by SW8015 Mod SUB: T104704400-19-19	***Extracted:***	Oct-04-19 16:00		Oct-04-19 16:00					
	Analyzed:	Oct-05-19 03:41		Oct-05-19 04:02					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<50.0	50.0				
Diesel Range Organics (DRO)		<49.8	49.8	<50.0	50.0				
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<50.0	50.0				
Total GRO-DRO		<49.8	49.8	<50.0	50.0				
Total TPH		<49.8	49.8	<50.0	50.0				

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH02**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-001	Date Collected:	10.02.19 10.02	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.8**	5.03	mg/kg	10.04.19 19.02		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.05.19 01.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	**757**	49.9	mg/kg	10.05.19 01.15		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**57.8**	49.9	mg/kg	10.05.19 01.15		1
Total GRO-DRO	PHC628	**757**	49.9	mg/kg	10.05.19 01.15		1
Total TPH	PHC635	**815**	49.9	mg/kg	10.05.19 01.15		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	10.05.19 01.15	
o-Terphenyl	84-15-1	131	%	70-135	10.05.19 01.15	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH02**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-001	Date Collected:	10.02.19 10.02	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.06.19 02.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.06.19 02.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	10.06.19 02.44	
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.06.19 02.44	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH03**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-002	Date Collected:	10.02.19 10.32	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.57**	5.00	mg/kg	10.04.19 19.07		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.05.19 01.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.05.19 01.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.05.19 01.36	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	10.05.19 01.36	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.05.19 01.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	10.05.19 01.36	
o-Terphenyl	84-15-1	114	%	70-135	10.05.19 01.36	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH03**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-002	Date Collected:	10.02.19 10.32	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	10.06.19 03.05	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.06.19 03.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	10.06.19 03.05	
1,4-Difluorobenzene	540-36-3	100	%	70-130	10.06.19 03.05	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH04**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-003	Date Collected:	10.02.19 11.02	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**60.5**	4.96	mg/kg	10.04.19 19.13		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	10.05.19 01.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	10.05.19 01.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.05.19 01.56	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	10.05.19 01.56	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.05.19 01.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	10.05.19 01.56	
o-Terphenyl	84-15-1	121	%	70-135	10.05.19 01.56	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH04**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-003	Date Collected:	10.02.19 11.02	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.06.19 03.25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.06.19 03.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.06.19 03.25	
4-Bromofluorobenzene	460-00-4	124	%	70-130	10.06.19 03.25	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH05**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-004	Date Collected:	10.02.19 11.32	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	10.04.19 19.18	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.05.19 02.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.05.19 02.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.05.19 02.38	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	10.05.19 02.38	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.05.19 02.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	10.05.19 02.38	
o-Terphenyl	84-15-1	124	%	70-135	10.05.19 02.38	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH05**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-004	Date Collected:	10.02.19 11.32	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	10.06.19 03.45	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.06.19 03.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	10.06.19 03.45	
1,4-Difluorobenzene	540-36-3	96	%	70-130	10.06.19 03.45	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH02A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-005	Date Collected:	10.02.19 10.12	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	10.04.19 19.34	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.05.19 02.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.05.19 02.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.05.19 02.59	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	10.05.19 02.59	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.05.19 02.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	10.05.19 02.59	
o-Terphenyl	84-15-1	128	%	70-135	10.05.19 02.59	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH02A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-005	Date Collected:	10.02.19 10.12	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.06.19 04.05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.06.19 04.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	98	%	70-130	10.06.19 04.05	
4-Bromofluorobenzene	460-00-4	126	%	70-130	10.06.19 04.05	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH03A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-006	Date Collected:	10.02.19 10.42	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	10.04.19 19.39	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.05.19 03.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.05.19 03.20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.05.19 03.20	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	10.05.19 03.20	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.05.19 03.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	10.05.19 03.20	
o-Terphenyl	84-15-1	126	%	70-135	10.05.19 03.20	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH03A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-006	Date Collected:	10.02.19 10.42	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.06.19 04.25	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.06.19 04.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	10.06.19 04.25	
1,4-Difluorobenzene	540-36-3	97	%	70-130	10.06.19 04.25	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH04A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-007	Date Collected:	10.02.19 11.12	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	10.04.19 19.44	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	10.05.19 03.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	10.05.19 03.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.05.19 03.41	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	10.05.19 03.41	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.05.19 03.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	10.05.19 03.41	
o-Terphenyl	84-15-1	124	%	70-135	10.05.19 03.41	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH04A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-007	Date Collected:	10.02.19 11.12	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.06.19 04.45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.06.19 04.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	10.06.19 04.45	
4-Bromofluorobenzene	460-00-4	106	%	70-130	10.06.19 04.45	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH05A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-008	Date Collected:	10.02.19 11.42	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	10.04.19 16.30	Basis:	Wet Weight
Seq Number:	3103436			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	10.04.19 19.50	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	10.04.19 16.00	Basis:	Wet Weight
Seq Number:	3103523			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.05.19 04.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.05.19 04.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.05.19 04.02	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	10.05.19 04.02	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.05.19 04.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	10.05.19 04.02	
o-Terphenyl	84-15-1	124	%	70-135	10.05.19 04.02	

Certificate of Analytical Results 638985

LT Environmental, Inc., Arvada, CO

Severus CTB

Sample Id:	**BH05A**	Matrix:	Soil	Date Received:	10.03.19 15.45
Lab Sample Id:	638985-008	Date Collected:	10.02.19 11.42	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	10.04.19 13.30	Basis:	Wet Weight
Seq Number:	3103526			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.06.19 05.05	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.06.19 05.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.06.19 05.05	
1,4-Difluorobenzene	540-36-3	100	%	70-130	10.06.19 05.05	

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 638985

LT Environmental, Inc.

Severus CTB

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3103436 Matrix: Solid Date Prep: 10.04.19
MB Sample Id: 7687543-1-BLK LCS Sample Id: 7687543-1-BKS LCSD Sample Id: 7687543-1-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	237	95	237	95	90-110	0	20	mg/kg	10.04.19 18:36	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3103436 Matrix: Soil Date Prep: 10.04.19
Parent Sample Id: 639005-009 MS Sample Id: 639005-009 S MSD Sample Id: 639005-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.02	249	241	95	241	95	90-110	0	20	mg/kg	10.04.19 18:52	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3103436 Matrix: Soil Date Prep: 10.04.19
Parent Sample Id: 639005-010 MS Sample Id: 639005-010 S MSD Sample Id: 639005-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.64	252	243	95	243	95	90-110	0	20	mg/kg	10.04.19 20:06	

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3103523 Matrix: Solid Date Prep: 10.04.19
MB Sample Id: 7687566-1-BLK LCS Sample Id: 7687566-1-BKS LCSD Sample Id: 7687566-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1380	138	1150	115	70-135	18	20	mg/kg	10.04.19 21:25	H
Diesel Range Organics (DRO)	<15.0	1000	1670	167	1450	145	70-135	14	20	mg/kg	10.04.19 21:25	H

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		176	**	153	**	70-135	%	10.04.19 21:25
o-Terphenyl	110		180	**	158	**	70-135	%	10.04.19 21:25

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 638985

LT Environmental, Inc.

Severus CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3103523 Matrix: Soil Date Prep: 10.04.19
Parent Sample Id: 638334-008 MS Sample Id: 638334-008 S MSD Sample Id: 638334-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	829	83	826	83	70-135	0	20	mg/kg	10.04.19 22:27	
Diesel Range Organics (DRO)	<15.0	997	1010	101	997	100	70-135	1	20	mg/kg	10.04.19 22:27	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		110		70-135	%	10.04.19 22:27
o-Terphenyl	119		119		70-135	%	10.04.19 22:27

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3103526 Matrix: Solid Date Prep: 10.04.19
MB Sample Id: 7687500-1-BLK LCS Sample Id: 7687500-1-BKS LCSD Sample Id: 7687500-1-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	0.0992	99	0.0998	100	70-130	1	35	mg/kg	10.06.19 00:45	
Toluene	<0.00200	0.100	0.0902	90	0.0992	99	70-130	10	35	mg/kg	10.06.19 00:45	
Ethylbenzene	<0.00200	0.100	0.0792	79	0.109	109	70-130	32	35	mg/kg	10.06.19 00:45	
m,p-Xylenes	<0.00400	0.200	0.155	78	0.223	112	70-130	36	35	mg/kg	10.06.19 00:45	F
o-Xylene	<0.00200	0.100	0.0848	85	0.116	116	70-130	31	35	mg/kg	10.06.19 00:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		99		98		70-130	%	10.06.19 00:45
4-Bromofluorobenzene	114		120		125		70-130	%	10.06.19 00:45

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3103526 Matrix: Soil Date Prep: 10.04.19
Parent Sample Id: 638985-001 MS Sample Id: 638985-001 S MSD Sample Id: 638985-001 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	0.0915	92	0.0934	92	70-130	2	35	mg/kg	10.06.19 01:25	
Toluene	<0.00199	0.0994	0.0924	93	0.0937	93	70-130	1	35	mg/kg	10.06.19 01:25	
Ethylbenzene	<0.00199	0.0994	0.0972	98	0.100	99	70-130	3	35	mg/kg	10.06.19 01:25	
m,p-Xylenes	<0.00398	0.199	0.200	101	0.206	102	70-130	3	35	mg/kg	10.06.19 01:25	
o-Xylene	<0.00199	0.0994	0.102	103	0.0986	98	70-130	3	35	mg/kg	10.06.19 01:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		97		70-130	%	10.06.19 01:25
4-Bromofluorobenzene	125		129		70-130	%	10.06.19 01:25

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

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
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Work Order No: e38989

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

Work Order Comments

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

Project Name:	Severus CTB	Turn Around	
Project Number:	012918149	Routine ☐	
P.O. Number:	Lee County	Rush: 24hr	
Sampler's Name:	William Mather	Due Date: 10/4/19	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	1.0	Thermometer ID		
Received Intact:	(Yes) No	T-NM-007		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes (No) N/A	Total Containers:	8	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth (ft)	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
BH01A	s	10/2/2019	10:02	1	1	x	x	x	discrete
BH02A	s	10/2/2019	10:32	1	1	x	x	x	discrete
BH03A	s	10/2/2019	11:02	1	1	x	x	x	discrete
BH04A	s	10/2/2019	11:32	1	1	x	x	x	discrete
BH01D	s	10/2/2019	10:12	4	1	x	x	x	discrete
BH02D	s	10/2/2019	10:42	4	1	x	x	x	discrete
BH03D	s	10/2/2019	11:12	4	1	x	x	x	discrete
BH04D	s	10/2/2019	11:42	4	1	x	x	x	discrete

Work Order Notes

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

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			10/3/2019 15:45	2		10/3/19 15:45
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

Final 1.001

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Inter-Office Shipment

IOS Number **49347**

Date/Time: 10/03/19 16:58
Created by: Elizabeth Mcclellan
Please send report to: Jessica Kramer

Lab# From: **Carlsbad**
Delivery Priority:
Address: 1089 N Canal Street

Lab# To: **Midland**
Air Bill No.:
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
638985-001	S	BH01A	10/02/19 10:02	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-001	S	BH01A	10/02/19 10:02	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-001	S	BH01A	10/02/19 10:02	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-002	S	BH02A	10/02/19 10:32	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-002	S	BH02A	10/02/19 10:32	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-002	S	BH02A	10/02/19 10:32	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-003	S	BH03A	10/02/19 11:02	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-003	S	BH03A	10/02/19 11:02	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-003	S	BH03A	10/02/19 11:02	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-004	S	BH04A	10/02/19 11:32	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-004	S	BH04A	10/02/19 11:32	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-004	S	BH04A	10/02/19 11:32	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-005	S	BH01D	10/02/19 10:12	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-005	S	BH01D	10/02/19 10:12	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-005	S	BH01D	10/02/19 10:12	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-006	S	BH02D	10/02/19 10:42	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-006	S	BH02D	10/02/19 10:42	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-006	S	BH02D	10/02/19 10:42	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-007	S	BH03D	10/02/19 11:12	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-007	S	BH03D	10/02/19 11:12	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-007	S	BH03D	10/02/19 11:12	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	
638985-008	S	BH04D	10/02/19 11:42	SW8021B	BTEX by EPA 8021B	10/04/19	10/16/19	JKR	BR4FBZ BZ BZME EBZ X	
638985-008	S	BH04D	10/02/19 11:42	E300_CL	Chloride by EPA 300	10/04/19	03/30/20	JKR	CL	
638985-008	S	BH04D	10/02/19 11:42	SW8015MOD_NM	TPH by SW8015 Mod	10/04/19	10/16/19	JKR	GRO-DRO PHCC10C28 PI	

Inter-Office Shipment

IOS Number **49347**

Date/Time: 10/03/19 16:58
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.:

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

Inter Office Shipment or Sample Comments:

Relinquished By: Elizabeth McClellan

Date Relinquished: 10/03/2019

Received By: Brianna Teel

Date Received: 10/04/2019 00:00

Cooler Temperature: 0.3

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 49347

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

Sent By: Elizabeth McClellan **Date Sent:** 10/03/2019 04:58 PM

Received By: Brianna Teel **Date Received:** 10/04/2019 12:00 AM

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

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

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

Checklist reviewed by: Brianna Teel Date: 10/04/2019

Brianna Teel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/03/2019 03:45:00 PM

Work Order #: 638985

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

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1	
#2 *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**	Subbed to Midland
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 10/03/2019

Checklist reviewed by: Jessica Kramer Date: 10/04/2019