

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	NMAP1825437863
District RP	2RP-4958
Facility ID	N/A
Application ID	pMAP1824961831

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email Kyle_Littrell@xtoenergy.com	Incident # (assigned by OCD)
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.290595 Longitude -103.92319
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Remuda Basin Central Tank Battery	Site Type Bulk Storage Facility
Date Release Discovered 8/21/2018	API# (if applicable) 30-015-28422 (Remuda Basin State 01Q)

Unit Letter	Section	Township	Range	County
F	19	23S	30E	Eddy

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 1	Volume Recovered (bbls) 1
☒ Produced Water	Volume Released (bbls) 54	Volume Recovered (bbls) 49
	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

A fuse burned out and caused the high level alarm at the battery to fail. The transfer pump did not receive the signal to turn on and a tank overflowed into the earthen containment surrounding the tanks. Vacuum trucks were dispatched and recovered all standing fluid. An environmental contractor will be retained to assist with remediation efforts.

Form C-141

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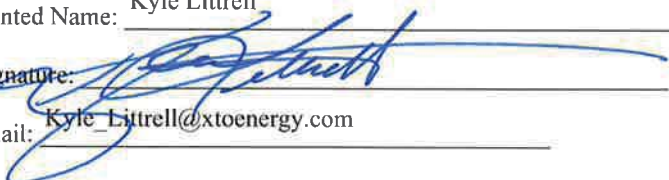
State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? This is an unauthorized release of a volume of 25 barrels or more.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, notice was provided by Jacob Foust to Mike Bratcher/Maria Pruett of the OCD and Ryan Mann of the SLO on 8/21/2018 at 10:58 am by email.	

Initial Response

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

☒ 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 <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u> Signature:  email: <u>Kyle_Littrell@xtoenergy.com</u>	Title: <u>SH&E Coordinator</u> Date: <u>9/4/2018</u> Telephone: <u>432-221-7331</u>
OCD Only Received by:  Date: <u>09/06/18</u>	

Incident ID	NMAP1825437863
District RP	2RP-4958
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>50-100</u> (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

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Incident ID	NMAP1825437863
District RP	2RP-3179
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: _____ Environmental Manager _____

Signature: _____  _____ Date: ____ 6/11/2021 _____

email: _____ Kyle_Littrell@exxonmobil.com _____ Telephone: ____ (432)-221-7331 _____

OCD Only

Received by: _____ Date: _____

Incident ID	NMAP1825437863
District RP	2RP-3179
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: _____ Environmental Manager _____

Signature: _____  _____ Date: 6/11/2021 _____

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

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Nelson Velaz _____ Date: 05/26/2022 _____



WSP USA

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

June 11, 2021

District II
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

**RE: Deferral Request Addendum
 Remuda Basin Central Tank Battery
 Remediation Permit Number 2RP-4958
 Incident Number NMAP1825437863
 Eddy County, New Mexico**

To Whom It May Concern:

WSP USA Inc. (WSP), on behalf of XTO Energy, Inc. (XTO), presents the following addendum to an original Deferral Request submitted November 19, 2018. This addendum details additional delineation, excavation, and soil sampling activities conducted at the Remuda Basin Central Tank Battery (Site) located in Unit F, Section 19, Township 23 South, Range 30 East, in Eddy County, New Mexico (Figure 1) in response to the denial of the Deferral Request by the New Mexico Oil Conservation Division (NMOCD). In the denial, NMOCD requested additional soil sampling activities to fully delineate the release. Based on the additional delineation and remediation work completed, XTO is submitting this Deferral Request Addendum, requesting deferral of final remediation for Remediation Permit Number (RP) 2RP-4958 and Incident Number NMAP1825437863.

BACKGROUND

On August 21, 2018, a fuse burned out, causing the high-level alarm at the battery to fail. The transfer pump did not receive the signal to engage and a tank overflowed into the earthen containment surrounding the tanks. Approximately 1 barrel (bbl) of crude oil and 54 bbls of produced water were released into the containment area and onto the west side of the caliche well pad. Vacuum trucks were immediately dispatched to the Site to recover free-standing fluids. Approximately 1 bbl of crude oil and 49 bbls of produced water were recovered. The release was contained on site within the earthen containment. XTO reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 (Form C-141) on August 24, 2018 and was assigned RP Number 2RP-4958 and Incident Number NMAP1825437863.

Based on the site characterization described in the original Deferral Request, the following Closure Criteria were applied:

- Benzene: 10 milligrams per kilogram (mg/kg)



- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH): 100 mg/kg
- Chloride: 600 mg/kg.

Site receptors are depicted on Figure 1 and well records are included in Attachment 1.

As detailed in the original Deferral Request, XTO excavated 540 yards of soil between October 25, 2018 and November 15, 2018. Impacted soil containing elevated hydrocarbon and chloride concentrations, as indicated by excavation floor samples FS01 through FS06 and sidewall samples SW01 through SW06, was left in place due to challenges associated with excavating shallow competent bedrock and XTO's safety policy regarding earth-moving activities near production equipment and flow lines. The release extent, original excavation and associated excavation samples are depicted on Figure 2. Following the excavation, XTO submitted a Deferral Request on November 19, 2018 requesting to leave impacted soil near active production equipment in place until final plugging and abandonment. Following the submittal, the excavation was backfilled so the active production equipment could be returned to operation and the equipment could be safely accessed by XTO personnel.

On April 3, 2019, NMOCD denied the Deferral Request for Incident Number NMAP1825437863 with the following response:

- *Please take additional samples moving out from the perimeter of the excavation so that we have a better idea of the actual size of the spill. Also, please delineate vertically (1, 2, 3 ft intervals) as far as you can go before hitting bedrock.*

The following sections detail efforts to fully delineate the release as requested by NMOCD.

DELINEATION ACTIVITIES AND ANALYTICAL RESULTS

Between November 12, 2018 and December 30, 2019, WSP personnel returned to the Site multiple times to attempt delineation activities. Potholes PH01 through PH07 were advanced via track mounted backhoe and boreholes BH01 through BH34 were advanced via hand auger on the well pad and surrounding pasture. The terminal depth of the potholes and boreholes was determined by refusal at the presence of shallow, competent bedrock typically encountered between 1 and 2 feet below ground surface (bgs). Two discrete delineation samples were collected from each pothole and borehole from depths ranging from 0.5 feet to 2.5 feet bgs. Soil from the potholes and boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the potholes and boreholes were logged on lithologic/soil sampling logs, which are included in Attachment 2.



Potholes PH03, PH05 through PH07, and boreholes BH06 through BH11, BH17, BH18, BH23 through BH29, and BH31 were advanced on pad and potholes PH01, PH02, and PH04 and boreholes BH01 through BH05, BH12 through BH16, BH19 through BH22, BH30, and BH32 through BH34 were advanced in off pad pasture areas. All delineation pothole and borehole sample locations are depicted on Figure 3. Photo documentation was completed, and a photographic log is included in Attachment 3.

The delineation 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 transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Xenco Laboratories (Eurofins Xenco) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH- diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Boreholes BH15 and BH22 were advanced as background borings away from any active well production equipment and in areas exhibiting healthy vegetation to establish naturally occurring chloride concentrations. Laboratory analytical results for samples collected from background boreholes BH15 and BH22, indicated naturally occurring chloride concentrations ranging from 14.1 mg/kg to 889 mg/kg.

Laboratory analytical results for the delineation soil samples from potholes PH01 through PH03, PH05 through PH07, BH02 through BH14, BH16, BH19, and BH22 indicated that benzene and BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria or below the background chloride concentration of 889 mg/kg. Laboratory analytical results for all other delineation soil samples exceeded the Closure Criteria for TPH and/or the background chloride concentration. TPH concentrations exceeding the Closure Criteria ranged from 130 mg/kg to 18,700 mg/kg. Chloride concentrations exceeding the naturally occurring chloride concentration and ranged from 1,030 mg/kg to 6,400 mg/kg. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Attachment 4.

Based on field screening activities and laboratory analytical results for the delineation pothole and borehole samples, multiple historical releases were encountered at the Site. XTO proceeded with additional excavation at select locations to carefully remove impacted soil near production equipment and in isolated areas that appeared unrelated to the reported release. WSP personnel oversaw the excavation of impacted soil at 13 locations, on and off pad using a hydrovacuum truck.

OFF-PAD EXCAVATION ACTIVITIES

Between August 2019 and May 2020 WSP personnel were at the Site to oversee supplemental excavation activities in spot locations. The excavations were advanced to competent bedrock,



where refusal was encountered. The excavations were each less than 200 square feet in area. WSP personnel collected one composite soil sample from each excavation (FS07, FS08/FS08A, FS10/FS10A, FS12, FS11, FS16, FS15, FS14, and FS13) at depths ranging from 1 foot bgs to 2.5 feet bgs. Due to the shallow depth and small area of the excavations, floor samples were representative of the sidewalls. The soil samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing to form one composite sample. The soil samples were collected, handled, and analyzed as described above, and submitted to Xenco in Carlsbad, New Mexico. The excavation extents and excavation sample locations are identified in Figure 4.

Laboratory analytical results for excavation samples FS08 and FS10 initially exceeded the Closure Criteria for chloride. Additional soil was removed from these areas and subsequent excavation samples FS08A and FS10A were compliant with the Closure Criteria. Laboratory analytical results for all final excavation soil samples collected in the pasture indicated that benzene and BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria or below the background chloride concentration of 889 mg/kg. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Attachment 4.

ON-PAD EXCAVATION AND REMEDIATION ACTIVITIES

Between September 2019 and July 2020 WSP personnel were at the Site to oversee excavation activities excavation on pad near boreholes BH23, BH24, BH25, and BH29. The excavations were advanced to competent bedrock. The excavations were each less than 200 square feet in area. WSP personnel collected one composite soil sample from each excavation (FS09, FS19, FS18, and FS17) at depths ranging from 1 foot bgs to 3 feet bgs. Due to the shallow depth of the excavations, floor samples were representative of the sidewalls. The soil samples were collected, handled, and analyzed as described above, and submitted to Xenco in Carlsbad, New Mexico. The excavation extents and excavation sample locations are identified in Figure 4.

Laboratory analytical results for excavation samples FS09 and FS18 indicate that benzene, BTEX, TPH and chloride concentrations were compliant with Closure Criteria or background chloride concentrations. Laboratory analytical results for excavation samples FS17 and FS19, collected on pad near active production equipment, indicated TPH concentrations exceeded the Closure Criteria. In addition, soil contained concentrations of chloride exceeding the background of 889 mg/kg in FS17.

Excavation was not completed in the areas of on pad borings BH26, BH27, BH28, and BH31 due to proximity of active production equipment or pipelines. Portions of the area were hand excavated with the use of shovels where it was possible to do so. To address remaining TPH impacts identified on pad in those areas and the excavations represented by floor samples FS17 and FS19, WSP personnel oversaw the application of MicroBlaze®. These areas were sprayed with



a dilution of MicroBlaze® and freshwater, followed with raking. The MicroBlaze® dilution was reapplied in the excavated areas and sampling of the treated soil was planned in accordance with the calculations for biodegradation rates. The first application of MicroBlaze® occurred on May 13, 2020 and following subsequent applications, the final floor samples were collected on November 25, 2020. The application of MicroBlaze® resulted in the reduction of TPH concentrations from 10,800 mg/kg to 880 mg/kg in floor sample FS17 and from 3,180 mg/kg to 1,550 mg/kg in floor sample FS19. MicroBlaze® was applied to the areas around boreholes BH26, BH27, BH28, and BH31; however, no post MicroBlaze® application samples were collected. Based on the analytical results for the above floor samples, WSP observed an average TPH reduction rate of 71%. TPH concentrations in boreholes BH26, BH27, BH28, and BH31 initially ranged from 809 mg/kg collected at 0.5 feet bgs in BH27 to 143 mg/kg collected at 0.5 feet bgs in BH28. The terminal sample for each of those boreholes, collected at depths ranging from 1 foot to 1.5 feet bgs were compliant with Closure Criteria for TPH.

PEDESTRIAN KARST SURVEY

Following delineation of the Site, WSP requested a pedestrian karst survey be completed by a Bureau of Land Management (BLM) certified karst specialist to determine the presence or absence of surface karst-related features within approximately 650 feet of the Site. The presence or absence of karst features was investigated to better understand environmental receptors that would be affected by a deferral request. The survey was completed on January 30, 2020. No surface karst features were located within the pedestrian survey area. The complete survey report with the survey line is included in Attachment 5.

DEFERRAL REQUEST

A total of approximately 325 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place on pad immediately adjacent to active production equipment for compliance with XTO safety policy regarding earth moving activities within 2 feet of any active production equipment. Excavation was limited vertically by the presence of shallow competent bedrock, which is described and photographed in detail in the original Deferral Request.

An estimated 835 cubic yards of soil is left in place on pad near active production equipment and above competent bedrock assuming a maximum depth of 1 foot to 2 feet bgs. The deferral areas, approximately 11,275 square feet, is depicted on Figure 5. The deferral areas are fully delineated laterally and vertically to the north by BH12, BH14, and BH16, to the south by BH04 and BH05 and PH07, to the east by BH15, BH22, PH05, and PH06, and to the west by BH13, PH01, and PH02.

XTO requests to complete final remediation during any future major construction/alteration or final plugging and abandonment, whichever occurs first. WSP and XTO do not believe deferment

District II
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will result in imminent risk to human health, the environment, or groundwater based on the following Site conditions:

- The majority of the released fluids were recovered during initial response activities,
- The impacted soil remaining in place is limited to the on-pad areas surrounding the production equipment,
- A pedestrian survey was conducted of the Site by a BLM certified karst specialist and no surficial karst features were observed,
- Regional depth to groundwater in the area is documented to be greater than 100 feet bgs,
- Vertical migration of impacts is limited by the competent bedrock encountered at a maximum of 1.5 feet bgs, and
- No saturated soil remains in-place.

As such, WSP and XTO believe deferment is equally protective of human health, environment, and groundwater. XTO has addressed the reasons for denial provided by the NMOCD and respectfully requests deferral of final remediation for Incident Number NMAP1825437863 until any future major construction/alteration or final abandonment of the facility and well pad, whichever occurs first.

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

Sincerely,
WSP USA, INC.

A handwritten signature in black ink, reading 'Tacoma Morrissey'.

Tacoma Morrissey
Consultant, Geologist

A handwritten signature in black ink, reading 'Ashley L. Ager'.

Ashley L. Ager, P.G.
Managing Director, Geologist

cc: Kyle Littrell, XTO
Ryan Mann, New Mexico State Land Office

Attachments:

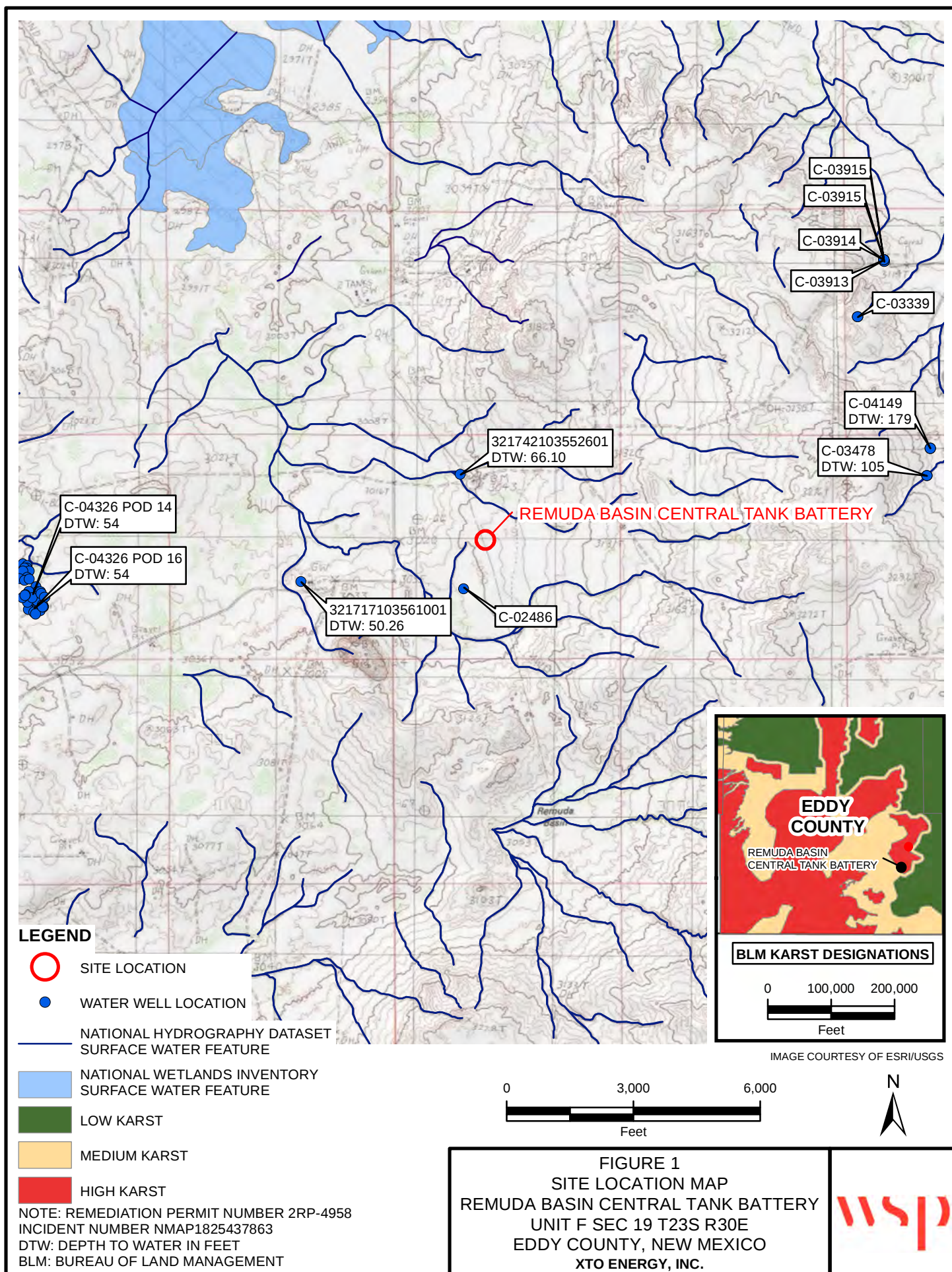
Figure 1 Site Location Map



District II
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Figure 2	2018 Excavation Soil Samples
Figure 3	Delineation Soil Samples
Figure 4	2019-2020 Excavation Soil Samples
Figure 5	Deferral Area
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	Lithologic / Soil Sample Logs
Attachment 3	Photographic Log
Attachment 4	Laboratory Analytical Reports
Attachment 5	Cave and Karst Resource Inventory Report

FIGURES



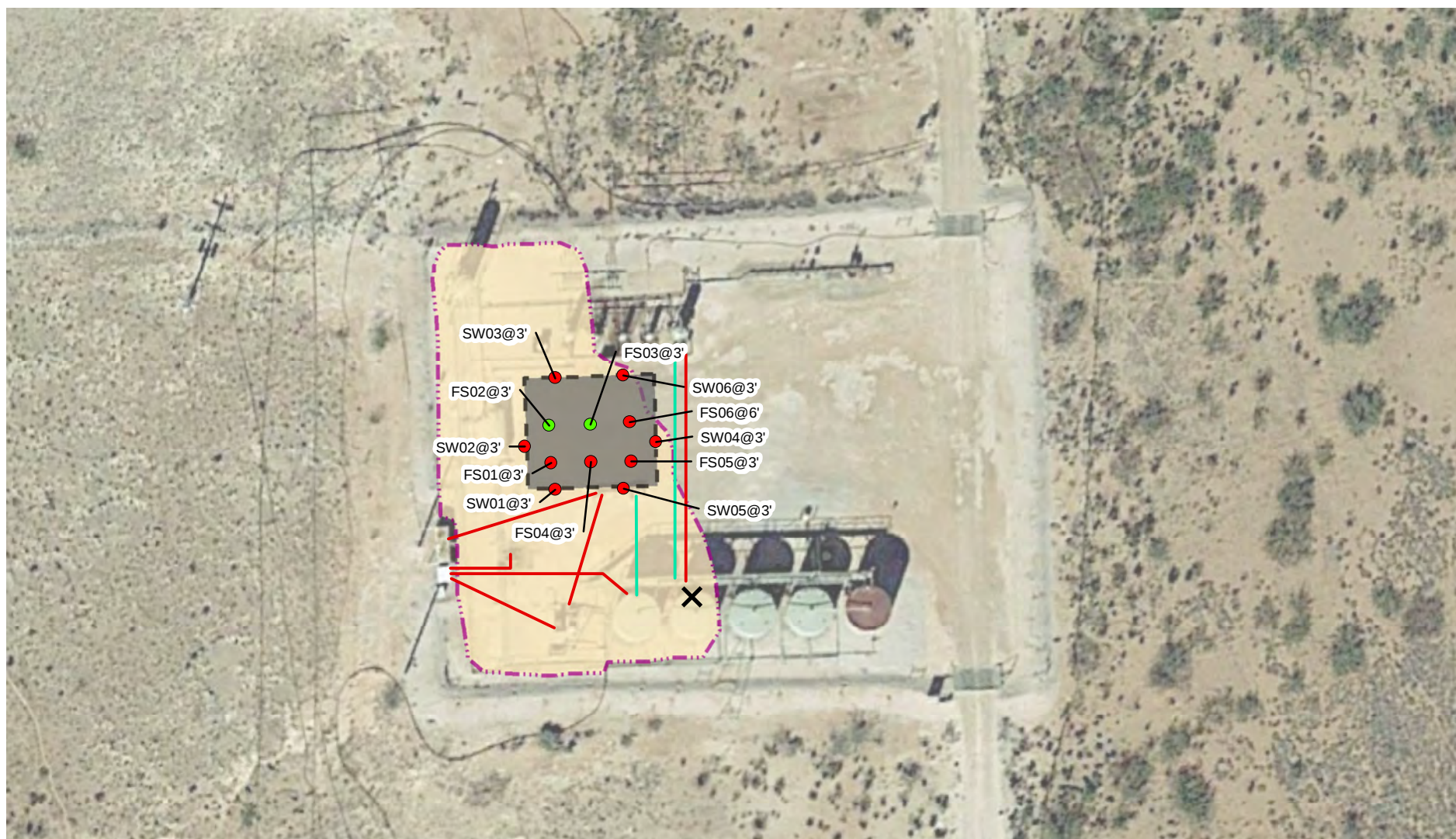


IMAGE COURTESY OF GOOGLE EARTH 2017

LEGEND

- | | | | |
|--------------------------------------|---|--|---------------------|
| X | RELEASE LOCATION | — | ELECTRIC LINE |
| ● | EXCAVATION SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE CLOSURE CRITERIA AND BACKGROUND | — | PRODUCED WATER LINE |
| ● | EXCAVATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA AND BACKGROUND | | RELEASE EXTENT |
| | | | EXCAVATION EXTENT |

NOTE: REMEDIATION PERMIT NUMBER 2RP-4958
INCIDENT NUMBER NMAP1825437863

FIGURE 2
2018 EXCAVATION SOIL SAMPLE LOCATIONS
REMUDA BASIN CENTRAL TANK BATTERY
UNIT F SEC 19 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



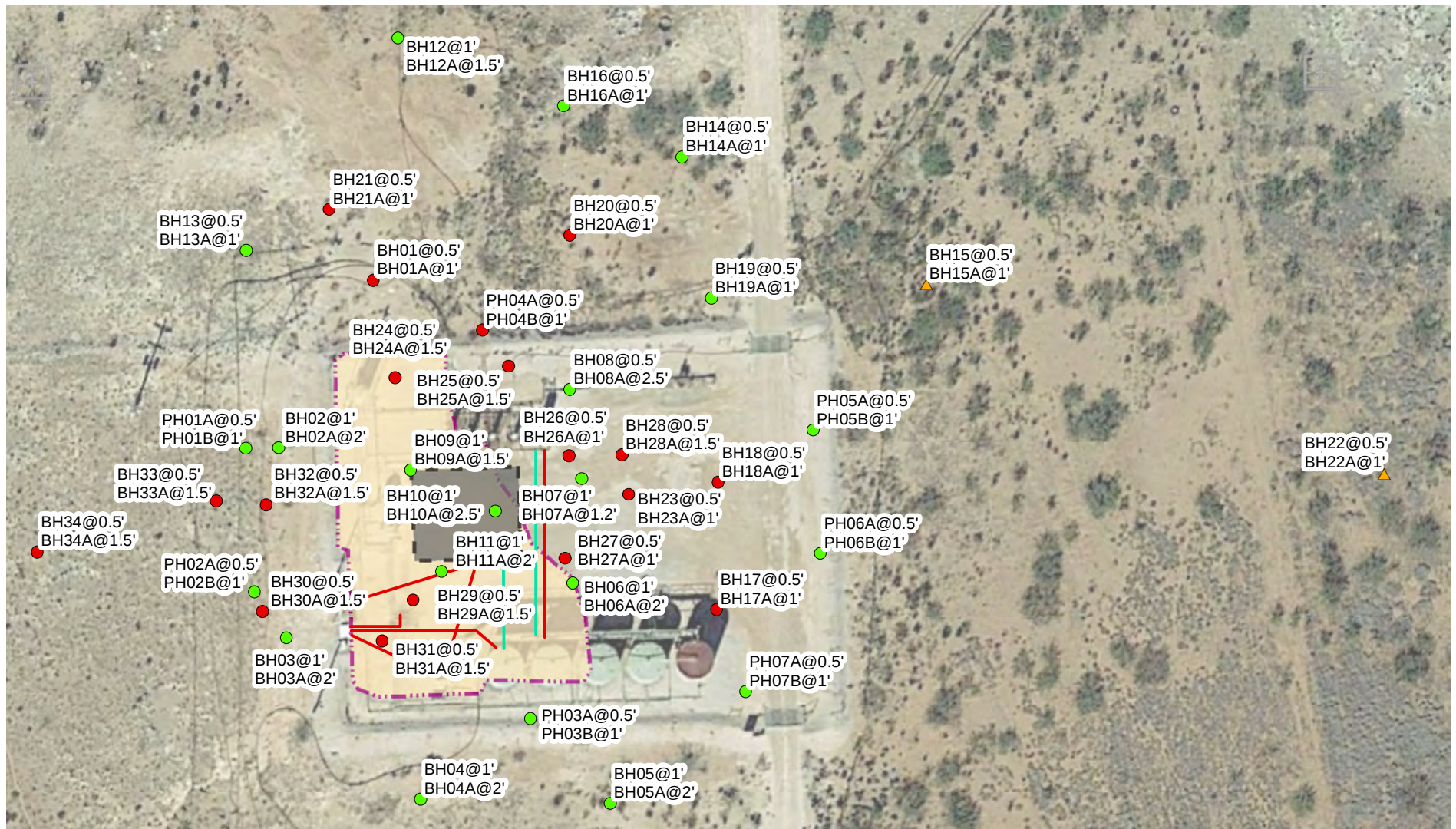


IMAGE COURTESY OF GOOGLE EARTH 2017

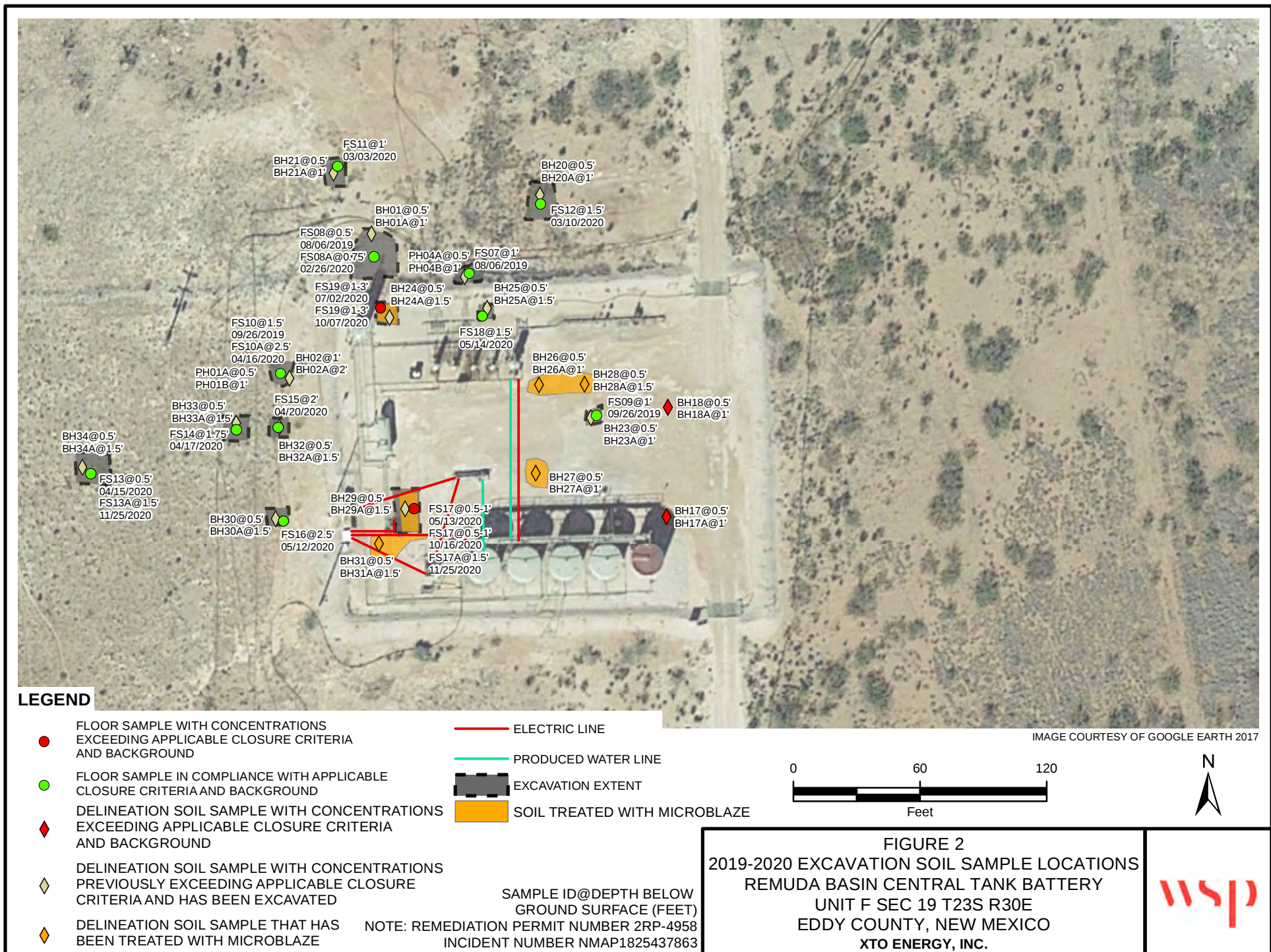
LEGEND

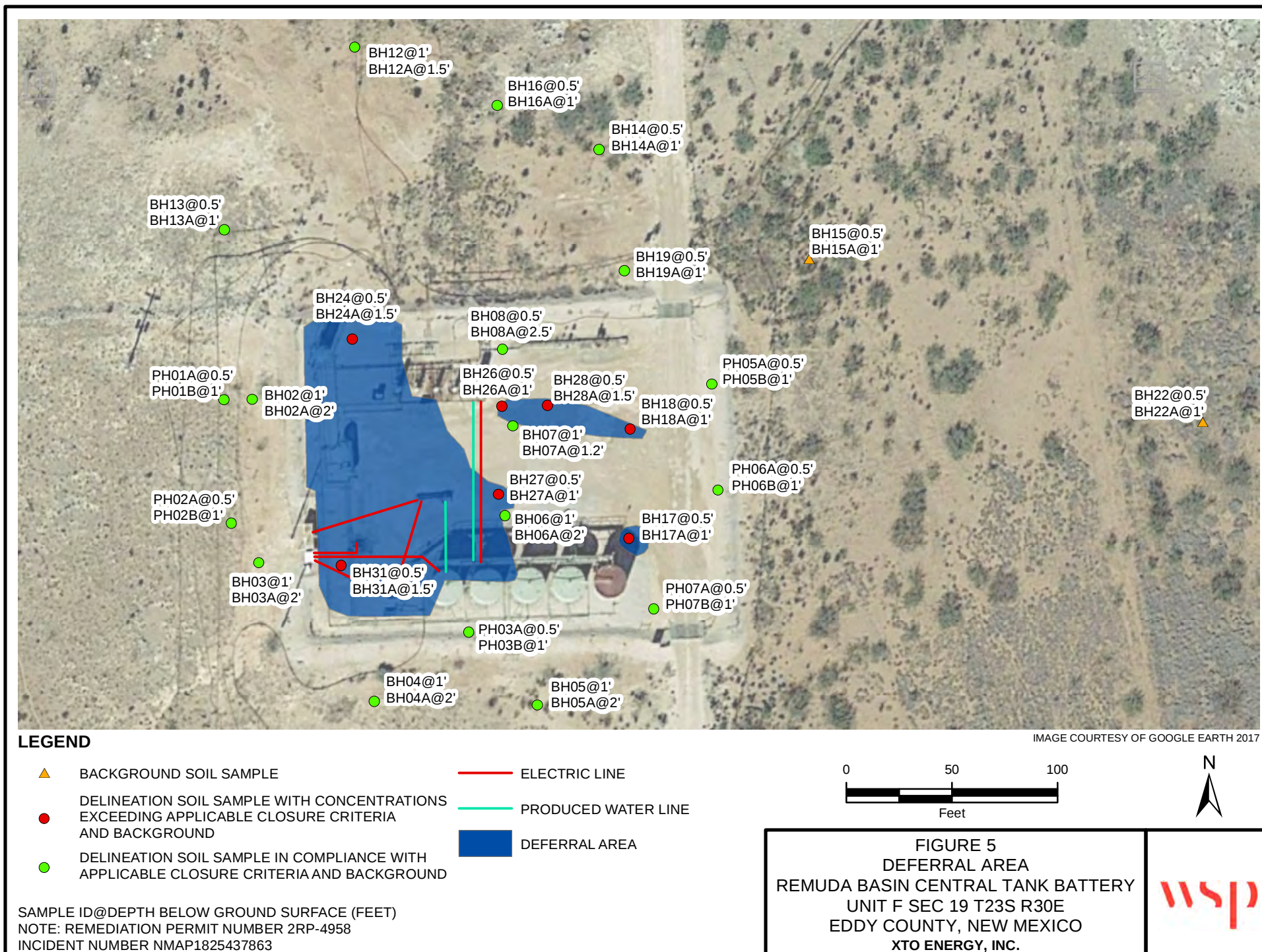
- ▲ BACKGROUND SOIL SAMPLE
- DELINEATION SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE CLOSURE CRITERIA AND BACKGROUND
- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA AND BACKGROUND
- ELECTRIC LINE
- PRODUCED WATER LINE
- RELEASE EXTENT
- EXCAVATION EXTENT

SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)
 NOTE: REMEDIATION PERMIT NUMBER 2RP-4958
 INCIDENT NUMBER NMAP1825437863

FIGURE 3
DELINEATION SOIL SAMPLE LOCATIONS
REMUDA BASIN CENTRAL TANK BATTERY
UNIT F SEC 19 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.







TABLES

Table 1

Soil Analytical Results
Remuda Basin Central Tank Battery
Incident Number NMAP1825437863
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
Delineation Samples										
PH01A	11/12/2018	0.5	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	352
PH01B	11/12/2018	1	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	<4.97
PH02A	11/12/2018	0.5	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	13.0
PH02B	11/12/2018	1	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	210
PH03A	11/13/2018	0.5	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	1.75
PH03B	11/13/2018	1	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	6.19
PH04A	11/13/2018	0.5	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	207
PH04B	11/13/2018	1	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	6,600
PH05A	11/13/2018	0.5	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	101
PH05B	11/13/2018	1	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	221
PH06A	11/14/2018	0.5	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.95
PH06B	11/14/2018	1	<0.00198	<0.00198	<14.9	<14.9	<14.9	<14.9	<14.9	9.00
PH07A	11/14/2018	0.5	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	255
PH07B	11/14/2018	1	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	243
BH01	04/24/2019	0.5	<0.00201	<0.00201	<15.0	1,210	240	1,210	1,450	472
BH01A	04/24/2019	1	<0.00198	<0.00198	<15.0	332	98.1	332	430	584
BH02	04/23/2019	1	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	814
BH02A	04/23/2019	2	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	426
BH03	04/23/2019	1	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	113
BH03A	04/23/2019	2	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	540

Table 1

Soil Analytical Results
Remuda Basin Central Tank Battery
Incident Number NMAP1825437863
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
BH04	04/23/2019	1	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	591
BH04A	04/23/2019	2	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	387
BH05	04/23/2019	1	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	18.0
BH05A	04/23/2019	2	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	408
BH06	04/23/2019	1	<0.00200	<0.00200	<15.0	24.5	<15.0	25.0	25.0	699
BH06A	04/25/2019	2	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	519
BH07	04/24/2019	1	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	400
BH07A	04/24/2019	1.2	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	700
BH08	04/24/2019	0.5	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	41.2
BH08A	04/24/2019	2.5	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	31.4
BH09	04/24/2019	1	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	303
BH09A	04/24/2019	1.5	<0.00199	<0.00199	<14.9	<14.9	<14.9	<14.9	<14.9	301
BH10	04/24/2019	1	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	892
BH10A	04/24/2019	2.5	<0.00200	<0.00200	<15.0	24.3	<15.0	24.3	24.3	318
BH11	04/24/2019	1	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	210
BH11A	04/24/2019	2	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	375
BH12	06/04/2019	1	<0.00201	<0.00201	<15.0	27.8	<15.0	27.8	27.8	443
BH12A	06/04/2019	1.5	<0.00200	<0.00200	<15.0	28.4	<15.0	28.4	28.4	473
BH13	06/17/2019	0.5	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	38.0
BH13A	06/17/2019	1	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	154

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Remuda Basin Central Tank Battery
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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
BH14	06/17/2019	0.5	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	16.8
BH14A	06/17/2019	1	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	176
BH15	06/18/2019	0.5	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	303
BH15A	06/18/2019	1	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	889
BH16	06/18/2019	0.5	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	15.2
BH16A	06/18/2019	1	<0.00201	<0.00201	<15.0	27.1	<15.0	27.1	27.1	49.0
BH17	08/26/2019	0.5	<0.00199	<0.00199	<24.9	<24.9	<24.9	<24.9	<24.9	1,960
BH17A	08/26/2019	1	<0.00198	<0.00198	<25.0	25.1	<25.0	25	25.1	5,370
BH18	08/26/2019	0.5	<0.00200	<0.00200	<24.9	<24.9	<24.9	<24.9	<24.9	2,890
BH18A	08/26/2019	1	<0.00199	<0.00199	<24.9	44.8	<24.9	44.8	44.8	7,580
BH19	08/26/2019	0.5	<0.00201	<0.00201	<25.0	<25.0	<25.0	<25.0	<25.0	54.5
BH19A	08/26/2019	1	<0.00200	<0.00200	<24.9	<24.9	<24.9	<24.9	<24.9	16.5
BH20	08/26/2019	0.5	<0.00200	<0.00200	<24.9	<24.9	<24.9	<24.9	<24.9	3,440
BH20A	08/26/2019	1	<0.00198	<0.00198	<25.0	<25.0	<25.0	<25.0	<25.0	2,710
BH21	08/27/2019	0.5	<0.00200	<0.00200	<25.0	<25.0	<25.0	<25.0	<25.0	2,650
BH21A	08/27/2019	1	<0.00200	<0.00200	<25.0	<25.0	<25.0	<25.0	<25.0	3,440
BH22	08/26/2019	0.5	<0.00199	<0.00199	<25.0	<25.0	<25.0	<25.0	<25.0	14.1
BH22A	08/26/2019	1	<0.00199	<0.00199	<25.0	<25.0	<25.0	<25.0	<25.0	15.7
BH23	08/27/2019	0.5	<0.00200	<0.00200	<25.0	519	145	519	664	820
BH23A	08/27/2019	1	<0.00201	<0.00201	<24.9	430	122	430	552	1,030

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
BH24	12/30/2019	0.5	<0.0200	0.925	566	16,200	1,920	16,800	18,700	140
BH24A	12/30/2019	1.5	<0.0167	0.559	86.0	2,260	235	2,350	2,580	138
BH25	12/30/2019	0.5	<0.00200	<0.00200	<50.1	1,300	204	1,300	1,500	114
BH25A	12/30/2019	1.5	<0.0200	0.0409	<50.0	267	60.5	267	328	73.7
BH26	12/30/2019	0.5	<0.00199	<0.00199	<50.1	114	93.4	114	207	6,400
BH26A	12/30/2019	1	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	5,780
BH27	12/30/2019	0.5	<0.00202	<0.00202	<50.0	665	144	665	809	2,260
BH27A	12/30/2019	1	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	327
BH28	12/30/2019	0.5	<0.00201	<0.00201	<50.1	91.0	52.4	91.0	143	2,620
BH28A	12/30/2019	1.5	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	556
BH29	12/30/2019	0.5	<0.0200	0.021	<249	16,000	1,740	16,000	17,700	1,170
BH29A	12/30/2019	1.5	<0.0200	0.0228	<251	6,700	785	6,700	7,490	4,710
BH30	12/30/2019	0.5	<0.00202	<0.00202	<50.3	175	120	175	295	604
BH30A	12/30/2019	1.5	<0.00200	<0.00200	<50.2	66.8	<50.2	66.8	66.8	429
BH31	12/30/2019	0.5	<0.00202	<0.00202	<50.2	136	99.9	136	236	3,000
BH31A	12/30/2019	1.5	<0.00202	<0.00202	<50.1	57.1	<50.1	57.1	57.1	2,070
BH32	12/30/2019	0.5	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	3,300
BH32A	12/30/2019	1.5	<0.00201	<0.00201	<49.9	72.3	70.9	72.3	143	865
BH33	12/30/2019	0.5	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	17.0
BH33A	12/30/2019	1.5	<0.00202	<0.00202	<50.0	70.0	59.8	70.0	130	<10.0

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Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
BH34	12/30/2019	0.5	<0.00202	<0.00202	<50.3	1,430	165	1,430	1,600	330
BH34A	12/30/2019	1.5	<0.00200	<0.00200	<50.2	707	86.2	707	793	570
Excavation Floor Samples										
FS01	11/08/2018	3	<0.00198	<0.00198	<15.0	462	52.7	462	515	514
FS02	11/08/2018	3	<0.00202	<0.00202	<15.0	32.5	<15.0	32.5	32.5	86.9
FS03	11/09/2018	3	<0.00198	<0.00198	<15.0	20.5	<15.0	20.5	20.5	403
FS04	11/09/2018	3	<0.00200	<0.00200	<15.0	475	48.1	475	523	1,420
FS05	11/09/2018	3	<0.00199	<0.00199	<15.0	314	38.0	314	352	1,990
FS06	11/09/2018	6	<0.00200	<0.00200	<14.9	1,650	56.2	1,650	1,710	1,020
FS07	08/06/2019	1	<0.00198	0.00266	<15.0	<15.0	<15.0	<15.0	<15.0	209
FS08	08/06/2019	0.5	<0.00199	<0.00199	<15.0	17.3	<15.0	17.3	17.3	1,150
FS08A	02/26/2020	1	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	327
FS09	09/26/2019	1	<0.00100	<0.00100	<50.0	<50.0	<50.0	<50.0	<50.0	887
FS10	09/26/2019	1.5	<0.00100	<0.00100	<50.0	<50.0	<50.0	<50.0	<50.0	2,040
FS10A	04/16/2020	2.5	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	62.9
FS11	03/03/2020	1	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	260
FS12	03/10/2020	1.5	<0.00198	0.0129	<50.1	<50.1	<50.1	<50.1	<50.1	113

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
FS13	04/15/2020	0.5	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	502
FS13A	11/25/2020	1.5	<0.00200	<0.002000	<50.2	<50.2	<50.2	<50.20	<50.20	49.2
FS14	04/17/2020	1.75	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	161
FS15	04/20/2020	2.0	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	426
FS16	05/12/2020	2.5	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	101
FS17	05/13/2020	0.5 - 1	<0.00234	0.293	277	9,560	1,000	9,840	10,800	7,810
FS17	10/16/2020	0.5 - 1	<0.0200	<0.0200	<251	8,620	1,490	8,620	10,100	2,350
FS17A	11/25/2020	1.5	<0.00199	<0.001990	<50.1	708	172	708.0	880	8,070
FS18	05/14/2020	1.5	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	146
FS19	07/02/2020	1 - 3	<0.0101	<0.0101	<49.8	2,830	353	2,830	3,180	450
FS19	10/07/2020	1 - 3	<0.00198	<0.00198	<250	1,280	273	1,280	1,550	516
SW01	11/09/2018	3	<0.00199	<0.00199	<15.0	845	91.6	845	937	464
SW02	11/09/2018	3	<0.00200	<0.00200	26.0	2,540	44.6	2,570	2,610	4,090
SW03	11/09/2018	3	<0.00200	<0.00200	<14.9	20.9	<14.9	20.9	20.9	824

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Chloride Concentration										889
SW04	11/09/2018	3	<0.00201	<0.00201	<15.0	171	24.6	171	196	1,540
SW05	11/09/2018	3	<0.00202	0.00321	<15.0	142	17.1	142	159	4,180
SW06	11/09/2018	3	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	1,090

ft - feet/foot

mg/kg - milligrams per kilograms

BTEX - benzene, toluene, ethylbenzene, and total xylenes

TPH - total petroleum hydrocarbons

DRO - diesel range organics

GRO - gasoline range organics

ORO - motor oil range organics

NMOCD - New Mexico Oil Conservation Division

NMAC - New Mexico Administrative Code

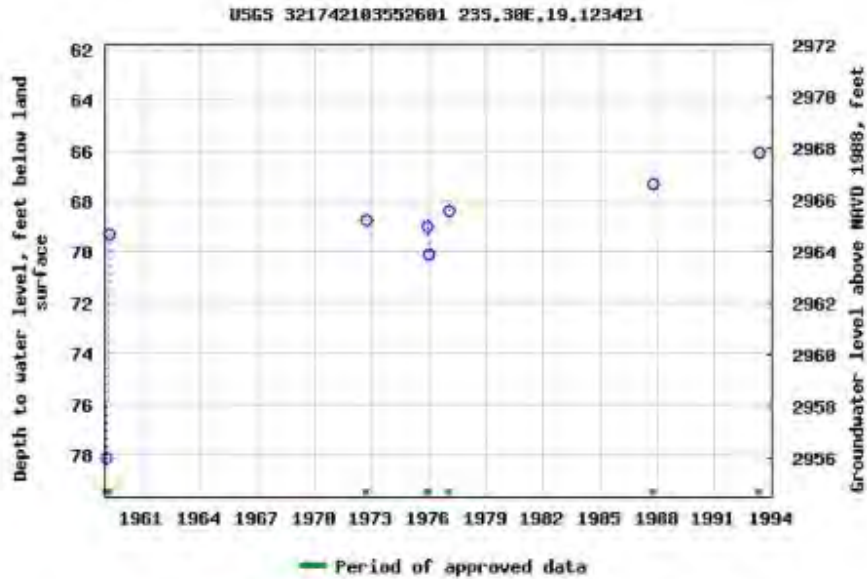
< - indicates result is less than the stated laboratory method practical quantitation limit

NE - Not Established

BOLD - indicates results exceed the higher of the background sample result or applicable regulatory standard

Greyed data represents samples that were excavated

ATTACHMENT 1: REFERENCED WELL RECORDS



DESCRIPTION:

Latitude 32°17'42", Longitude 103°55'26" NAD27
Eddy County, New Mexico, Hydrologic Unit 13060011
Well depth: 100 feet
Land surface altitude: 3,034 feet above NAVD88.
Well completed in "Other aquifers" (N9999OTHER) national aquifer.
Well completed in "Rustler Formation" (312RSLR) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1959-02-06	1993-05-06	8
Field/Lab water-quality samples	1972-09-20	1972-09-20	1
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to [New Mexico Water Science Center Water-Data Inquiries](#)



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)							
		(quarters are smallest to largest)						(NAD83 UTM in meters)	
Well Tag	POD Number	Q64	Q16	Q4	Sec	Twp	Rng	X	Y
	C 03478 POD1	3	2	1	21	23S	30E	604638	3573670

Driller License:	Driller Company:
Driller Name: JUSTIN MULLINS	

Drill Start Date: 06/07/2016	Drill Finish Date: 06/27/2016	Plug Date:
Log File Date: 07/11/2016	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield: 5 GPM
Casing Size: 6.00	Depth Well: 230 feet	Depth Water: 105 feet

Water Bearing Stratifications:	Top	Bottom	Description
	105	112	Shale/Mudstone/Siltstone

Casing Perforations:	Top	Bottom	
	170	230	

The data is furnished by the NMOS&I/SC, and is accepted by the recipient with the expressed understanding that the OS&I/SC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

ATTACHMENT 2: LITHOLOGIC / SOIL SAMPLE LOGS

[illegible]

WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220						BH or PH Name: PH02		Date: 11/12/2018
						Site Name:		Remuda Basin Central Tank Battery
						RP or Incident Number:		NMAP1825437863
						WSP Job Number:		TE012918152
LITHOLOGIC / SOIL SAMPLING LOG						Logged By AB		Method: T.hoe
Lat/Long: 32.290595, -103.92319				Field Screening: Hatch Chloride Strips, PID		Hole Diameter: 22"		Total Depth: 1'
Comments: TD @ 1.0 ft								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	179.2	0.0	N	PH02A		0		
D	179.2	0.0	N	PH02A		0.5	SM	Rocky, silty sand. Brown
D	307.2	0.0	N	PH02B		1	SM	Rocky, silty sand. Red

[illegible]

[illegible]

[illegible]

[illegible]

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name:		Date:	
								BH01		4/24/2019	
								Site Name: Remuda Basin Central Tank Battery			
								RP or Incident Number: NMAP1825437863			
LTE Job Number: TE012918152											
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: RM		Method: Hand Auger	
Lat/Long:				Field Screening:				Hole Diameter:		Total Depth:	
				Chloride, PID				3"		1'	
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
dry	380	1.1	n	BH01	0.5'	0	SM	SAND, dry, brown-tan, trace caliche, no stain, no odor			
dry	380	0.8	n	BH01A	1'						
								Total Depth: 1 ft bgs			

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name:		Date:	
								BH02		4/23/2019	
								Site Name: Remuda Basin Central Tank Battery			
								RP or Incident Number: NMAP1825437863			
LTE Job Number: TE012918152											
LITHOLOGIC / SOIL SAMPLING LOG											
Lat/Long:				Field Screening:		Hole Diameter:		Total Depth:			
				Chloride, PID		3"		2'			
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
dry	196	0.5	n	BH02	1'	0	SM	SAND, dry, brown-red, trace clay, trace caliche, no stain, no odor			
dry	196	1.0	n	BH02A	2'						
Auger Refusal											
Total Depth: 2 ft bgs											

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 BH or PH Name: BH04 Date: 4/23/2019 Site Name: Remuda Basin Central Tank Battery RP or Incident Number: NMAP1825437863 LTE Job Number: TE012918152								
LITHOLOGIC / SOIL SAMPLING LOG Lat/Long: Field Screening: Chloride, PID Hole Diameter: 3" Method: Hand Auger Total Depth: 2'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	480	0.3	n	BH04	1'	0	CCHE	CALICHE, dry, white, trace sand
dry	268	0.5	n	BH04A	2'			
								Auger Refusal
								Total Depth: 2 ft bgs

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Released to Imaging: 5/26/2022 11:33:06 AM

Released to Imaging: 5/26/2022 11:33:06 AM

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name:		Date:	
								BH09		4/24/2019	
								Site Name: Remuda Basin Central Tank Battery			
								RP or Incident Number: NMAP1825437863			
LTE Job Number: TE012918152											
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: RM		Method: Hand Auger	
Lat/Long:				Field Screening:				Hole Diameter:		Total Depth:	
				Chloride, PID				3"		1.5'	
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
m	232	2.3	n	BH09	0.5'	0	CCHE	CALICHE, moist, white			
m	232	2.5	n	BH09A	1.5'						
Total Depth: 1.5 ft bgs											

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name:		Date:	
								BH10		4/24/2019	
								Site Name: Remuda Basin Central Tank Battery			
								RP or Incident Number: NMAP1825437863			
LTE Job Number: TE012918152											
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: RM		Method: Hand Auger	
Lat/Long:				Field Screening:				Hole Diameter:		Total Depth:	
				Chloride, PID				3"		2.5'	
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
dry	804	1.0	n	BH10	0.5'	0	CCHE	CALICHE, moist, brown-white, trace sand			
dry	436	0.9	n	BH10A	2.5'	2					
Total Depth: 2.5 ft bgs											

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Released to Imaging: 5/26/2022 11:33:06 AM

Released to Imaging: 5/26/2022 11:33:06 AM

Released to Imaging: 5/26/2022 11:33:06 AM

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name:		Date:	
								BH21		8/26/2019	
								Site Name: Remuda Basin Central Tank Battery			
								RP or Incident Number: NMAP1825437863			
LITHOLOGIC / SOIL SAMPLING LOG								LTE Job Number: TE012918152			
Lat/Long:				Field Screening:		Hole Diameter:		Method: Hand Auger			
				Chloride, PID		3"		Total Depth: 1'			
Comments:											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
m	2,328	12.3	n	BH21	0.5'	0	S	SILTY SAND, moist, white-tan			
m	1,596	8.3	n	BH21A	1'						
Auger Refusal											
Total Depth: 1 ft bgs											

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220					BH or PH Name:		Date:										
					BH22		8/26/2019										
					Site Name: Remuda Basin Central Tank Battery												
					RP or Incident Number: NMAP1825437863												
					LTE Job Number: TE012918152												
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Hand Auger										
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:										
			Chloride, PID		3"		1'										
Comments:																	
Background Sample																	
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks									
dry	<128	8.4	n	BH22	0.5'	0	S	SILTY SAND, moist, red-brown									
dry	<112	23.4	n	BH22A	1'												
Auger Refusal																	
																	Total Depth: 1 ft bgs



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH24

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	BDL	100.4	N	BH24		0 0.5	SP	Brown Sand. No Odor.
D	BDL	100.4	N	BH24A		1.5	SW	Brown Sand. Gray Bedrock. Slight Odor. Refusal

[illegible]



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH29

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	2543.0	26.7	N	BH29		0.5	SW	Sand. Course to Fine. Brown. No odor.
D	3780.0	27.4	N	BH29A		1.5	SW	Sand. Course to Fine. Brown. No odor.
						3		



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH30

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	636.0	1.2	N	BH30		0.5	SP	Sand. Tan. No odor.
D	410.0	0.6	N	BH30A		1.5	SP	Sand. Tan. No odor.
						3		



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH31

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.0'

Comments:

TD @ 1.0 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	1296.0	0.7	N	BH31		0.5	GW	Sand/Bedrock. Tan. No odor.
D	1020.0	1.3	N	BH31A		1	GW	Sand/Bedrock. Tan. No odor.
						3		



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH32

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	3780.0	0.2	N	BH32		0.5	SP	Sand. Tan. Trace Bedrock.
D	753.0	0.1	N	BH32A		1.5	SP	Sand. Tan. Trace Bedrock.
						3		



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH33

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	275.0	0	N	BH33		0.5	SP	Sand. Brown. No odor.
D	275.0	0.0	N	BH33		1.5	SP	Sand. Brown. No odor.
						3		



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH34

Date:

12/30/2019

Site Name:

Remuda Basin Central Tank Battery

RP or Incident Number:

NMAP1825437863

WSP Job Number:

TE012918152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By EN

Method:

Hand Auger

Lat/Long:

32.290595, -103.92319

Field Screening:

Hatch Chloride Strips, PID

Hole Diameter:

3"

Total Depth:

1.5'

Comments:

TD @ 1.5 ft.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	523.0	0.2	N	BH34		0.5	SP	Sand. Trace Bedrock. Tan. No odor.
D	523.0	0.0	N	BH34		1.5	SP	Sand. Trace Bedrock. Tan. No odor.
						3		

ATTACHMENT 3: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG

XTO Energy, Inc.	Remuda Basin Central Tank Battery Eddy County, New Mexico	NMAP1825437863
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Photo No.	Date	
1	Dec 30, 2020	
Delineation sampling at BH24 facing southeast.		

Photo No.	Date	
2	May 11, 2020	
Norther view of hydrovac excavation of delineation soil sample BH24. Note the competent bedrock encountered, proximity of production equipment and electrical line. Confirmation floor sample FS17 collected from this excavation.		



PHOTOGRAPHIC LOG

XTO Energy, Inc.	Remuda Basin Central Tank Battery Eddy County, New Mexico	NMAP1825437863
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Photo No.	Date	
3	Sept. 21, 2020	
View of open excavation following the application of MicroBlaze®. Note the competent bedrock encountered. Final confirmation sample collected is FS17A		

Photo No.	Date	
4	Sept. 21, 2020	
View of open excavation following the application of MicroBlaze®. Note the competent bedrock encountered. Final confirmation sample collected FS19.		

ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS

Analytical Report 601537

for
LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda Basin CTB

16-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

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

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



16-OCT-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **601537**

Remuda Basin CTB

Project Address: Eddy, NM

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 601537. 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. 601537 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 601537****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	10-02-18 15:00	6 In	601537-001
SS02	S	10-02-18 15:15	6 In	601537-002
SS03	S	10-02-18 15:25	6 In	601537-003
SS04	S	10-02-18 15:40	6 In	601537-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID:

Work Order Number(s): 601537

Report Date: 16-OCT-18

Date Received: 10/05/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066082 TPH by SW8015 Mod

Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601537-003,601537-001.

Batch: LBA-3066385 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: 601537-003.

Dilution due to poor internal resolution caused by matrix interference.



Certificate of Analysis Summary 601537

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB



Project Id:

Contact: Adrian Baker

Project Location: Eddy, NM

Date Received in Lab: Fri Oct-05-18 10:50 am

Report Date: 16-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601537-001	601537-002	601537-003	601537-004		
	<i>Field Id:</i>	SS01	SS02	SS03	SS04		
	<i>Depth:</i>	6- In	6- In	6- In	6- In		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Oct-02-18 15:00	Oct-02-18 15:15	Oct-02-18 15:25	Oct-02-18 15:40		
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-15-18 08:00	Oct-15-18 08:00	Oct-15-18 08:00	Oct-15-18 08:00		
	<i>Analyzed:</i>	Oct-15-18 12:51	Oct-15-18 12:29	Oct-15-18 13:12	Oct-15-18 12:08		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		0.568 0.505	<0.00199 0.00199	<0.101 0.101	<0.00200 0.00200		
Toluene		0.773 0.505	<0.00199 0.00199	0.175 0.101	<0.00200 0.00200		
Ethylbenzene		14.5 0.505	0.00221 0.00199	1.36 0.101	<0.00200 0.00200		
m,p-Xylenes		51.2 1.01	0.0120 0.00398	4.89 0.202	<0.00399 0.00399		
o-Xylene		21.5 0.505	0.00721 0.00199	1.83 0.101	<0.00200 0.00200		
Total Xylenes		72.7 0.505	0.0192 0.00199	6.72 0.101	<0.00200 0.00200		
Total BTEX		88.5 0.505	0.0214 0.00199	8.26 0.101	<0.00200 0.00200		
Inorganic Anions by EPA 300	<i>Extracted:</i>	Oct-10-18 10:00	Oct-10-18 10:00	Oct-10-18 10:00	Oct-10-18 10:00		
	<i>Analyzed:</i>	Oct-10-18 19:44	Oct-10-18 14:03	Oct-10-18 14:09	Oct-10-18 14:26		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		74.5 4.98	4190 99.2	2400 49.5	1020 50.0		
TPH by SW8015 Mod	<i>Extracted:</i>	Oct-10-18 17:00	Oct-10-18 17:00	Oct-10-18 17:00	Oct-10-18 17:00		
	<i>Analyzed:</i>	Oct-11-18 03:05	Oct-11-18 03:24	Oct-11-18 03:43	Oct-11-18 04:02		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		1710 74.9	91.4 74.7	262 74.9	<15.0 15.0		
Diesel Range Organics (DRO)		9230 74.9	4290 74.7	6740 74.9	<15.0 15.0		
Motor Oil Range Hydrocarbons (MRO)		655 74.9	423 74.7	681 74.9	<15.0 15.0		
Total TPH		11600 74.9	4800 74.7	7680 74.9	<15.0 15.0		

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 601537

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS01** Matrix: Soil Date Received: 10.05.18 10.50
 Lab Sample Id: 601537-001 Date Collected: 10.02.18 15.00 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: SCM % Moisture:
 Analyst: SCM Date Prep: 10.10.18 10.00 Basis: Wet Weight
 Seq Number: 3066067

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	74.5	4.98	mg/kg	10.10.18 19.44		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 10.10.18 17.00 Basis: Wet Weight
 Seq Number: 3066082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	1710	74.9	mg/kg	10.11.18 03.05		5
Diesel Range Organics (DRO)	C10C28DRO	9230	74.9	mg/kg	10.11.18 03.05		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	655	74.9	mg/kg	10.11.18 03.05		5
Total TPH	PHC635	11600	74.9	mg/kg	10.11.18 03.05		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.11.18 03.05	
o-Terphenyl	84-15-1	220	%	70-135	10.11.18 03.05	**



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS01**
Lab Sample Id: 601537-001

Matrix: Soil
Date Collected: 10.02.18 15.00

Date Received: 10.05.18 10.50
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 08.00

Basis: Wet Weight

Seq Number: 3066385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.568	0.505	mg/kg	10.15.18 12.51		250
Toluene	108-88-3	0.773	0.505	mg/kg	10.15.18 12.51		250
Ethylbenzene	100-41-4	14.5	0.505	mg/kg	10.15.18 12.51		250
m,p-Xylenes	179601-23-1	51.2	1.01	mg/kg	10.15.18 12.51		250
o-Xylene	95-47-6	21.5	0.505	mg/kg	10.15.18 12.51		250
Total Xylenes	1330-20-7	72.7	0.505	mg/kg	10.15.18 12.51		250
Total BTEX		88.5	0.505	mg/kg	10.15.18 12.51		250
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	70-130	10.15.18 12.51		
4-Bromofluorobenzene	460-00-4	98	%	70-130	10.15.18 12.51		



Certificate of Analytical Results 601537

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS02** Matrix: **Soil** Date Received: 10.05.18 10.50
 Lab Sample Id: 601537-002 Date Collected: 10.02.18 15.15 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: **SCM** % Moisture:
 Analyst: **SCM** Date Prep: 10.10.18 10.00 Basis: **Wet Weight**
 Seq Number: 3066067

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4190	99.2	mg/kg	10.10.18 14.03		20

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: **ARM** % Moisture:
 Analyst: **ARM** Date Prep: 10.10.18 17.00 Basis: **Wet Weight**
 Seq Number: 3066082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	91.4	74.7	mg/kg	10.11.18 03.24		5
Diesel Range Organics (DRO)	C10C28DRO	4290	74.7	mg/kg	10.11.18 03.24		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	423	74.7	mg/kg	10.11.18 03.24		5
Total TPH	PHC635	4800	74.7	mg/kg	10.11.18 03.24		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.11.18 03.24	
o-Terphenyl	84-15-1	101	%	70-135	10.11.18 03.24	



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: SS02
Lab Sample Id: 601537-002

Matrix: Soil
Date Collected: 10.02.18 15.15

Date Received: 10.05.18 10.50
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 08.00

Basis: Wet Weight

Seq Number: 3066385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.15.18 12.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.15.18 12.29	U	1
Ethylbenzene	100-41-4	0.00221	0.00199	mg/kg	10.15.18 12.29		1
m,p-Xylenes	179601-23-1	0.0120	0.00398	mg/kg	10.15.18 12.29		1
o-Xylene	95-47-6	0.00721	0.00199	mg/kg	10.15.18 12.29		1
Total Xylenes	1330-20-7	0.0192	0.00199	mg/kg	10.15.18 12.29		1
Total BTEX		0.0214	0.00199	mg/kg	10.15.18 12.29		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103		%	70-130	10.15.18 12.29	
4-Bromofluorobenzene	460-00-4	107		%	70-130	10.15.18 12.29	



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS03**
Lab Sample Id: 601537-003

Matrix: Soil
Date Collected: 10.02.18 15.25

Date Received: 10.05.18 10.50
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066067

Date Prep: 10.10.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2400	49.5	mg/kg	10.10.18 14.09		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066082

Date Prep: 10.10.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	262	74.9	mg/kg	10.11.18 03.43		5
Diesel Range Organics (DRO)	C10C28DRO	6740	74.9	mg/kg	10.11.18 03.43		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	681	74.9	mg/kg	10.11.18 03.43		5
Total TPH	PHC635	7680	74.9	mg/kg	10.11.18 03.43		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.11.18 03.43	
o-Terphenyl	84-15-1	152	%	70-135	10.11.18 03.43	**



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS03**
 Lab Sample Id: 601537-003

Matrix: Soil
 Date Collected: 10.02.18 15.25

Date Received: 10.05.18 10.50
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 08.00

Basis: Wet Weight

Seq Number: 3066385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.101	0.101	mg/kg	10.15.18 13.12	U	50
Toluene	108-88-3	0.175	0.101	mg/kg	10.15.18 13.12		50
Ethylbenzene	100-41-4	1.36	0.101	mg/kg	10.15.18 13.12		50
m,p-Xylenes	179601-23-1	4.89	0.202	mg/kg	10.15.18 13.12		50
o-Xylene	95-47-6	1.83	0.101	mg/kg	10.15.18 13.12		50
Total Xylenes	1330-20-7	6.72	0.101	mg/kg	10.15.18 13.12		50
Total BTEX		8.26	0.101	mg/kg	10.15.18 13.12		50
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	127	%	70-130	10.15.18 13.12		
4-Bromofluorobenzene	460-00-4	135	%	70-130	10.15.18 13.12	**	



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS04**
Lab Sample Id: 601537-004

Matrix: Soil
Date Collected: 10.02.18 15.40

Date Received: 10.05.18 10.50
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3066067

Date Prep: 10.10.18 10.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1020	50.0	mg/kg	10.10.18 14.26		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3066082

Date Prep: 10.10.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.11.18 04.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.11.18 04.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.11.18 04.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.11.18 04.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.11.18 04.02	
o-Terphenyl	84-15-1	90	%	70-135	10.11.18 04.02	



Certificate of Analytical Results 601537



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SS04**
Lab Sample Id: 601537-004

Matrix: Soil
Date Collected: 10.02.18 15.40

Date Received: 10.05.18 10.50
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.15.18 08.00

Basis: Wet Weight

Seq Number: 3066385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.15.18 12.08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.15.18 12.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	10.15.18 12.08		
1,4-Difluorobenzene	540-36-3	89	%	70-130	10.15.18 12.08		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066067

MB Sample Id: 7663867-1-BLK

Matrix: Solid

LCS Sample Id: 7663867-1-BKS

Prep Method: E300P

Date Prep: 10.10.18

LCSD Sample Id: 7663867-1-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	252	101	253	101	90-110	0	20	mg/kg	10.10.18 13:18	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066067

Parent Sample Id: 601591-001

Matrix: Soil

MS Sample Id: 601591-001 S

Prep Method: E300P

Date Prep: 10.10.18

MSD Sample Id: 601591-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	741	249	958	87	959	88	90-110	0	20	mg/kg	10.10.18 13:35	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3066067

Parent Sample Id: 601594-001

Matrix: Soil

MS Sample Id: 601594-001 S

Prep Method: E300P

Date Prep: 10.10.18

MSD Sample Id: 601594-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.4	248	263	102	263	102	90-110	0	20	mg/kg	10.10.18 15:00	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3066082

MB Sample Id: 7663969-1-BLK

Matrix: Solid

LCS Sample Id: 7663969-1-BKS

Prep Method: TX1005P

Date Prep: 10.10.18

LCSD Sample Id: 7663969-1-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	909	91	1000	100	70-135	10	20	mg/kg	10.10.18 20:34	
Diesel Range Organics (DRO)	<8.13	1000	1050	105	1120	112	70-135	6	20	mg/kg	10.10.18 20:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		127		130		70-135	%	10.10.18 20:34
o-Terphenyl	104		121		115		70-135	%	10.10.18 20:34

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3066082

Parent Sample Id: 601546-001

Matrix: Soil

MS Sample Id: 601546-001 S

Prep Method: TX1005P

Date Prep: 10.10.18

MSD Sample Id: 601546-001 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)	12.0	1000	841	83	943	93	70-135	11	20	mg/kg	10.10.18 21:30	
Diesel Range Organics (DRO)	11.3	1000	946	93	1080	107	70-135	13	20	mg/kg	10.10.18 21:30	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		115		70-135	%	10.10.18 21:30
o-Terphenyl	89		98		70-135	%	10.10.18 21:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066385

MB Sample Id: 7664177-1-BLK

Matrix: Solid

LCS Sample Id: 7664177-1-BKS

Prep Method: SW5030B

Date Prep: 10.15.18

LCSD Sample Id: 7664177-1-BSO

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.125	125	0.116	116	70-130	7	35	mg/kg	10.15.18 07:53	
Toluene	<0.00200	0.0998	0.108	108	0.103	103	70-130	5	35	mg/kg	10.15.18 07:53	
Ethylbenzene	<0.00200	0.0998	0.123	123	0.115	115	70-130	7	35	mg/kg	10.15.18 07:53	
m,p-Xylenes	<0.00399	0.200	0.231	116	0.236	117	70-130	2	35	mg/kg	10.15.18 07:53	
o-Xylene	<0.00200	0.0998	0.122	122	0.114	114	70-130	7	35	mg/kg	10.15.18 07:53	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		93		84		70-130	%	10.15.18 07:53
4-Bromofluorobenzene	101		109		94		70-130	%	10.15.18 07:53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066385

Parent Sample Id: 601718-001

Matrix: Soil

MS Sample Id: 601718-001 S

Prep Method: SW5030B

Date Prep: 10.15.18

MSD Sample Id: 601718-001 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	0.0931	93	0.101	100	70-130	8	35	mg/kg	10.15.18 08:35	
Toluene	<0.00200	0.100	0.0958	96	0.0912	90	70-130	5	35	mg/kg	10.15.18 08:35	
Ethylbenzene	<0.00200	0.100	0.112	112	0.102	101	70-130	9	35	mg/kg	10.15.18 08:35	
m,p-Xylenes	<0.00401	0.200	0.236	118	0.207	103	70-130	13	35	mg/kg	10.15.18 08:35	
o-Xylene	<0.00200	0.100	0.109	109	0.0995	99	70-130	9	35	mg/kg	10.15.18 08:35	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	120		81		70-130	%	10.15.18 08:35
4-Bromofluorobenzene	96		97		70-130	%	10.15.18 08:35

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



Setting the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

CHAIN OF CUSTODY

Page 1 of 1

Client / Reporting Information Company Name / Branch: <u>LT Environmental, Inc.</u> <u>Pelican Office</u> Company Address: <u>3300 N. St. Building 1 Unit 103</u> <u>Midway, TX 75270</u> Email: <u>ababero@ltenv.com</u> <u>(432) 704-5178</u> Project Contact: <u>Adrian Baker</u> Samples Name: <u>1. Sewer</u>				Project Information Project Name/Number: <u>Remuda Basin CTB</u> Project Location: <u>EDDY NM</u> Invoice To: <u>XTO Energy - Kyle Little</u> PO Number:				Analytical Information Matrix Codes: <u>BTEX (only BTEX) 8021</u> <u>TPH (PRO, GRO, MRO) 8015</u> <u>Chloride (300.00)</u>			
Field ID / Point of Collection No. <u>1</u> Sample Depth <u>6"</u> Date <u>10/02</u> Time <u>15:00</u> Matrix <u>S</u> # of bottles <u>1</u> HCl <u>X</u> NaOH/Zn Acetate <u>X</u> HNO3 <u>X</u> H2SO4 <u>X</u> NaOH <u>X</u> NaHSO4 <u>X</u> MEQH <u>X</u> NONE <u>X</u>				Number of Samples 1 6" 10/02 15:00 S 1 1 X 2 6" 15:15 S 1 1 X 3 6" 15:25 S 1 1 X 4 6" 15:40 S 1 1 X 5 6" 15:40 S 1 1 X 6 6" 15:40 S 1 1 X 7 6" 15:40 S 1 1 X 8 6" 15:40 S 1 1 X 9 6" 15:40 S 1 1 X 10 6" 15:40 S 1 1 X				Field Comments On Ice Cooler Temp 41.8800			
Turnaround Time (Business days) ☐ Same Day TAT ☐ 6 Day TAT ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☒ Contract TAT ☐ 3 Day EMERGENCY				Date Deliverable Information Level II Std QC ☐ Level IV (Full Data Pkg / raw data) ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ Level 3 (CLP Forms) ☐ UST / RG-411 ☐ TRRP Checklist ☐				Notes:			
TAT Starts Day received by Lab, if received by 5:00 pm Relinquished by Sampler: <u>Adrian Baker</u> Date Time: <u>10/02/2014 6:30</u> Received By: <u>Adrian Baker</u> Date Time: <u>10/04/2014 15:30</u> Relinquished by: <u>Adrian Baker</u> Date Time: <u>10/04/2014 6:30</u> Received By: <u>Adrian Baker</u> Date Time: <u>10/04/2014 15:30</u> Relinquished by: <u>Adrian Baker</u> Date Time: <u>10/04/2014 6:30</u> Received By: <u>Adrian Baker</u> Date Time: <u>10/04/2014 15:30</u>				FED-EX / UPS: Tracking # <u>7734085025</u>							



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10/05/2018 10:50:00 AM

Work Order #: 601537

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)?	4.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 10/05/2018

Checklist reviewed by:

Jessica Kramer

Date: 10/05/2018

Analytical Report 605309

for
LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda Basin CTB

15-NOV-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

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

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



15-NOV-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **605309**

Remuda Basin CTB

Project Address: Carlsbad, NM

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 605309. 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. 605309 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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Sample Cross Reference 605309

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	11-08-18 11:18	3	605309-001
FS02	S	11-08-18 11:35	3	605309-002
SW01	S	11-09-18 08:32	3	605309-003
SW02	S	11-09-18 08:37	3	605309-004
SW03	S	11-09-18 09:26	3	605309-005
FS03	S	11-09-18 09:27	3	605309-006
FS04	S	11-09-18 09:38	3	605309-007
SW04	S	11-09-18 15:35	3	605309-008
SW05	S	11-09-18 15:36	3	605309-009
SW06	S	11-09-18 15:38	3	605309-010
FS05	S	11-09-18 15:40	3	605309-011
FS06	S	11-09-18 15:41	6	605309-012
FS01	S	11-08-18 11:18	3	Not Analyzed
FS01	S	11-08-18 11:18	3	Not Analyzed

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Remuda Basin CTB**

Project ID:
Work Order Number(s): 605309

Report Date: 15-NOV-18
Date Received: 11/13/2018

Sample receipt non conformances and comments:

Per clients email request, corrected sample names for sample 001,002,006,007,011, and 012. New Version Generated. JKR 11/14/18

Per clients email request, additional sample name corrections for samples 003, 004, 005, 008, 009, 010. New version generated. JKR 11/15/18

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3069560 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 605309-002.

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

Lab Sample ID 605309-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Benzene, 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: 605309-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012.

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



Certificate of Analysis Summary 605309

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB



Project Id:

Contact: Adrian Baker

Project Location: Carlsbad, NM

Date Received in Lab: Tue Nov-13-18 01:55 pm

Report Date: 15-NOV-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	605309-001	605309-002	605309-003	605309-004	605309-005	605309-006
	<i>Field Id:</i>	FS01	FS02	SW01	SW02	SW03	FS03
	<i>Depth:</i>	3-	3-	3-	3-	3-	3-
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-08-18 11:18	Nov-08-18 11:35	Nov-09-18 08:32	Nov-09-18 08:37	Nov-09-18 09:26	Nov-09-18 09:27
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15
	<i>Analyzed:</i>	Nov-13-18 19:26	Nov-13-18 19:47	Nov-13-18 20:09	Nov-13-18 20:40	Nov-13-18 21:15	Nov-13-18 23:21
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Toluene		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
m,p-Xylenes		<0.00397 0.00397	<0.00403 0.00403	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401	<0.00396 0.00396
o-Xylene		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Total BTEX		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Inorganic Anions by EPA 300	<i>Extracted:</i>	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30
	<i>Analyzed:</i>	Nov-13-18 18:25	Nov-14-18 10:07	Nov-13-18 18:36	Nov-13-18 18:41	Nov-13-18 18:57	Nov-13-18 19:02
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		514 49.8	86.9 4.95	464 49.6	4090 99.2	824 49.5	403 49.5
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00
	<i>Analyzed:</i>	Nov-13-18 16:41	Nov-13-18 18:34	Nov-13-18 18:52	Nov-14-18 08:29	Nov-13-18 19:30	Nov-13-18 19:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	26.0 15.0	<14.9 14.9	<15.0 15.0
Diesel Range Organics (DRO)		462 15.0	32.5 15.0	845 15.0	2540 15.0	20.9 14.9	20.5 15.0
Motor Oil Range Hydrocarbons (MRO)		52.7 15.0	<15.0 15.0	91.6 15.0	44.6 15.0	<14.9 14.9	<15.0 15.0
Total TPH		515 15.0	32.5 15.0	937 15.0	2610 15.0	20.9 14.9	20.5 15.0

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

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 605309

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB



Project Id:

Contact: Adrian Baker

Project Location: Carlsbad, NM

Date Received in Lab: Tue Nov-13-18 01:55 pm

Report Date: 15-NOV-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	605309-007	605309-008	605309-009	605309-010	605309-011	605309-012
	<i>Field Id:</i>	FS04	SW04	SW05	SW06	FS05	FS06
	<i>Depth:</i>	3-	3-	3-	3-	3-	6-
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-09-18 09:38	Nov-09-18 15:35	Nov-09-18 15:36	Nov-09-18 15:38	Nov-09-18 15:40	Nov-09-18 15:41
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15	Nov-13-18 17:15
	<i>Analyzed:</i>	Nov-14-18 00:04	Nov-14-18 00:54	Nov-14-18 01:21	Nov-14-18 01:50	Nov-14-18 03:15	Nov-14-18 03:41
	<i>Units/RL:</i>	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	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402	<0.00404 0.00404	<0.00398 0.00398	<0.00398 0.00398	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	0.00321 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	0.00321 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	0.00321 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200
Inorganic Anions by EPA 300	<i>Extracted:</i>	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30	Nov-13-18 16:30
	<i>Analyzed:</i>	Nov-13-18 19:08	Nov-13-18 19:13	Nov-13-18 19:18	Nov-13-18 19:39	Nov-13-18 19:45	Nov-13-18 20:01
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1420 50.0	1540 100	4180 99.2	1090 49.5	1990 99.0	1020 49.5
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00	Nov-13-18 15:00
	<i>Analyzed:</i>	Nov-13-18 20:08	Nov-13-18 20:28	Nov-13-18 20:47	Nov-13-18 21:06	Nov-13-18 22:04	Nov-13-18 22:24
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		475 15.0	171 15.0	142 15.0	<15.0 15.0	314 15.0	1650 14.9
Motor Oil Range Hydrocarbons (MRO)		48.1 15.0	24.6 15.0	17.1 15.0	<15.0 15.0	38.0 15.0	56.2 14.9
Total TPH		523 15.0	196 15.0	159 15.0	<15.0 15.0	352 15.0	1710 14.9

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

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Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS01**
Lab Sample Id: 605309-001

Matrix: Soil
Date Collected: 11.08.18 11.18

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	514	49.8	mg/kg	11.13.18 18.25		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 16.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	462	15.0	mg/kg	11.13.18 16.41		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	52.7	15.0	mg/kg	11.13.18 16.41		1
Total TPH	PHC635	515	15.0	mg/kg	11.13.18 16.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.13.18 16.41	
o-Terphenyl	84-15-1	93	%	70-135	11.13.18 16.41	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS01**
Lab Sample Id: 605309-001

Matrix: Soil
Date Collected: 11.08.18 11.18

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.13.18 19.26	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.13.18 19.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	124	%	70-130	11.13.18 19.26		
4-Bromofluorobenzene	460-00-4	71	%	70-130	11.13.18 19.26		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS02** Matrix: Soil Date Received: 11.13.18 13.55
 Lab Sample Id: 605309-002 Date Collected: 11.08.18 11.35 Sample Depth: 3
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.13.18 16.30 Basis: Wet Weight
 Seq Number: 3069555

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	86.9	4.95	mg/kg	11.14.18 10.07		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.13.18 15.00 Basis: Wet Weight
 Seq Number: 3069549

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 18.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	32.5	15.0	mg/kg	11.13.18 18.34		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.13.18 18.34	U	1
Total TPH	PHC635	32.5	15.0	mg/kg	11.13.18 18.34		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	11.13.18 18.34	
o-Terphenyl	84-15-1	92	%	70-135	11.13.18 18.34	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS02**
Lab Sample Id: 605309-002

Matrix: Soil
Date Collected: 11.08.18 11.35

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.13.18 19.47	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.13.18 19.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	118	%	70-130	11.13.18 19.47		
4-Bromofluorobenzene	460-00-4	67	%	70-130	11.13.18 19.47	**	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW01**
Lab Sample Id: 605309-003

Matrix: Soil
Date Collected: 11.09.18 08.32

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	464	49.6	mg/kg	11.13.18 18.36		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 18.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	845	15.0	mg/kg	11.13.18 18.52		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	91.6	15.0	mg/kg	11.13.18 18.52		1
Total TPH	PHC635	937	15.0	mg/kg	11.13.18 18.52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.13.18 18.52	
o-Terphenyl	84-15-1	105	%	70-135	11.13.18 18.52	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW01**
 Lab Sample Id: 605309-003

Matrix: Soil
 Date Collected: 11.09.18 08.32

Date Received: 11.13.18 13.55
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.13.18 20.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.13.18 20.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	70	%	70-130	11.13.18 20.09		
1,4-Difluorobenzene	540-36-3	97	%	70-130	11.13.18 20.09		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW02**
Lab Sample Id: 605309-004

Matrix: Soil
Date Collected: 11.09.18 08.37

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4090	99.2	mg/kg	11.13.18 18.41		20

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	26.0	15.0	mg/kg	11.14.18 08.29		1
Diesel Range Organics (DRO)	C10C28DRO	2540	15.0	mg/kg	11.14.18 08.29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	44.6	15.0	mg/kg	11.14.18 08.29		1
Total TPH	PHC635	2610	15.0	mg/kg	11.14.18 08.29		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	11.14.18 08.29		
o-Terphenyl	84-15-1	108	%	70-135	11.14.18 08.29		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW02**
Lab Sample Id: 605309-004

Matrix: Soil
Date Collected: 11.09.18 08.37

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.13.18 20.40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.13.18 20.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	77	%	70-130	11.13.18 20.40		
1,4-Difluorobenzene	540-36-3	118	%	70-130	11.13.18 20.40		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW03**
Lab Sample Id: 605309-005

Matrix: Soil
Date Collected: 11.09.18 09.26

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	824	49.5	mg/kg	11.13.18 18.57		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	11.13.18 19.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	20.9	14.9	mg/kg	11.13.18 19.30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	11.13.18 19.30	U	1
Total TPH	PHC635	20.9	14.9	mg/kg	11.13.18 19.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.13.18 19.30	
o-Terphenyl	84-15-1	92	%	70-135	11.13.18 19.30	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW03**
 Lab Sample Id: 605309-005

Matrix: Soil
 Date Collected: 11.09.18 09.26

Date Received: 11.13.18 13.55
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.13.18 21.15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.13.18 21.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	70-130	11.13.18 21.15		
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.13.18 21.15		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS03**
Lab Sample Id: 605309-006

Matrix: Soil
Date Collected: 11.09.18 09.27

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	403	49.5	mg/kg	11.13.18 19.02		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 19.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	20.5	15.0	mg/kg	11.13.18 19.49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.13.18 19.49	U	1
Total TPH	PHC635	20.5	15.0	mg/kg	11.13.18 19.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	11.13.18 19.49	
o-Terphenyl	84-15-1	92	%	70-135	11.13.18 19.49	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS03**
Lab Sample Id: 605309-006

Matrix: Soil
Date Collected: 11.09.18 09.27

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.13.18 23.21	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.13.18 23.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	72	%	70-130	11.13.18 23.21		
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.13.18 23.21		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS04**
Lab Sample Id: 605309-007

Matrix: Soil
Date Collected: 11.09.18 09.38

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1420	50.0	mg/kg	11.13.18 19.08		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 20.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	475	15.0	mg/kg	11.13.18 20.08		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	48.1	15.0	mg/kg	11.13.18 20.08		1
Total TPH	PHC635	523	15.0	mg/kg	11.13.18 20.08		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	11.13.18 20.08	
o-Terphenyl	84-15-1	94	%	70-135	11.13.18 20.08	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS04**
 Lab Sample Id: 605309-007

Matrix: Soil
 Date Collected: 11.09.18 09.38

Date Received: 11.13.18 13.55
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.14.18 00.04	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.14.18 00.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	74	%	70-130	11.14.18 00.04		
1,4-Difluorobenzene	540-36-3	121	%	70-130	11.14.18 00.04		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW04**
Lab Sample Id: 605309-008

Matrix: Soil
Date Collected: 11.09.18 15.35

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1540	100	mg/kg	11.13.18 19.13		20

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 20.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	171	15.0	mg/kg	11.13.18 20.28		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	24.6	15.0	mg/kg	11.13.18 20.28		1
Total TPH	PHC635	196	15.0	mg/kg	11.13.18 20.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	11.13.18 20.28	
o-Terphenyl	84-15-1	94	%	70-135	11.13.18 20.28	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW04**
Lab Sample Id: 605309-008

Matrix: Soil
Date Collected: 11.09.18 15.35

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.14.18 00.54	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.14.18 00.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.14.18 00.54		
4-Bromofluorobenzene	460-00-4	80	%	70-130	11.14.18 00.54		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW05**
Lab Sample Id: 605309-009

Matrix: Soil
Date Collected: 11.09.18 15.36

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4180	99.2	mg/kg	11.13.18 19.18		20

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 20.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	142	15.0	mg/kg	11.13.18 20.47		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	17.1	15.0	mg/kg	11.13.18 20.47		1
Total TPH	PHC635	159	15.0	mg/kg	11.13.18 20.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	11.13.18 20.47	
o-Terphenyl	84-15-1	89	%	70-135	11.13.18 20.47	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW05**
Lab Sample Id: 605309-009

Matrix: Soil
Date Collected: 11.09.18 15.36

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.14.18 01.21	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.14.18 01.21	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.14.18 01.21	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.14.18 01.21	U	1
o-Xylene	95-47-6	0.00321	0.00202	mg/kg	11.14.18 01.21		1
Total Xylenes	1330-20-7	0.00321	0.00202	mg/kg	11.14.18 01.21		1
Total BTEX		0.00321	0.00202	mg/kg	11.14.18 01.21		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	126	%	70-130	11.14.18 01.21		
4-Bromofluorobenzene	460-00-4	79	%	70-130	11.14.18 01.21		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW06**
Lab Sample Id: 605309-010

Matrix: Soil
Date Collected: 11.09.18 15.38

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1090	49.5	mg/kg	11.13.18 19.39		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 21.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.13.18 21.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.13.18 21.06	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.13.18 21.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	11.13.18 21.06	
o-Terphenyl	84-15-1	88	%	70-135	11.13.18 21.06	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **SW06**
 Lab Sample Id: 605309-010

Matrix: Soil
 Date Collected: 11.09.18 15.38

Date Received: 11.13.18 13.55
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.14.18 01.50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.14.18 01.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	11.14.18 01.50		
1,4-Difluorobenzene	540-36-3	102	%	70-130	11.14.18 01.50		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS05** Matrix: Soil Date Received: 11.13.18 13.55
 Lab Sample Id: 605309-011 Date Collected: 11.09.18 15.40 Sample Depth: 3
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.13.18 16.30 Basis: Wet Weight
 Seq Number: 3069555

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1990	99.0	mg/kg	11.13.18 19.45		20

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.13.18 15.00 Basis: Wet Weight
 Seq Number: 3069549

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.13.18 22.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	314	15.0	mg/kg	11.13.18 22.04		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	38.0	15.0	mg/kg	11.13.18 22.04		1
Total TPH	PHC635	352	15.0	mg/kg	11.13.18 22.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	11.13.18 22.04	
o-Terphenyl	84-15-1	92	%	70-135	11.13.18 22.04	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS05**
Lab Sample Id: 605309-011

Matrix: Soil
Date Collected: 11.09.18 15.40

Date Received: 11.13.18 13.55
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.14.18 03.15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.14.18 03.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	73	%	70-130	11.14.18 03.15		
1,4-Difluorobenzene	540-36-3	116	%	70-130	11.14.18 03.15		



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS06**
Lab Sample Id: 605309-012

Matrix: Soil
Date Collected: 11.09.18 15.41

Date Received: 11.13.18 13.55
Sample Depth: 6

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069555

Date Prep: 11.13.18 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1020	49.5	mg/kg	11.13.18 20.01		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069549

Date Prep: 11.13.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	11.13.18 22.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	1650	14.9	mg/kg	11.13.18 22.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	56.2	14.9	mg/kg	11.13.18 22.24		1
Total TPH	PHC635	1710	14.9	mg/kg	11.13.18 22.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	11.13.18 22.24	
o-Terphenyl	84-15-1	108	%	70-135	11.13.18 22.24	



Certificate of Analytical Results 605309



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS06**
Lab Sample Id: 605309-012

Matrix: Soil
Date Collected: 11.09.18 15.41

Date Received: 11.13.18 13.55
Sample Depth: 6

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.13.18 17.15

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.14.18 03.41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.14.18 03.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	124	%	70-130	11.14.18 03.41		
4-Bromofluorobenzene	460-00-4	79	%	70-130	11.14.18 03.41		



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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069555

MB Sample Id: 7666092-1-BLK

Matrix: Solid

LCS Sample Id: 7666092-1-BKS

Prep Method: E300P

Date Prep: 11.13.18

LCSD Sample Id: 7666092-1-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	255	102	255	102	90-110	0	20	mg/kg	11.13.18 17:59	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069555

Parent Sample Id: 605310-002

Matrix: Soil

MS Sample Id: 605310-002 S

Prep Method: E300P

Date Prep: 11.13.18

MSD Sample Id: 605310-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.7	250	306	105	309	106	90-110	1	20	mg/kg	11.13.18 18:15	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069555

Parent Sample Id: 605310-003

Matrix: Soil

MS Sample Id: 605310-003 S

Prep Method: E300P

Date Prep: 11.13.18

MSD Sample Id: 605310-003 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	363	93	360	92	90-110	1	20	mg/kg	11.13.18 19:29	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069549

MB Sample Id: 7666090-1-BLK

Matrix: Solid

LCS Sample Id: 7666090-1-BKS

Prep Method: TX1005P

Date Prep: 11.13.18

LCSD Sample Id: 7666090-1-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	938	94	959	96	70-135	2	20	mg/kg	11.13.18 16:04	
Diesel Range Organics (DRO)	<8.13	1000	988	99	1010	101	70-135	2	20	mg/kg	11.13.18 16:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		123		126		70-135	%	11.13.18 16:04
o-Terphenyl	102		99		103		70-135	%	11.13.18 16:04

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069549

Parent Sample Id: 605309-001

Matrix: Soil

MS Sample Id: 605309-001 S

Prep Method: TX1005P

Date Prep: 11.13.18

MSD Sample Id: 605309-001 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)	<7.99	999	851	85	848	85	70-135	0	20	mg/kg	11.13.18 17:00	
Diesel Range Organics (DRO)	462	999	1330	87	1340	88	70-135	1	20	mg/kg	11.13.18 17:00	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		103		70-135	%	11.13.18 17:00
o-Terphenyl	94		89		70-135	%	11.13.18 17:00

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069560

MB Sample Id: 7666096-1-BLK

Matrix: Solid

LCS Sample Id: 7666096-1-BKS

Prep Method: SW5030B

Date Prep: 11.13.18

LCSD Sample Id: 7666096-1-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	0.122	122	0.115	114	70-130	6	35	mg/kg	11.13.18 16:57	
Toluene	<0.00200	0.100	0.105	105	0.0991	98	70-130	6	35	mg/kg	11.13.18 16:57	
Ethylbenzene	<0.00200	0.100	0.122	122	0.116	115	70-130	5	35	mg/kg	11.13.18 16:57	
m,p-Xylenes	<0.00401	0.200	0.245	123	0.246	122	70-130	0	35	mg/kg	11.13.18 16:57	
o-Xylene	<0.00200	0.100	0.122	122	0.117	116	70-130	4	35	mg/kg	11.13.18 16:57	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		107		95		70-130	%	11.13.18 16:57
4-Bromofluorobenzene	70		91		81		70-130	%	11.13.18 16:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069560

Parent Sample Id: 605309-001

Matrix: Soil

MS Sample Id: 605309-001 S

Prep Method: SW5030B

Date Prep: 11.13.18

MSD Sample Id: 605309-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00488	0.244	0.0521	21	0.0466	47	70-130	11	35	mg/kg	11.13.18 18:00	X
Toluene	<0.00488	0.244	0.0358	15	0.0335	34	70-130	7	35	mg/kg	11.13.18 18:00	X
Ethylbenzene	<0.00488	0.244	0.0339	14	0.0321	32	70-130	5	35	mg/kg	11.13.18 18:00	X
m,p-Xylenes	<0.00247	0.488	0.0601	12	0.0579	29	70-130	4	35	mg/kg	11.13.18 18:00	X
o-Xylene	<0.00488	0.244	0.0317	13	0.0308	31	70-130	3	35	mg/kg	11.13.18 18:00	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	113		110		70-130	%	11.13.18 18:00
4-Bromofluorobenzene	73		76		70-130	%	11.13.18 18:00

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

CHAIN OF C STUDY

Page 7 Of 2

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

WWW.XENCO.COM

Xenoco Quota #

Xenco Job #

WCSBck

Client / Reporting Information						Project Information								Analytical Information										Matrix Codes				
Company Name / Branch: L.T. Environmental, Inc. Pelican Office						Project Name/Number: RENTAL BUSIN CTB																		W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air				
Company Address: 3300 N.A. St. Building 1 Unit 103 Midland TX 79701						Project Location: CARLSBAD, NM																						
Email: abaker@lterev.com						Phone No: (432) 704-5178																						
Project Contact: Adrian Baker						Invoice To: XTO ENERGY KYLE LITTELL																						
Samplers's Name:						PO Number:																						
No.	Field ID / Point of Collection					Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MECH	NONE	Field Comments									
1	S-1					3	11/10/18	1135	S	1																		
2	S-2																											
3	SW-1						11/10/18	0832																				
4	SW-2							0837																				
5	SW-3							0926																				
6	S-4							0929																				
7	S-5							0938																				
8	SW-5							1535																				
9	SW-6							1536																				
10	SW-7							1538																				
Turnaround Time (Business days)						Data Deliverable Information														Notes:								
☒ Same Day TAT ☐ 5 Day TAT						☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data)																						
☐ Next Day EMERGENCY ☐ 7 Day TAT						☐ Level III Std QC+ Forms ☐ TRRP Level IV																						
☐ 2 Day EMERGENCY ☐ Contract TAT						☐ Level 3 (CLP Forms) ☐ UST / RG -411																						
☐ 3 Day EMERGENCY						☐ TRRP Checklist																						
TAT Starts Day received by Lab, if received by 5:00 pm						FED-EX / UPS: Tracking # 173706936762																						
Relinquished by Sampler:						SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																						
Date Time: 11/12/18 1730						Received By: [Signature]				Relinquished By: [Signature]				Date Time: 11/12/18 1530		Received By: [Signature]												
Date Time:						Received By:				Relinquished By:				Date Time:		Received By:												
Date Time:						Received By:				Relinquished By:				Date Time:		Received By:												
Date Time:						Received By:				Custody Seal #				Preserved where applicable		On Ice Cooler Temp. Thermp. Corr. Factor												

Final 1.002

Page 34 of 37

Released to Imaging: 5/26/2022 11:33:06 AM

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenco.com										Xenco Quote #										Xenco Job #																			
Client / Reporting Information										Project Information										Analytical Information										Matrix Codes									
Company Name / Branch: IT Environmental, Inc. Palmian Office										Project Name/Number: REMUDA BASIN CTB										W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air																			
Company Address: 3300 N'A St. Building Unit 103 Midland, TX 79701										Project Location: CARLSBAD, NM																													
Email: abaker@itenv.com Phone No: (432) 704-5178										Invoice To: XTO ENERGY KYLE LITKELL																													
Project Contact: Adrian Baker										PO Number:																													
Samplers Name										PD Number:																													
No. Field ID / Point of Collection										Collection										Number of bottles per sample																			
										Sample Depth Date Time Matrix # of bottles										HCl NaOH Zn Acetate HNO3 H2SO4 NaOH NaHSO4 MECH NONE																			
1 S-6										3 11/10/18 1540 S 1										X X X X X																			
2 S-7										6 11/10/18 1541 S 1										X X X X X																			
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
Turnaround Time (Business days)										Data Deliverable Information										Notes:																			
☒ Same Day TAT ☐ 5 Day TAT										☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data)																													
☐ Next Day EMERGENCY ☐ 7 Day TAT										☐ Level III Std QC+ Forms ☐ TRRP Level IV																													
☐ 2 Day EMERGENCY ☐ Contract TAT										☐ Level 3 (CLP Forms) ☐ UST / RG -411																													
☐ 3 Day EMERGENCY										☐ TRRP Checklist																													
TAT Starts Day received by Lab, if received by 5:00 pm																																							
Relinquished by Sampler:										SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY										FED-EX / UPS: Tracking #																			
Relinquished by:										Date Time: 11/12/18 1250 Received By: [Signature]										Date Time: 11/12/18 1530 Received By: [Signature]																			
Relinquished by:										Date Time: Received By:										Date Time: Received By:																			
Relinquished by:										Date Time: Received By:										Date Time: Received By:																			
										Custody Seal #										Preserved where applicable																			
																				On Ice Cooler Temp. Thermo. Corr. Factor																			
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms be enforced unless previously negotiated under a fully executed client contract.																																							

ORIGIN ID:CAOA (575) 887-6245
XENCO SATURDAY
PAC N MAIL
910 W PIERCE ST

CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 12NOV18
ACTWGT: 67.00 LB
CAD: 101813706/INET4040
DIMS: 30x16x16 IN

BILL RECIPIENT

TO HOLD FOR XENCO
FEDEX OFFICE PRINT & SHIP CENTER
FEDEX OFFICE PRINT & SHIP CENTER
200 W INTERSTATE 20

MIDLAND TX 79701

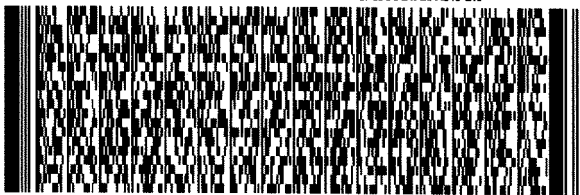
(806) 674-0639

REF: XENCO

INV:

PO:

DEPT:



FedEx
Express



J11211008150117

TRK#
0201

7737 0693 6762

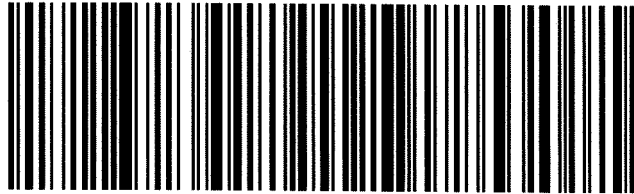
TUE - 13 NOV HOLD
PRIORITY OVERNIGHT

HLD

MAFKI

TX-US LBB

41 MAFA



552J3/C3B2/DC45

After printing this label:

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

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 11/13/2018 01:55:00 PM

Work Order #: 605309

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 11/13/2018

Checklist reviewed by:

Jessica Kramer

Date: 11/14/2018

Analytical Report 605373

for
LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda Basin CTB

15-NOV-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

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

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



15-NOV-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **605373**

Remuda Basin CTB

Project Address: Eddy County 2RP-4958

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 605373. 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. 605373 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

**Sample Cross Reference 605373****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01 A	S	11-12-18 12:30	6 In	605373-001
PH01 B	S	11-12-18 12:35	1 ft	605373-002
PH02 A	S	11-12-18 15:10	6 In	605373-003
PH02 B	S	11-12-18 15:20	1 ft	605373-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID:
Work Order Number(s): 605373

Report Date: 15-NOV-18
Date Received: 11/14/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3069560 BTEX by EPA 8021B

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



Certificate of Analysis Summary 605373

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id:

Contact: Adrian Baker

Project Location: Eddy County 2RP-4958

Date Received in Lab: Wed Nov-14-18 11:00 am

Report Date: 15-NOV-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	605373-001	605373-002	605373-003	605373-004		
	<i>Field Id:</i>	PH01 A	PH01 B	PH02 A	PH02 B		
	<i>Depth:</i>	6- In	1- ft	6- In	1- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Nov-12-18 12:30	Nov-12-18 12:35	Nov-12-18 15:10	Nov-12-18 15:20		
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-14-18 13:00	Nov-14-18 13:00	Nov-14-18 13:00	Nov-14-18 13:00		
	<i>Analyzed:</i>	*** ** *	*** ** *	Nov-14-18 13:02	Nov-14-18 13:25		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00398 0.00398	<0.00399 0.00399		
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200		
Inorganic Anions by EPA 300	<i>Extracted:</i>	Nov-14-18 12:30	Nov-14-18 12:30	Nov-14-18 12:30	Nov-14-18 12:30		
	<i>Analyzed:</i>	Nov-14-18 14:25	Nov-15-18 09:47	Nov-15-18 09:53	Nov-14-18 14:43		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		352 50.0	<4.97 4.97	13.0 4.98	210 25.2		
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-14-18 14:00	Nov-14-18 14:00	Nov-14-18 14:00	Nov-14-18 14:00		
	<i>Analyzed:</i>	Nov-14-18 20:29	Nov-14-18 21:24	Nov-14-18 21:43	Nov-14-18 22:01		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 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		
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.9%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH01 A** Matrix: Soil Date Received: 11.14.18 11.00
 Lab Sample Id: 605373-001 Date Collected: 11.12.18 12.30 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.14.18 12.30 Basis: Wet Weight
 Seq Number: 3069670

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	352	50.0	mg/kg	11.14.18 14.25		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.14.18 14.00 Basis: Wet Weight
 Seq Number: 3069680

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.14.18 20.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.14.18 20.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.14.18 20.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.14.18 20.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.14.18 20.29	
o-Terphenyl	84-15-1	93	%	70-135	11.14.18 20.29	



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH01 A**
 Lab Sample Id: 605373-001

Matrix: Soil
 Date Collected: 11.12.18 12.30

Date Received: 11.14.18 11.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.14.18 13.00

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.14.18 12.18	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.14.18 12.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	11.14.18 12.18		
4-Bromofluorobenzene	460-00-4	71	%	70-130	11.14.18 12.18		



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH01 B** Matrix: Soil Date Received: 11.14.18 11.00
 Lab Sample Id: 605373-002 Date Collected: 11.12.18 12.35 Sample Depth: 1 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.14.18 12.30 Basis: Wet Weight
 Seq Number: 3069670

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	11.15.18 09.47	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.14.18 14.00 Basis: Wet Weight
 Seq Number: 3069680

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.14.18 21.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.14.18 21.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.14.18 21.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.14.18 21.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	11.14.18 21.24	
o-Terphenyl	84-15-1	87	%	70-135	11.14.18 21.24	



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH01 B**
 Lab Sample Id: 605373-002

Matrix: Soil
 Date Collected: 11.12.18 12.35

Date Received: 11.14.18 11.00
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.14.18 13.00

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.14.18 12.40	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.14.18 12.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	11.14.18 12.40		
4-Bromofluorobenzene	460-00-4	75	%	70-130	11.14.18 12.40		



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH02 A** Matrix: Soil Date Received: 11.14.18 11.00
 Lab Sample Id: 605373-003 Date Collected: 11.12.18 15.10 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.14.18 12.30 Basis: Wet Weight
 Seq Number: 3069670

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.0	4.98	mg/kg	11.15.18 09.53		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.14.18 14.00 Basis: Wet Weight
 Seq Number: 3069680

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.14.18 21.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.14.18 21.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.14.18 21.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.14.18 21.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	11.14.18 21.43	
o-Terphenyl	84-15-1	92	%	70-135	11.14.18 21.43	



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH02 A**
 Lab Sample Id: 605373-003

Matrix: Soil
 Date Collected: 11.12.18 15.10

Date Received: 11.14.18 11.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.14.18 13.00

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.14.18 13.02	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.14.18 13.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	11.14.18 13.02		
4-Bromofluorobenzene	460-00-4	72	%	70-130	11.14.18 13.02		



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH02 B**
Lab Sample Id: 605373-004

Matrix: Soil
Date Collected: 11.12.18 15.20

Date Received: 11.14.18 11.00
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069670

Date Prep: 11.14.18 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	210	25.2	mg/kg	11.14.18 14.43		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069680

Date Prep: 11.14.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.14.18 22.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.14.18 22.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.14.18 22.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.14.18 22.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.14.18 22.01	
o-Terphenyl	84-15-1	91	%	70-135	11.14.18 22.01	



Certificate of Analytical Results 605373



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH02 B**
 Lab Sample Id: 605373-004

Matrix: Soil
 Date Collected: 11.12.18 15.20

Date Received: 11.14.18 11.00
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.14.18 13.00

Basis: Wet Weight

Seq Number: 3069560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.14.18 13.25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.14.18 13.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	11.14.18 13.25		
4-Bromofluorobenzene	460-00-4	77	%	70-130	11.14.18 13.25		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069670

MB Sample Id: 7666131-1-BLK

Matrix: Solid

LCS Sample Id: 7666131-1-BKS

Prep Method: E300P

Date Prep: 11.14.18

LCSD Sample Id: 7666131-1-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	257	103	90-110	2	20	mg/kg	11.14.18 13:54	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069670

Parent Sample Id: 605034-006

Matrix: Soil

MS Sample Id: 605034-006 S

Prep Method: E300P

Date Prep: 11.14.18

MSD Sample Id: 605034-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.93	248	240	94	251	98	90-110	4	20	mg/kg	11.14.18 15:39	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069670

Parent Sample Id: 605374-001

Matrix: Soil

MS Sample Id: 605374-001 S

Prep Method: E300P

Date Prep: 11.14.18

MSD Sample Id: 605374-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	903	252	1100	78	1100	78	90-110	0	20	mg/kg	11.14.18 14:12	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069680

MB Sample Id: 7666151-1-BLK

Matrix: Solid

LCS Sample Id: 7666151-1-BKS

Prep Method: TX1005P

Date Prep: 11.14.18

LCSD Sample Id: 7666151-1-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	966	97	978	98	70-135	1	20	mg/kg	11.14.18 19:52	
Diesel Range Organics (DRO)	<8.13	1000	929	93	947	95	70-135	2	20	mg/kg	11.14.18 19:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	85		121		123		70-135	%	11.14.18 19:52
o-Terphenyl	91		97		101		70-135	%	11.14.18 19:52

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069680

Parent Sample Id: 605373-001

Matrix: Soil

MS Sample Id: 605373-001 S

Prep Method: TX1005P

Date Prep: 11.14.18

MSD Sample Id: 605373-001 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)	<7.99	998	915	92	930	93	70-135	2	20	mg/kg	11.14.18 20:47	
Diesel Range Organics (DRO)	<8.11	998	902	90	916	92	70-135	2	20	mg/kg	11.14.18 20:47	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		107		70-135	%	11.14.18 20:47
o-Terphenyl	97		95		70-135	%	11.14.18 20:47

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069560

MB Sample Id: 7666096-1-BLK

Matrix: Solid

LCS Sample Id: 7666096-1-BKS

Prep Method: SW5030B

Date Prep: 11.13.18

LCSD Sample Id: 7666096-1-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	0.122	122	0.115	114	70-130	6	35	mg/kg	11.13.18 16:57	
Toluene	<0.00200	0.100	0.105	105	0.0991	98	70-130	6	35	mg/kg	11.13.18 16:57	
Ethylbenzene	<0.00200	0.100	0.122	122	0.116	115	70-130	5	35	mg/kg	11.13.18 16:57	
m,p-Xylenes	<0.00401	0.200	0.245	123	0.246	122	70-130	0	35	mg/kg	11.13.18 16:57	
o-Xylene	<0.00200	0.100	0.122	122	0.117	116	70-130	4	35	mg/kg	11.13.18 16:57	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		107		95		70-130	%	11.13.18 16:57
4-Bromofluorobenzene	70		91		81		70-130	%	11.13.18 16:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069560

Parent Sample Id: 605309-001

Matrix: Soil

MS Sample Id: 605309-001 S

Prep Method: SW5030B

Date Prep: 11.13.18

MSD Sample Id: 605309-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00488	0.244	0.0521	21	0.0466	47	70-130	11	35	mg/kg	11.13.18 18:00	X
Toluene	<0.00488	0.244	0.0358	15	0.0335	34	70-130	7	35	mg/kg	11.13.18 18:00	X
Ethylbenzene	<0.00488	0.244	0.0339	14	0.0321	32	70-130	5	35	mg/kg	11.13.18 18:00	X
m,p-Xylenes	<0.00247	0.488	0.0601	12	0.0579	29	70-130	4	35	mg/kg	11.13.18 18:00	X
o-Xylene	<0.00488	0.244	0.0317	13	0.0308	31	70-130	3	35	mg/kg	11.13.18 18:00	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	113		110		70-130	%	11.13.18 18:00
4-Bromofluorobenzene	73		76		70-130	%	11.13.18 18:00

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



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CHAIN OF C STUDY

Page 1 of 1

San Antonio, Texas (210-509-3334)
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Phoenix, Arizona (480-355-0900)

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Xenco Quote # Xenco Job # **605373**

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes
Company Name / Branch: IT Environmental, Inc. Permian Office		Project Name/Number: Remuda Basin CTB		BTX (only BTX) 8021 TPH/DRO/GRO/MPO 8015 Chloride (300.00)												W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air
Company Address: 3300 N. St. Building Unit 103 Midland, TX 79702		Project Location: Eddy County 2RP4958														
Email: abaker@itenv.com Phone No: (432) 704-5178		Invoice To: XTO: Kyle Littrell														
Project Contact: Adrian Baker		PO Number:														
Samplers Name: Anna Byers																
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Field Comments	
1	PH01 A	6"	11/12	12:30	S	1										
2	PH01 B	1'	11/12	12:35	S	1										
3	PH02 A	6"	11/12	15:10	S	1										
4	PH02 B	1'	11/12	15:20	S	1										
5																
6																
7																
8																
9																
10																

Turnaround Time (Business days)		Data Deliverable Information		Notes:	
☒ Same Day TAT	☐ 5 Day TAT	☐ Level II Std QC	☐ Level IV (Full Data Pkg /raw data)		
☐ Next Day EMERGENCY	☐ 7 Day TAT	☐ Level III Std QC+ Forms	☐ TRRP Level IV		
☐ 2 Day EMERGENCY	☐ Contract TAT	☐ Level 3 (CLP Forms)	☐ UST / RG -411		
☐ 3 Day EMERGENCY		☐ TRRP Checklist			

TAT Starts Day received by Lab, if received by 5:00 pm		FED-EX / UPS: Tracking # 73718125311	
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING CARRIER DELIVERY			
Relinquished by Sampler: Anna Byers	Date Time: 11/12/18 17:30	Received By: [Signature]	Relinquished By: [Signature]
Relinquished by: [Signature]	Date Time: 11/13/18 15:30	Received By: [Signature]	Relinquished By: [Signature]
Relinquished by: [Signature]	Date Time: 11/14/18 11:00	Received By: [Signature]	Relinquished By: [Signature]
5		5	

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

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 XENCO
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 910 W PIERCE ST

CARLSBAD, NM 88220
 UNITED STATES US

SHIP DATE: 13NOV18
 ACTWGT: 26.00 LB
 CAD: 101813706/NET4040
 DIMS: 27x15x14 IN

BILL RECIPIENT

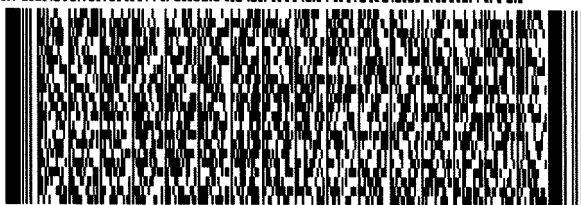
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(806) 794-1296
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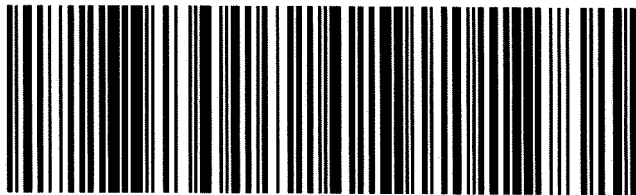
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TX-US

LBB

41 MAFA



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Client: LT Environmental, Inc.

Date/ Time Received: 11/14/2018 11:00:00 AM

Work Order #: 605373

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 11/14/2018

Checklist reviewed by:

Jessica Kramer

Date: 11/14/2018

Analytical Report 605663

for
LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda Basin CTB

18-NOV-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

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

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



18-NOV-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **605663**

Remuda Basin CTB

Project Address: Eddy County 2RP4958

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 605663. 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. 605663 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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**Sample Cross Reference 605663****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH06 A	S	11-14-18 11:15	6 In	605663-001
PH06 B	S	11-14-18 11:20	1 ft	605663-002
PH07 A	S	11-14-18 13:20	6 In	605663-003
PH07 B	S	11-14-18 13:35	1 ft	605663-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID:
Work Order Number(s): 605663

Report Date: 18-NOV-18
Date Received: 11/15/2018

Sample receipt non conformance and comments:

None

Sample receipt non conformance and comments per sample:

None

Analytical non conformance and comments:

Batch: LBA-3069968 BTEX by EPA 8021B

Lab Sample ID 605663-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, 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: 605663-001, -002, -003, -004.

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

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



Certificate of Analysis Summary 605663

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id:

Contact: Adrian Baker

Project Location: Eddy County 2RP4958

Date Received in Lab: Thu Nov-15-18 03:05 pm

Report Date: 18-NOV-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	605663-001	605663-002	605663-003	605663-004		
	<i>Field Id:</i>	PH06 A	PH06 B	PH07 A	PH07 B		
	<i>Depth:</i>	6- In	1- ft	6- In	1- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Nov-14-18 11:15	Nov-14-18 11:20	Nov-14-18 13:20	Nov-14-18 13:35		
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00		
	<i>Analyzed:</i>	Nov-17-18 14:38	Nov-17-18 14:58	Nov-17-18 15:17	Nov-17-18 15:37		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
m,p-Xylenes		<0.00401 0.00401	<0.00397 0.00397	<0.00398 0.00398	<0.00398 0.00398		
o-Xylene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
Total Xylenes		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
Total BTEX		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199		
Inorganic Anions by EPA 300	<i>Extracted:</i>	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15		
	<i>Analyzed:</i>	Nov-15-18 21:54	Nov-15-18 22:00	Nov-15-18 22:06	Nov-15-18 22:12		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		<4.95 4.95	8.99 4.96	255 49.7	243 50.0		
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00		
	<i>Analyzed:</i>	Nov-16-18 00:39	Nov-16-18 01:34	Nov-16-18 01:52	Nov-16-18 02:11		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0		
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0		
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0		

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer
Project Assistant



Certificate of Analytical Results 605663

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH06 A** Matrix: Soil Date Received: 11.15.18 15.05
 Lab Sample Id: 605663-001 Date Collected: 11.14.18 11.15 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.15.18 16.15 Basis: Wet Weight
 Seq Number: 3069902

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	11.16.18 11.26	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.15.18 17.00 Basis: Wet Weight
 Seq Number: 3069890

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 00.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 00.39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 00.39	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 00.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.16.18 00.39	
o-Terphenyl	84-15-1	99	%	70-135	11.16.18 00.39	



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH06 A**
 Lab Sample Id: 605663-001

Matrix: Soil
 Date Collected: 11.14.18 11.15

Date Received: 11.15.18 15.05
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.17.18 14.38	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.17.18 14.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	11.17.18 14.38		
1,4-Difluorobenzene	540-36-3	108	%	70-130	11.17.18 14.38		



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH06 B**
Lab Sample Id: 605663-002

Matrix: Soil
Date Collected: 11.14.18 11.20

Date Received: 11.15.18 15.05
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069902

Date Prep: 11.15.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.99	4.96	mg/kg	11.16.18 11.32		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069890

Date Prep: 11.15.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	11.16.18 01.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	11.16.18 01.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	11.16.18 01.34	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	11.16.18 01.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.16.18 01.34	
o-Terphenyl	84-15-1	96	%	70-135	11.16.18 01.34	



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH06 B**
 Lab Sample Id: 605663-002

Matrix: Soil
 Date Collected: 11.14.18 11.20

Date Received: 11.15.18 15.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.17.18 14.58	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.17.18 14.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.17.18 14.58		
4-Bromofluorobenzene	460-00-4	128	%	70-130	11.17.18 14.58		



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH07 A** Matrix: Soil Date Received: 11.15.18 15.05
 Lab Sample Id: 605663-003 Date Collected: 11.14.18 13.20 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.15.18 16.15 Basis: Wet Weight
 Seq Number: 3069902

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	255	49.7	mg/kg	11.16.18 11.39		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.15.18 17.00 Basis: Wet Weight
 Seq Number: 3069890

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 01.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 01.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 01.52	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 01.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.16.18 01.52	
o-Terphenyl	84-15-1	92	%	70-135	11.16.18 01.52	



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH07 A**
 Lab Sample Id: 605663-003

Matrix: Soil
 Date Collected: 11.14.18 13.20

Date Received: 11.15.18 15.05
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.17.18 15.17	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.17.18 15.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.17.18 15.17		
4-Bromofluorobenzene	460-00-4	126	%	70-130	11.17.18 15.17		



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH07 B**
Lab Sample Id: 605663-004

Matrix: Soil
Date Collected: 11.14.18 13.35

Date Received: 11.15.18 15.05
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069902

Date Prep: 11.15.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	243	50.0	mg/kg	11.16.18 11.45		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069890

Date Prep: 11.15.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 02.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 02.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 02.11	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 02.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.16.18 02.11	
o-Terphenyl	84-15-1	94	%	70-135	11.16.18 02.11	



Certificate of Analytical Results 605663



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH07 B**
 Lab Sample Id: 605663-004

Matrix: Soil
 Date Collected: 11.14.18 13.35

Date Received: 11.15.18 15.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.17.18 15.37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.17.18 15.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	130	%	70-130	11.17.18 15.37		
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.17.18 15.37		



Flagging Criteria



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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

MB Sample Id: 7666228-1-BLK

Matrix: Solid

LCS Sample Id: 7666228-1-BKS

Prep Method: E300P

Date Prep: 11.15.18

LCSD Sample Id: 7666228-1-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	270	108	274	110	90-110	1	20	mg/kg	11.16.18 10:55	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

Parent Sample Id: 605664-001

Matrix: Solid

MS Sample Id: 605664-001 S

Prep Method: E300P

Date Prep: 11.15.18

MSD Sample Id: 605664-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.75	250	289	115	285	113	90-110	1	20	mg/kg	11.16.18 11:14	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

Parent Sample Id: 605665-001

Matrix: Soil

MS Sample Id: 605665-001 S

Prep Method: E300P

Date Prep: 11.15.18

MSD Sample Id: 605665-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	414	250	693	112	650	94	90-110	6	20	mg/kg	11.15.18 23:08	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069890

MB Sample Id: 7666236-1-BLK

Matrix: Solid

LCS Sample Id: 7666236-1-BKS

Prep Method: TX1005P

Date Prep: 11.15.18

LCSD Sample Id: 7666236-1-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	1000	100	992	99	70-135	1	20	mg/kg	11.16.18 00:03	
Diesel Range Organics (DRO)	<8.13	1000	991	99	978	98	70-135	1	20	mg/kg	11.16.18 00:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		126		125		70-135	%	11.16.18 00:03
o-Terphenyl	94		99		102		70-135	%	11.16.18 00:03

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069890

Parent Sample Id: 605663-001

Matrix: Soil

MS Sample Id: 605663-001 S

Prep Method: TX1005P

Date Prep: 11.15.18

MSD Sample Id: 605663-001 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)	<8.00	1000	981	98	962	96	70-135	2	20	mg/kg	11.16.18 00:57	
Diesel Range Organics (DRO)	<8.13	1000	974	97	948	95	70-135	3	20	mg/kg	11.16.18 00:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	129		125		70-135	%	11.16.18 00:57
o-Terphenyl	104		103		70-135	%	11.16.18 00:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069968

MB Sample Id: 7666368-1-BLK

Matrix: Solid

LCS Sample Id: 7666368-1-BKS

Prep Method: SW5030B

Date Prep: 11.17.18

LCSD Sample Id: 7666368-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.106	107	0.0981	98	70-130	8	35	mg/kg	11.17.18 12:39	
Toluene	<0.00199	0.0994	0.0936	94	0.0873	87	70-130	7	35	mg/kg	11.17.18 12:39	
Ethylbenzene	<0.00199	0.0994	0.101	102	0.0954	96	70-130	6	35	mg/kg	11.17.18 12:39	
m,p-Xylenes	<0.00398	0.199	0.195	98	0.185	93	70-130	5	35	mg/kg	11.17.18 12:39	
o-Xylene	<0.00199	0.0994	0.0981	99	0.0932	93	70-130	5	35	mg/kg	11.17.18 12:39	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		100		100		70-130	%	11.17.18 12:39
4-Bromofluorobenzene	107		115		116		70-130	%	11.17.18 12:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069968

Parent Sample Id: 605663-001

Matrix: Soil

MS Sample Id: 605663-001 S

Prep Method: SW5030B

Date Prep: 11.17.18

MSD Sample Id: 605663-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00488	0.244	0.00910	4	0.00833	8	70-130	9	35	mg/kg	11.17.18 13:18	X
Toluene	<0.00488	0.244	0.00812	3	0.00674	7	70-130	19	35	mg/kg	11.17.18 13:18	X
Ethylbenzene	<0.00488	0.244	0.00910	4	0.00736	7	70-130	21	35	mg/kg	11.17.18 13:18	X
m,p-Xylenes	<0.00247	0.488	0.0196	4	0.0152	8	70-130	25	35	mg/kg	11.17.18 13:18	X
o-Xylene	<0.00488	0.244	0.0108	4	0.00815	8	70-130	28	35	mg/kg	11.17.18 13:18	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		109		70-130	%	11.17.18 13:18
4-Bromofluorobenzene	130		125		70-130	%	11.17.18 13:18

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



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CHAIN OF C STUDY

Page 1 Of 1

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 Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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Xenco Quote # Xenco Job # 1005463

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes
Company Name / Branch: IT Environmental, Inc. Permian Office		Project Name/Number: Remuda Basin CTB		BTGX (only BTGX) 8021 TPH/DRO/GRO/MPO 8015 Chloride (300.00) W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air												Field Comments
Company Address: 3300 N. A St. Building 1 Unit 103 Midland, TX 79701		Project Location: Eddy County 2RP4958														
Email: abaker@itenv.com Phone No: (432) 704-5178		Invoice To: XTO Kyle Littrell														
Project Contact: Adrian Baker		PO Number:														
Samplers Name: Anna Byers		Collection														
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE		
1	PH06A	6"	11/14	11:15	S	1										
2	PH06B	1'	11/14	11:20	S	1										
3	PH07A	6"	11/14	13:20	S	1										
4	PH07B	1'	11/14	13:35	S	1										
5																
6																
7																
8																
9																
10																
Turnaround Time (Business days)		Data Deliverable Information														Notes:
☒ Same Day TAT ☐ 5 Day TAT		☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data)														
☐ Next Day EMERGENCY ☐ 7 Day TAT		☐ Level III Std QC+ Forms ☐ TRRP Level IV														
☐ 2 Day EMERGENCY ☐ Contract TAT		☐ Level 3 (CLP Forms) ☐ UST / RG -411														
☐ 3 Day EMERGENCY		☐ TRRP Checklist														
TAT Starts Day received by Lab, if received by 5:00 pm		FED-EX / UPS: Tracking # 77572ais6490														
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLE CHANGE POSSESSION, INCLUDING COURIER DELIVERY																
Relinquished by Sampler: Anna Byers		Date Time: 11/14/18 05:00		Received By: [Signature]		Relinquished By: [Signature]		Date Time: 11/14/18 15:30		Received By: [Signature]		Date Time: 11/15/18 05:05		Received By: [Signature]		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		
Custody Seal #		Preserved where applicable		On Ice		Cooler Temp.		Thermo. Corr. Factor								

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

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

SHIP DATE: 14NOV18
 ACTWGT: 45.50 LB
 CAD: 101813706/NET4040
 DIMS: 26x14x15 IN
 BILL RECIPIENT

TO HOLD FOR XENCO
 FEDEX EXPRESS SHIP CENTER
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MIDLAND TX 79711

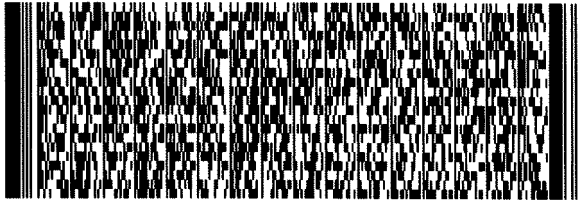
(806) 794-1296

REF:

INV:

PO:

DEPT:



552,03C3B2D0C45

TRK#
0201

7737 2915 0490

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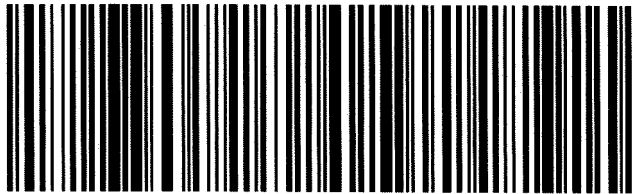
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After printing this label:

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Client: LT Environmental, Inc.

Date/ Time Received: 11/15/2018 03:05:00 PM

Work Order #: 605663

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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: 11/15/2018

Checklist reviewed by:

Jessica Kramer

Date: 11/16/2018

Analytical Report 605664

for
LT Environmental, Inc.

Project Manager: Adrian Baker

Remuda Basin CTB

19-NOV-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

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

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



19-NOV-18

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **605664**

Remuda Basin CTB

Project Address: Eddy County 2RP4958

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 605664. 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. 605664 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink, appearing to read 'Kelsey Brooks', written over a horizontal line.

Kelsey Brooks

Project Manager

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 605664****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH03 A	S	11-13-18 09:45	6 In	605664-001
PH03 B	S	11-13-18 09:50	1 ft	605664-002
PH04 A	S	11-13-18 10:45	6 In	605664-003
PH04 B	S	11-13-18 10:55	1 ft	605664-004
PH05 A	S	11-13-18 15:15	6 In	605664-005
PH05 B	S	11-13-18 15:25	1 ft	605664-006



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID:
Work Order Number(s): 605664

Report Date: 19-NOV-18
Date Received: 11/15/2018

Sample receipt non conformance and comments:

None

Sample receipt non conformance and comments per sample:

None

Analytical non conformance and comments:

Batch: LBA-3069902 Inorganic Anions by EPA 300

Lab Sample ID 605665-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 605664-001, -002, -004, -005, -006. The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3069968 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 605664-002.

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



Certificate of Analysis Summary 605664

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id:

Contact: Adrian Baker

Project Location: Eddy County 2RP4958

Date Received in Lab: Thu Nov-15-18 03:05 pm

Report Date: 19-NOV-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	605664-001	605664-002	605664-003	605664-004	605664-005	605664-006
	<i>Field Id:</i>	PH03 A	PH03 B	PH04 A	PH04 B	PH05 A	PH05 B
	<i>Depth:</i>	6- In	1- ft	6- In	1- ft	6- In	1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-13-18 09:45	Nov-13-18 09:50	Nov-13-18 10:45	Nov-13-18 10:55	Nov-13-18 15:15	Nov-13-18 15:25
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00	Nov-17-18 10:00
	<i>Analyzed:</i>	Nov-17-18 15:57	Nov-17-18 16:16	Nov-17-18 16:36	Nov-17-18 16:56	Nov-17-18 17:15	Nov-17-18 17:35
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00398 0.00398	<0.00399 0.00399	<0.00399 0.00399	<0.00398 0.00398	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Inorganic Anions by EPA 300	<i>Extracted:</i>	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15	Nov-15-18 16:15
	<i>Analyzed:</i>	Nov-15-18 21:35	Nov-15-18 22:31	Nov-15-18 22:37	Nov-15-18 22:43	Nov-15-18 22:49	Nov-15-18 22:55
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1.75 0.500	6.19 5.01	207 4.98	6600 49.6	101 5.00	221 4.99
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00	Nov-15-18 17:00
	<i>Analyzed:</i>	Nov-16-18 02:29	Nov-16-18 02:47	Nov-16-18 03:06	Nov-16-18 03:24	Nov-16-18 03:42	Nov-16-18 04:01
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH03 A**
Lab Sample Id: 605664-001

Matrix: Soil
Date Collected: 11.13.18 09.45

Date Received: 11.15.18 15.05
Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069902

Date Prep: 11.15.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1.75	0.500	mg/kg	11.16.18 11.08		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069890

Date Prep: 11.15.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 02.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 02.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 02.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 02.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.16.18 02.29	
o-Terphenyl	84-15-1	94	%	70-135	11.16.18 02.29	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH03 A**
 Lab Sample Id: 605664-001

Matrix: Soil
 Date Collected: 11.13.18 09.45

Date Received: 11.15.18 15.05
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.17.18 15.57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.17.18 15.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.17.18 15.57		
4-Bromofluorobenzene	460-00-4	128	%	70-130	11.17.18 15.57		



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH03 B** Matrix: Soil Date Received: 11.15.18 15.05
 Lab Sample Id: 605664-002 Date Collected: 11.13.18 09.50 Sample Depth: 1 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.15.18 16.15 Basis: Wet Weight
 Seq Number: 3069902

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.19	5.01	mg/kg	11.15.18 22.31		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.15.18 17.00 Basis: Wet Weight
 Seq Number: 3069890

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 02.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 02.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 02.47	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 02.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	11.16.18 02.47	
o-Terphenyl	84-15-1	93	%	70-135	11.16.18 02.47	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH03 B**
 Lab Sample Id: 605664-002

Matrix: Soil
 Date Collected: 11.13.18 09.50

Date Received: 11.15.18 15.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.17.18 16.16	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.17.18 16.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	131	%	70-130	11.17.18 16.16	**	
1,4-Difluorobenzene	540-36-3	111	%	70-130	11.17.18 16.16		



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH04 A** Matrix: Soil Date Received: 11.15.18 15.05
 Lab Sample Id: 605664-003 Date Collected: 11.13.18 10.45 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.15.18 16.15 Basis: Wet Weight
 Seq Number: 3069902

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	207	4.98	mg/kg	11.15.18 22.37		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.15.18 17.00 Basis: Wet Weight
 Seq Number: 3069890

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 03.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 03.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 03.06	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 03.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	11.16.18 03.06	
o-Terphenyl	84-15-1	93	%	70-135	11.16.18 03.06	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH04 A**
 Lab Sample Id: 605664-003

Matrix: Soil
 Date Collected: 11.13.18 10.45

Date Received: 11.15.18 15.05
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.17.18 16.36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.17.18 16.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.17.18 16.36		
4-Bromofluorobenzene	460-00-4	130	%	70-130	11.17.18 16.36		



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH04 B**
Lab Sample Id: 605664-004

Matrix: Soil
Date Collected: 11.13.18 10.55

Date Received: 11.15.18 15.05
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069902

Date Prep: 11.15.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6600	49.6	mg/kg	11.15.18 22.43		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069890

Date Prep: 11.15.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	11.16.18 03.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	11.16.18 03.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	11.16.18 03.24	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	11.16.18 03.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.16.18 03.24	
o-Terphenyl	84-15-1	91	%	70-135	11.16.18 03.24	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH04 B**
 Lab Sample Id: 605664-004

Matrix: Soil
 Date Collected: 11.13.18 10.55

Date Received: 11.15.18 15.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.17.18 16.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.17.18 16.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.17.18 16.56		
4-Bromofluorobenzene	460-00-4	128	%	70-130	11.17.18 16.56		



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH05 A** Matrix: Soil Date Received: 11.15.18 15.05
 Lab Sample Id: 605664-005 Date Collected: 11.13.18 15.15 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 11.15.18 16.15 Basis: Wet Weight
 Seq Number: 3069902

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	101	5.00	mg/kg	11.15.18 22.49		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 11.15.18 17.00 Basis: Wet Weight
 Seq Number: 3069890

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 03.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 03.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 03.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 03.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.16.18 03.42	
o-Terphenyl	84-15-1	94	%	70-135	11.16.18 03.42	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH05 A**
 Lab Sample Id: 605664-005

Matrix: Soil
 Date Collected: 11.13.18 15.15

Date Received: 11.15.18 15.05
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.17.18 17.15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.17.18 17.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	129	%	70-130	11.17.18 17.15		
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.17.18 17.15		



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH05 B**
Lab Sample Id: 605664-006

Matrix: Soil
Date Collected: 11.13.18 15.25

Date Received: 11.15.18 15.05
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3069902

Date Prep: 11.15.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	4.99	mg/kg	11.15.18 22.55		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3069890

Date Prep: 11.15.18 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	11.16.18 04.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	11.16.18 04.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	11.16.18 04.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	11.16.18 04.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.16.18 04.01	
o-Terphenyl	84-15-1	89	%	70-135	11.16.18 04.01	



Certificate of Analytical Results 605664



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **PH05 B**
 Lab Sample Id: 605664-006

Matrix: Soil
 Date Collected: 11.13.18 15.25

Date Received: 11.15.18 15.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 11.17.18 10.00

Basis: Wet Weight

Seq Number: 3069968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.17.18 17.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.17.18 17.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	11.17.18 17.35		
4-Bromofluorobenzene	460-00-4	130	%	70-130	11.17.18 17.35		



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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

MB Sample Id: 7666228-1-BLK

Matrix: Solid

LCS Sample Id: 7666228-1-BKS

Prep Method: E300P

Date Prep: 11.15.18

LCSD Sample Id: 7666228-1-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	270	108	274	110	90-110	1	20	mg/kg	11.16.18 10:55	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

Parent Sample Id: 605664-001

Matrix: Solid

MS Sample Id: 605664-001 S

Prep Method: E300P

Date Prep: 11.15.18

MSD Sample Id: 605664-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.75	250	289	115	285	113	90-110	1	20	mg/kg	11.16.18 11:14	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3069902

Parent Sample Id: 605665-001

Matrix: Soil

MS Sample Id: 605665-001 S

Prep Method: E300P

Date Prep: 11.15.18

MSD Sample Id: 605665-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	414	250	693	112	650	94	90-110	6	20	mg/kg	11.15.18 23:08	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069890

MB Sample Id: 7666236-1-BLK

Matrix: Solid

LCS Sample Id: 7666236-1-BKS

Prep Method: TX1005P

Date Prep: 11.15.18

LCSD Sample Id: 7666236-1-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	1000	100	992	99	70-135	1	20	mg/kg	11.16.18 00:03	
Diesel Range Organics (DRO)	<8.13	1000	991	99	978	98	70-135	1	20	mg/kg	11.16.18 00:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		126		125		70-135	%	11.16.18 00:03
o-Terphenyl	94		99		102		70-135	%	11.16.18 00:03

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3069890

Parent Sample Id: 605663-001

Matrix: Soil

MS Sample Id: 605663-001 S

Prep Method: TX1005P

Date Prep: 11.15.18

MSD Sample Id: 605663-001 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)	<8.00	1000	981	98	962	96	70-135	2	20	mg/kg	11.16.18 00:57	
Diesel Range Organics (DRO)	<8.13	1000	974	97	948	95	70-135	3	20	mg/kg	11.16.18 00:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	129		125		70-135	%	11.16.18 00:57
o-Terphenyl	104		103		70-135	%	11.16.18 00:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069968

MB Sample Id: 7666368-1-BLK

Matrix: Solid

LCS Sample Id: 7666368-1-BKS

Prep Method: SW5030B

Date Prep: 11.17.18

LCSD Sample Id: 7666368-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.106	107	0.0981	98	70-130	8	35	mg/kg	11.17.18 12:39	
Toluene	<0.00199	0.0994	0.0936	94	0.0873	87	70-130	7	35	mg/kg	11.17.18 12:39	
Ethylbenzene	<0.00199	0.0994	0.101	102	0.0954	96	70-130	6	35	mg/kg	11.17.18 12:39	
m,p-Xylenes	<0.00398	0.199	0.195	98	0.185	93	70-130	5	35	mg/kg	11.17.18 12:39	
o-Xylene	<0.00199	0.0994	0.0981	99	0.0932	93	70-130	5	35	mg/kg	11.17.18 12:39	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		100		100		70-130	%	11.17.18 12:39
4-Bromofluorobenzene	107		115		116		70-130	%	11.17.18 12:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3069968

Parent Sample Id: 605663-001

Matrix: Soil

MS Sample Id: 605663-001 S

Prep Method: SW5030B

Date Prep: 11.17.18

MSD Sample Id: 605663-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00488	0.244	0.00910	4	0.00833	8	70-130	9	35	mg/kg	11.17.18 13:18	X
Toluene	<0.00488	0.244	0.00812	3	0.00674	7	70-130	19	35	mg/kg	11.17.18 13:18	X
Ethylbenzene	<0.00488	0.244	0.00910	4	0.00736	7	70-130	21	35	mg/kg	11.17.18 13:18	X
m,p-Xylenes	<0.00247	0.488	0.0196	4	0.0152	8	70-130	25	35	mg/kg	11.17.18 13:18	X
o-Xylene	<0.00488	0.244	0.0108	4	0.00815	8	70-130	28	35	mg/kg	11.17.18 13:18	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		109		70-130	%	11.17.18 13:18
4-Bromofluorobenzene	130		125		70-130	%	11.17.18 13:18

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



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Dallas Texas (214-902-0300)

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Page 1 of 1

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

Phoenix, Arizona (480-365-0900)

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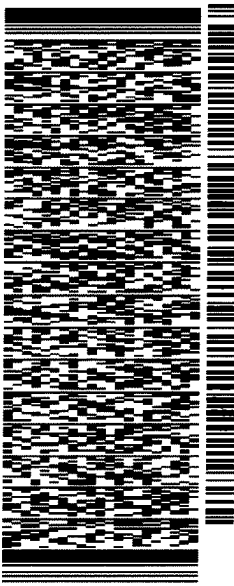
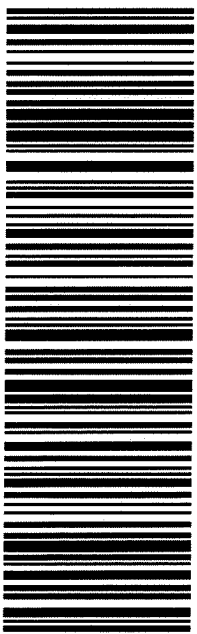
Xenco Quote #

Xenco Job #

605649

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes	
Company Name / Branch: IT Environmental, Inc. Permian Office		Project Name/Number: Remuda Basin CTB		BTX (only BTX) 8021 TPH/Dec GLO MPO 8015 Chloride (300.00)												W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air	
Company Address: 3300 N. St. Building Unit 103 Midland, TX 79701		Project Location: Eddy County 2RP4958															
Email: abaker@itenv.com Phone No: (432) 704-5178		Invoice To: XTO: Kyle Littrell															
Project Contact: Adrian Baker		PO Number:															
Sampler's Name: Anna Byers																	
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Field Comments		
1	PH03 A	6"	11/13	0945	S	1									X		
2	PH03 B	11"	11/13	0950	S	1									X		
3	PH04 A	6"	11/13	1045	S	1									X		
4	PH04 B	11"	11/13	1055	S	1									X		
5	PH05 A	6"	11/13	1515	S	1									X		
6	PH05 B	11"	11/13	1525	S	1									X		
7																	
8																	
9																	
10																	
Turnaround Time (Business days)		Data Deliverable Information															
☒ Same Day TAT ☐ 5 Day TAT ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ 3 Day EMERGENCY		☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data) ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ Level 3 (CLP Forms) ☐ UST / RG -411 ☐ TRRP Checklist															
TAT Starts Day received by Lab, if received by 5:00 pm		Notes:															
FED-EX / UPS: Tracking #		773729150490															
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																	
Relinquished by Sampler: Anna Byers		Date Time: 06:45		Received By: [Signature]		Relinquished By: [Signature]		Date Time: 11/14/2018		Received By: [Signature]		Relinquished By: [Signature]		Date Time: 11/14/2018		Received By: [Signature]	
1		11/14/2018		4/14/18		2		11/14/2018		2		11/14/2018		2		11/14/2018	
3		11/15/2018		[Signature]		4		[Signature]		4		[Signature]		4		[Signature]	
5		[Signature]		[Signature]		5		[Signature]		5		[Signature]		5		[Signature]	
Custody Seal #		Preserved where applicable		On Ice		Cooler Temp		Thermo. Corr. Factor		On Ice		Cooler Temp		Thermo. Corr. Factor		On Ice	

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ORIGIN ID:CAOA (575) 887-6245 XENCO PAC N MAIL 910 W PIERCE ST CARLSBAD, NM 88220 UNITED STATES US		SHIP DATE: 14NOV18 ACTWGT: 45.50 LB CAD: 101813706INET4040 DIMS: 26x14x15 IN BILL RECIPIENT
TO HOLD FOR XENCO FEDEx EXPRESS SHIP CENTER FEDEx SHIP CENTER 3600 COUNTY RD 1276 S MIDLAND TX 79711 (806) 794-1296 INV/ REF: PO: DEPT:		
 		
TRK# 7737 2915 0490 0201	THU - 15 NOV HOLD STANDARD OVERNIGHT HLD MAFA TX-US LBB	

552J3/C3B2/DCA5

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Analytical Report 622512

for
LT Environmental, Inc.

Project Manager: Ashley Ager

Reumda CTB

30-APR-19

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



30-APR-19

Project Manager: **Ashley Ager**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **622512**

Reumda CTB

Project Address: Delaware Basin

Ashley Ager:

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) 622512. 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. 622512 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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Sample Cross Reference 622512

LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	04-24-19 09:50	0.5 ft	622512-001
BH01A	S	04-24-19 10:00	1 ft	622512-002
BH02	S	04-23-19 10:50	1 ft	622512-003
BH02A	S	04-23-19 11:20	2 ft	622512-004
BH03	S	04-23-19 14:00	1 ft	622512-005
BH03A	S	04-23-19 14:05	2 ft	622512-006
BH04	S	04-23-19 14:15	1 ft	622512-007
BH04A	S	04-23-19 14:20	2 ft	622512-008
BH05	S	04-23-19 15:25	1 ft	622512-009
BH05A	S	04-23-19 15:30	2 ft	622512-010
BH06	S	04-23-19 15:45	1 ft	622512-011
BH06A	S	04-25-19 15:50	2 ft	622512-012
BH07	S	04-24-19 08:40	1 ft	622512-013
BH07A	S	04-24-19 08:50	1.5 ft	622512-014
BH08	S	04-24-19 09:00	0.5 ft	622512-015
BH08A	S	04-24-19 09:15	2.5 ft	622512-016
BH09	S	04-24-19 10:50	1 ft	622512-017
BH09A	S	04-24-19 10:55	1.5 ft	622512-018
BH10	S	04-24-19 14:30	1 ft	622512-019
BH10A	S	04-24-19 14:50	2.5 ft	622512-020
BH11	S	04-24-19 13:40	1 ft	622512-021
BH11A	S	04-24-19 13:50	2 ft	622512-022

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Reumda CTB**

Project ID:
Work Order Number(s): 622512

Report Date: 30-APR-19
Date Received: 04/29/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3087338 Chloride by EPA 300

Lab Sample ID 622532-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 622512-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3087354 BTEX by EPA 8021B

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

Batch: LBA-3087356 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.

Samples affected are: 622512-013, 622512-011.

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



Certificate of Analysis Summary 622512

LT Environmental, Inc., Arvada, CO

Project Name: Reumda CTB

Project Id:

Contact: Ashley Ager

Project Location: Delaware Basin

Date Received in Lab: Mon Apr-29-19 07:41 am

Report Date: 30-APR-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	622512-001	622512-002	622512-003	622512-004	622512-005	622512-006
	<i>Field Id:</i>	BH01	BH01A	BH02	BH02A	BH03	BH03A
	<i>Depth:</i>	0.5- ft	1- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-24-19 09:50	Apr-24-19 10:00	Apr-23-19 10:50	Apr-23-19 11:20	Apr-23-19 14:00	Apr-23-19 14:05
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00
	<i>Analyzed:</i>	Apr-29-19 18:58	Apr-29-19 19:17	Apr-29-19 19:37	Apr-29-19 19:56	Apr-29-19 20:15	Apr-29-19 20:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
m,p-Xylenes		<0.00402 0.00402	<0.00397 0.00397	<0.00402 0.00402	<0.00398 0.00398	<0.00398 0.00398	<0.00402 0.00402
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00
	<i>Analyzed:</i>	Apr-29-19 17:24	Apr-29-19 17:30	Apr-29-19 17:36	Apr-29-19 17:42	Apr-29-19 17:59	Apr-29-19 18:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		472 49.8	584 49.8	814 49.6	426 50.1	113 49.7	540 50.4
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-29-19 12:00	Apr-29-19 12:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00
	<i>Analyzed:</i>	Apr-30-19 02:57	Apr-30-19 04:01	Apr-29-19 12:59	Apr-29-19 14:01	Apr-29-19 14:22	Apr-29-19 14:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		1210 15.0	332 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		240 15.0	98.1 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		1450 15.0	430 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total GRO-DRO		1210 15.0	332 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 622512

LT Environmental, Inc., Arvada, CO

Project Name: Reumda CTB

Project Id:

Contact: Ashley Ager

Project Location: Delaware Basin

Date Received in Lab: Mon Apr-29-19 07:41 am

Report Date: 30-APR-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	622512-007	622512-008	622512-009	622512-010	622512-011	622512-012
	<i>Field Id:</i>	BH04	BH04A	BH05	BH05A	BH06	BH06A
	<i>Depth:</i>	1- ft	2- ft	1- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-23-19 14:15	Apr-23-19 14:20	Apr-23-19 15:25	Apr-23-19 15:30	Apr-23-19 15:45	Apr-25-19 15:50
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00
	<i>Analyzed:</i>	Apr-29-19 20:53	Apr-29-19 21:13	Apr-29-19 21:32	Apr-30-19 01:00	Apr-30-19 01:19	Apr-30-19 01:38
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00397 0.00397	<0.00404 0.00404	<0.00403 0.00403	<0.00399 0.00399	<0.00400 0.00400	<0.00403 0.00403
o-Xylene		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00198 0.00198	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00
	<i>Analyzed:</i>	Apr-29-19 18:11	Apr-29-19 18:17	Apr-30-19 11:30	Apr-29-19 18:47	Apr-29-19 18:53	Apr-29-19 19:11
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		591 50.3	387 50.0	18.3 5.01	408 50.1	699 49.9	519 49.7
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00
	<i>Analyzed:</i>	Apr-29-19 15:04	Apr-29-19 15:26	Apr-29-19 15:47	Apr-29-19 16:09	Apr-29-19 16:30	Apr-29-19 16:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<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	<15.0 15.0	<15.0 15.0	24.5 15.0	<15.0 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	<15.0 15.0	<15.0 15.0	24.5 15.0	<15.0 15.0
Total GRO-DRO		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	24.5 15.0	<15.0 15.0

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 622512

LT Environmental, Inc., Arvada, CO

Project Name: Reumda CTB

Project Id:

Contact: Ashley Ager

Project Location: Delaware Basin

Date Received in Lab: Mon Apr-29-19 07:41 am

Report Date: 30-APR-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	622512-013	622512-014	622512-015	622512-016	622512-017	622512-018
	<i>Field Id:</i>	BH07	BH07A	BH08	BH08A	BH09	BH09A
	<i>Depth:</i>	1- ft	1.5- ft	0.5- ft	2.5- ft	1- ft	1.5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-24-19 08:40	Apr-24-19 08:50	Apr-24-19 09:00	Apr-24-19 09:15	Apr-24-19 10:50	Apr-24-19 10:55
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00
	<i>Analyzed:</i>	Apr-30-19 01:57	Apr-30-19 02:16	Apr-30-19 02:35	Apr-30-19 02:54	Apr-30-19 03:13	Apr-30-19 04:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00404 0.00404	<0.00397 0.00397	<0.00402 0.00402	<0.00403 0.00403	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201	<0.00202 0.00202	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00	Apr-29-19 13:00
	<i>Analyzed:</i>	Apr-29-19 19:17	Apr-29-19 19:23	Apr-30-19 11:36	Apr-30-19 11:42	Apr-29-19 19:40	Apr-29-19 19:46
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		400 50.0	700 50.3	41.2 5.03	31.4 4.98	303 50.3	301 50.0
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00
	<i>Analyzed:</i>	Apr-29-19 17:58	Apr-29-19 18:20	Apr-29-19 18:42	Apr-29-19 19:04	Apr-29-19 19:26	Apr-29-19 19:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
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	<14.9 14.9
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Total GRO-DRO		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 622512

LT Environmental, Inc., Arvada, CO

Project Name: Reumda CTB

Project Id:

Contact: Ashley Ager

Project Location: Delaware Basin

Date Received in Lab: Mon Apr-29-19 07:41 am

Report Date: 30-APR-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	622512-019	622512-020	622512-021	622512-022		
	<i>Field Id:</i>	BH10	BH10A	BH11	BH11A		
	<i>Depth:</i>	1- ft	2.5- ft	1- ft	2- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Apr-24-19 14:30	Apr-24-19 14:50	Apr-24-19 13:40	Apr-24-19 13:50		
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00	Apr-29-19 14:00		
	<i>Analyzed:</i>	Apr-30-19 04:47	Apr-30-19 05:06	Apr-30-19 05:25	Apr-30-19 05:44		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
m,p-Xylenes		<0.00397 0.00397	<0.00401 0.00401	<0.00397 0.00397	<0.00398 0.00398		
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
Total BTEX		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199		
Chloride by EPA 300	<i>Extracted:</i>	Apr-29-19 13:00	Apr-29-19 14:10	Apr-29-19 14:10	Apr-29-19 14:10		
	<i>Analyzed:</i>	Apr-29-19 18:29	Apr-29-19 16:05	Apr-29-19 16:10	Apr-29-19 16:15		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		892 5.01	318 25.0	210 4.95	375 24.8		
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00	Apr-29-19 10:00		
	<i>Analyzed:</i>	Apr-29-19 20:10	Apr-29-19 20:32	Apr-29-19 20:54	Apr-29-19 21:15		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	24.3 15.0	<15.0 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		
Total TPH		<15.0 15.0	24.3 15.0	<15.0 15.0	<15.0 15.0		
Total GRO-DRO		<15.0 15.0	24.3 15.0	<15.0 15.0	<15.0 15.0		

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Jessica Kramer
Project Assistant



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH01**
Lab Sample Id: 622512-001

Matrix: Soil
Date Collected: 04.24.19 09.50

Date Received: 04.29.19 07.41
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	472	49.8	mg/kg	04.29.19 17.24		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087311

Date Prep: 04.29.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.30.19 02.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	1210	15.0	mg/kg	04.30.19 02.57		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	240	15.0	mg/kg	04.30.19 02.57		1
Total TPH	PHC635	1450	15.0	mg/kg	04.30.19 02.57		1
Total GRO-DRO	PHC628	1210	15.0	mg/kg	04.30.19 02.57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	04.30.19 02.57	
o-Terphenyl	84-15-1	89	%	70-135	04.30.19 02.57	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH01**
Lab Sample Id: 622512-001

Matrix: Soil
Date Collected: 04.24.19 09.50

Date Received: 04.29.19 07.41
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087354

Date Prep: 04.29.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.29.19 18.58	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.29.19 18.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.29.19 18.58		
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.29.19 18.58		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH01A**
Lab Sample Id: 622512-002

Matrix: Soil
Date Collected: 04.24.19 10.00

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	584	49.8	mg/kg	04.29.19 17.30		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087311

Date Prep: 04.29.19 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.30.19 04.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	332	15.0	mg/kg	04.30.19 04.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	98.1	15.0	mg/kg	04.30.19 04.01		1
Total TPH	PHC635	430	15.0	mg/kg	04.30.19 04.01		1
Total GRO-DRO	PHC628	332	15.0	mg/kg	04.30.19 04.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.30.19 04.01	
o-Terphenyl	84-15-1	92	%	70-135	04.30.19 04.01	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH01A**
Lab Sample Id: 622512-002

Matrix: Soil
Date Collected: 04.24.19 10.00

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 13.00

Basis: Wet Weight

Seq Number: 3087354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.29.19 19.17	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.29.19 19.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	04.29.19 19.17		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 19.17		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH02**
Lab Sample Id: 622512-003

Matrix: Soil
Date Collected: 04.23.19 10.50

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	814	49.6	mg/kg	04.29.19 17.36		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 12.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 12.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 12.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 12.59	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 12.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.29.19 12.59	
o-Terphenyl	84-15-1	104	%	70-135	04.29.19 12.59	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH02**
Lab Sample Id: 622512-003

Matrix: Soil
Date Collected: 04.23.19 10.50

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 13.00

Basis: Wet Weight

Seq Number: 3087354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.29.19 19.37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.29.19 19.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	04.29.19 19.37		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 19.37		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH02A**
Lab Sample Id: 622512-004

Matrix: Soil
Date Collected: 04.23.19 11.20

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	426	50.1	mg/kg	04.29.19 17.42		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 14.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 14.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 14.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 14.01	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 14.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.29.19 14.01	
o-Terphenyl	84-15-1	99	%	70-135	04.29.19 14.01	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH02A**
Lab Sample Id: 622512-004

Matrix: Soil
Date Collected: 04.23.19 11.20

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 13.00

Basis: Wet Weight

Seq Number: 3087354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.29.19 19.56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.29.19 19.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.29.19 19.56		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 19.56		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH03**
Lab Sample Id: 622512-005

Matrix: Soil
Date Collected: 04.23.19 14.00

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	49.7	mg/kg	04.29.19 17.59		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 14.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 14.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 14.22	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 14.22	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 14.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.29.19 14.22	
o-Terphenyl	84-15-1	90	%	70-135	04.29.19 14.22	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH03**
Lab Sample Id: 622512-005

Matrix: Soil
Date Collected: 04.23.19 14.00

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 13.00

Basis: Wet Weight

Seq Number: 3087354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.29.19 20.15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.29.19 20.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 20.15		
4-Bromofluorobenzene	460-00-4	109	%	70-130	04.29.19 20.15		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH03A**
Lab Sample Id: 622512-006

Matrix: Soil
Date Collected: 04.23.19 14.05

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	540	50.4	mg/kg	04.29.19 18.05		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 14.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 14.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 14.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 14.43	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 14.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.29.19 14.43	
o-Terphenyl	84-15-1	97	%	70-135	04.29.19 14.43	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH03A**
Lab Sample Id: 622512-006

Matrix: Soil
Date Collected: 04.23.19 14.05

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087354

Date Prep: 04.29.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.29.19 20.34	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.29.19 20.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 20.34		
4-Bromofluorobenzene	460-00-4	111	%	70-130	04.29.19 20.34		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH04**
Lab Sample Id: 622512-007

Matrix: Soil
Date Collected: 04.23.19 14.15

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	591	50.3	mg/kg	04.29.19 18.11		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 15.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 15.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 15.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 15.04	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 15.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.29.19 15.04	
o-Terphenyl	84-15-1	93	%	70-135	04.29.19 15.04	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH04**
Lab Sample Id: 622512-007

Matrix: Soil
Date Collected: 04.23.19 14.15

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 13.00

Basis: Wet Weight

Seq Number: 3087354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.29.19 20.53	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.29.19 20.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 20.53		
4-Bromofluorobenzene	460-00-4	113	%	70-130	04.29.19 20.53		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH04A**
Lab Sample Id: 622512-008

Matrix: Soil
Date Collected: 04.23.19 14.20

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	387	50.0	mg/kg	04.29.19 18.17		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.29.19 15.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.29.19 15.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.29.19 15.26	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.29.19 15.26	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	04.29.19 15.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.29.19 15.26	
o-Terphenyl	84-15-1	95	%	70-135	04.29.19 15.26	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH04A**
Lab Sample Id: 622512-008

Matrix: Soil
Date Collected: 04.23.19 14.20

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087354

Date Prep: 04.29.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.29.19 21.13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.29.19 21.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.29.19 21.13		
4-Bromofluorobenzene	460-00-4	110	%	70-130	04.29.19 21.13		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH05**
Lab Sample Id: 622512-009

Matrix: Soil
Date Collected: 04.23.19 15.25

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.3	5.01	mg/kg	04.30.19 11.30		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 15.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 15.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 15.47	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 15.47	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 15.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.29.19 15.47	
o-Terphenyl	84-15-1	97	%	70-135	04.29.19 15.47	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH05**
Lab Sample Id: 622512-009

Matrix: Soil
Date Collected: 04.23.19 15.25

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087354

Date Prep: 04.29.19 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.29.19 21.32	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.29.19 21.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.29.19 21.32		
4-Bromofluorobenzene	460-00-4	115	%	70-130	04.29.19 21.32		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH05A**
Lab Sample Id: 622512-010

Matrix: Soil
Date Collected: 04.23.19 15.30

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	408	50.1	mg/kg	04.29.19 18.47		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 16.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 16.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 16.09	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 16.09	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 16.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.29.19 16.09	
o-Terphenyl	84-15-1	93	%	70-135	04.29.19 16.09	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH05A**
Lab Sample Id: 622512-010

Matrix: Soil
Date Collected: 04.23.19 15.30

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087356

Date Prep: 04.29.19 14.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.30.19 01.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.30.19 01.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.30.19 01.00		
4-Bromofluorobenzene	460-00-4	115	%	70-130	04.30.19 01.00		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH06**
Lab Sample Id: 622512-011

Matrix: Soil
Date Collected: 04.23.19 15.45

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	699	49.9	mg/kg	04.29.19 18.53		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 16.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	24.5	15.0	mg/kg	04.29.19 16.30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 16.30	U	1
Total TPH	PHC635	24.5	15.0	mg/kg	04.29.19 16.30		1
Total GRO-DRO	PHC628	24.5	15.0	mg/kg	04.29.19 16.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.29.19 16.30	
o-Terphenyl	84-15-1	95	%	70-135	04.29.19 16.30	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH06**
Lab Sample Id: 622512-011

Matrix: Soil
Date Collected: 04.23.19 15.45

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.30.19 01.19	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.30.19 01.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	131	%	70-130	04.30.19 01.19	**	
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.30.19 01.19		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH06A**
Lab Sample Id: 622512-012

Matrix: Soil
Date Collected: 04.25.19 15.50

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	519	49.7	mg/kg	04.29.19 19.11		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 16.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 16.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 16.52	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 16.52	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 16.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.29.19 16.52	
o-Terphenyl	84-15-1	97	%	70-135	04.29.19 16.52	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH06A**
Lab Sample Id: 622512-012

Matrix: Soil
Date Collected: 04.25.19 15.50

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.30.19 01.38	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.30.19 01.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.30.19 01.38		
4-Bromofluorobenzene	460-00-4	113	%	70-130	04.30.19 01.38		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH07** Matrix: Soil Date Received: 04.29.19 07.41
 Lab Sample Id: 622512-013 Date Collected: 04.24.19 08.40 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 04.29.19 13.00 Basis: Wet Weight
 Seq Number: 3087338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	400	50.0	mg/kg	04.29.19 19.17		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.29.19 10.00 Basis: Wet Weight
 Seq Number: 3087309

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 17.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 17.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 17.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 17.58	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 17.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.29.19 17.58	
o-Terphenyl	84-15-1	88	%	70-135	04.29.19 17.58	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH07**
Lab Sample Id: 622512-013

Matrix: Soil
Date Collected: 04.24.19 08.40

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087356

Date Prep: 04.29.19 14.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.30.19 01.57	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.30.19 01.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	153	%	70-130	04.30.19 01.57	**	
1,4-Difluorobenzene	540-36-3	94	%	70-130	04.30.19 01.57		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH07A**
Lab Sample Id: 622512-014

Matrix: Soil
Date Collected: 04.24.19 08.50

Date Received: 04.29.19 07.41
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	700	50.3	mg/kg	04.29.19 19.23		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 18.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 18.20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 18.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 18.20	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 18.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	04.29.19 18.20	
o-Terphenyl	84-15-1	88	%	70-135	04.29.19 18.20	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH07A**
Lab Sample Id: 622512-014

Matrix: Soil
Date Collected: 04.24.19 08.50

Date Received: 04.29.19 07.41
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.30.19 02.16	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.30.19 02.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	04.30.19 02.16		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.30.19 02.16		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH08**
Lab Sample Id: 622512-015

Matrix: Soil
Date Collected: 04.24.19 09.00

Date Received: 04.29.19 07.41
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	41.2	5.03	mg/kg	04.30.19 11.36		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 18.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 18.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 18.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 18.42	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 18.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.29.19 18.42	
o-Terphenyl	84-15-1	92	%	70-135	04.29.19 18.42	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH08**
Lab Sample Id: 622512-015

Matrix: Soil
Date Collected: 04.24.19 09.00

Date Received: 04.29.19 07.41
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087356

Date Prep: 04.29.19 14.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.30.19 02.35	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.30.19 02.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	70-130	04.30.19 02.35		
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.30.19 02.35		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH08A**
Lab Sample Id: 622512-016

Matrix: Soil
Date Collected: 04.24.19 09.15

Date Received: 04.29.19 07.41
Sample Depth: 2.5 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	31.4	4.98	mg/kg	04.30.19 11.42		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 19.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 19.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 19.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 19.04	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 19.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.29.19 19.04	
o-Terphenyl	84-15-1	91	%	70-135	04.29.19 19.04	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH08A**
Lab Sample Id: 622512-016

Matrix: Soil
Date Collected: 04.24.19 09.15

Date Received: 04.29.19 07.41
Sample Depth: 2.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3087356

Date Prep: 04.29.19 14.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.30.19 02.54	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.30.19 02.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	04.30.19 02.54		
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.30.19 02.54		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH09**
Lab Sample Id: 622512-017

Matrix: Soil
Date Collected: 04.24.19 10.50

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	303	50.3	mg/kg	04.29.19 19.40		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 19.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 19.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 19.26	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 19.26	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 19.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.29.19 19.26	
o-Terphenyl	84-15-1	93	%	70-135	04.29.19 19.26	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH09**
Lab Sample Id: 622512-017

Matrix: Soil
Date Collected: 04.24.19 10.50

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.30.19 03.13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.30.19 03.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.30.19 03.13		
4-Bromofluorobenzene	460-00-4	118	%	70-130	04.30.19 03.13		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH09A**
Lab Sample Id: 622512-018

Matrix: Soil
Date Collected: 04.24.19 10.55

Date Received: 04.29.19 07.41
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	301	50.0	mg/kg	04.29.19 19.46		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.29.19 19.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.29.19 19.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.29.19 19.48	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.29.19 19.48	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	04.29.19 19.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.29.19 19.48	
o-Terphenyl	84-15-1	97	%	70-135	04.29.19 19.48	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH09A**
 Lab Sample Id: 622512-018

Matrix: Soil
 Date Collected: 04.24.19 10.55

Date Received: 04.29.19 07.41
 Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.30.19 04.28	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.30.19 04.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	04.30.19 04.28		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.30.19 04.28		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH10**
Lab Sample Id: 622512-019

Matrix: Soil
Date Collected: 04.24.19 14.30

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3087338

Date Prep: 04.29.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	892	5.01	mg/kg	04.29.19 18.29		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 20.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 20.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 20.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 20.10	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 20.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	04.29.19 20.10	
o-Terphenyl	84-15-1	83	%	70-135	04.29.19 20.10	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH10**
Lab Sample Id: 622512-019

Matrix: Soil
Date Collected: 04.24.19 14.30

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.30.19 04.47	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.30.19 04.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.30.19 04.47		
4-Bromofluorobenzene	460-00-4	115	%	70-130	04.30.19 04.47		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH10A**
Lab Sample Id: 622512-020

Matrix: Soil
Date Collected: 04.24.19 14.50

Date Received: 04.29.19 07.41
Sample Depth: 2.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3087340

Date Prep: 04.29.19 14.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	318	25.0	mg/kg	04.29.19 16.05		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 20.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	24.3	15.0	mg/kg	04.29.19 20.32		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 20.32	U	1
Total TPH	PHC635	24.3	15.0	mg/kg	04.29.19 20.32		1
Total GRO-DRO	PHC628	24.3	15.0	mg/kg	04.29.19 20.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.29.19 20.32	
o-Terphenyl	84-15-1	90	%	70-135	04.29.19 20.32	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH10A**
Lab Sample Id: 622512-020

Matrix: Soil
Date Collected: 04.24.19 14.50

Date Received: 04.29.19 07.41
Sample Depth: 2.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.30.19 05.06	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.30.19 05.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	04.30.19 05.06		
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.30.19 05.06		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH11**
Lab Sample Id: 622512-021

Matrix: Soil
Date Collected: 04.24.19 13.40

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3087340

Date Prep: 04.29.19 14.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	210	4.95	mg/kg	04.29.19 16.10		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 20.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 20.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 20.54	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 20.54	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 20.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.29.19 20.54	
o-Terphenyl	84-15-1	89	%	70-135	04.29.19 20.54	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH11**
Lab Sample Id: 622512-021

Matrix: Soil
Date Collected: 04.24.19 13.40

Date Received: 04.29.19 07.41
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.30.19 05.25	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.30.19 05.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	04.30.19 05.25		
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.30.19 05.25		



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH11A**
Lab Sample Id: 622512-022

Matrix: Soil
Date Collected: 04.24.19 13.50

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3087340

Date Prep: 04.29.19 14.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	375	24.8	mg/kg	04.29.19 16.15		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3087309

Date Prep: 04.29.19 10.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.19 21.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.19 21.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.29.19 21.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.19 21.15	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.29.19 21.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.29.19 21.15	
o-Terphenyl	84-15-1	88	%	70-135	04.29.19 21.15	



Certificate of Analytical Results 622512



LT Environmental, Inc., Arvada, CO

Reumda CTB

Sample Id: **BH11A**
Lab Sample Id: 622512-022

Matrix: Soil
Date Collected: 04.24.19 13.50

Date Received: 04.29.19 07.41
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.29.19 14.00

Basis: Wet Weight

Seq Number: 3087356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.30.19 05.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.30.19 05.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.30.19 05.44		
4-Bromofluorobenzene	460-00-4	114	%	70-130	04.30.19 05.44		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

Reumda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3087338

MB Sample Id: 7676733-1-BLK

Matrix: Solid

LCS Sample Id: 7676733-1-BKS

Prep Method: E300P

Date Prep: 04.29.19

LCSD Sample Id: 7676733-1-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	266	106	268	107	90-110	1	20	mg/kg	04.29.19 16:54	

Analytical Method: Chloride by EPA 300

Seq Number: 3087340

MB Sample Id: 7676756-1-BLK

Matrix: Solid

LCS Sample Id: 7676756-1-BKS

Prep Method: E300P

Date Prep: 04.29.19

LCSD Sample Id: 7676756-1-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	249	100	248	99	90-110	0	20	mg/kg	04.29.19 15:39	

Analytical Method: Chloride by EPA 300

Seq Number: 3087338

Parent Sample Id: 622512-019

Matrix: Soil

MS Sample Id: 622512-019 S

Prep Method: E300P

Date Prep: 04.29.19

MSD Sample Id: 622512-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	892	251	1090	79	1090	79	90-110	0	20	mg/kg	04.29.19 18:35	X

Analytical Method: Chloride by EPA 300

Seq Number: 3087338

Parent Sample Id: 622532-001

Matrix: Solid

MS Sample Id: 622532-001 S

Prep Method: E300P

Date Prep: 04.29.19

MSD Sample Id: 622532-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	19.2	252	293	109	291	108	90-110	1	20	mg/kg	04.29.19 17:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3087340

Parent Sample Id: 622537-004

Matrix: Soil

MS Sample Id: 622537-004 S

Prep Method: E300P

Date Prep: 04.29.19

MSD Sample Id: 622537-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	39.2	306	352	102	348	101	90-110	1	20	mg/kg	04.29.19 15:54	

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. = $\text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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



LT Environmental, Inc.

Reumda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3087340

Parent Sample Id: 622537-005

Matrix: Soil

MS Sample Id: 622537-005 S

Prep Method: E300P

Date Prep: 04.29.19

MSD Sample Id: 622537-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.28	303	323	105	320	104	90-110	1	20	mg/kg	04.29.19 17:08	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3087309

MB Sample Id: 7676780-1-BLK

Matrix: Solid

LCS Sample Id: 7676780-1-BKS

Prep Method: TX1005P

Date Prep: 04.29.19

LCSD Sample Id: 7676780-1-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	1160	116	1160	116	70-135	0	20	mg/kg	04.29.19 12:17	
Diesel Range Organics (DRO)	<8.13	1000	1180	118	1180	118	70-135	0	20	mg/kg	04.29.19 12:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		124		122		70-135	%	04.29.19 12:17
o-Terphenyl	111		130		128		70-135	%	04.29.19 12:17

Analytical Method: TPH by SW8015 Mod

Seq Number: 3087311

MB Sample Id: 7676781-1-BLK

Matrix: Solid

LCS Sample Id: 7676781-1-BKS

Prep Method: TX1005P

Date Prep: 04.29.19

LCSD Sample Id: 7676781-1-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	1070	107	1170	117	70-135	9	20	mg/kg	04.29.19 22:20	
Diesel Range Organics (DRO)	<8.13	1000	1090	109	1140	114	70-135	4	20	mg/kg	04.29.19 22:20	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		122		119		70-135	%	04.29.19 22:20
o-Terphenyl	100		111		124		70-135	%	04.29.19 22:20

Analytical Method: TPH by SW8015 Mod

Seq Number: 3087309

Parent Sample Id: 622512-003

Matrix: Soil

MS Sample Id: 622512-003 S

Prep Method: TX1005P

Date Prep: 04.29.19

MSD Sample Id: 622512-003 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)	<8.00	1000	991	99	1000	100	70-135	1	20	mg/kg	04.29.19 13:19	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	1030	103	70-135	1	20	mg/kg	04.29.19 13:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		123		70-135	%	04.29.19 13:19
o-Terphenyl	106		103		70-135	%	04.29.19 13:19

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

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

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

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



LT Environmental, Inc.

Reumda CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3087311

Parent Sample Id: 622486-001

Matrix: Soil

MS Sample Id: 622486-001 S

Prep Method: TX1005P

Date Prep: 04.29.19

MSD Sample Id: 622486-001 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)	8.01	999	882	87	886	88	70-135	0	20	mg/kg	04.29.19 23:24	
Diesel Range Organics (DRO)	214	999	1080	87	1080	87	70-135	0	20	mg/kg	04.29.19 23:24	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		98		70-135	%	04.29.19 23:24
o-Terphenyl	94		91		70-135	%	04.29.19 23:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3087354

MB Sample Id: 7676745-1-BLK

Matrix: Solid

LCS Sample Id: 7676745-1-BKS

Prep Method: SW5030B

Date Prep: 04.29.19

LCSD Sample Id: 7676745-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.117	116	0.112	113	70-130	4	35	mg/kg	04.29.19 12:38	
Toluene	<0.00201	0.101	0.106	105	0.102	103	70-130	4	35	mg/kg	04.29.19 12:38	
Ethylbenzene	<0.00201	0.101	0.114	113	0.110	111	70-130	4	35	mg/kg	04.29.19 12:38	
m,p-Xylenes	<0.00402	0.201	0.234	116	0.225	114	70-130	4	35	mg/kg	04.29.19 12:38	
o-Xylene	<0.00201	0.101	0.114	113	0.110	111	70-130	4	35	mg/kg	04.29.19 12:38	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		98		97		70-130	%	04.29.19 12:38
4-Bromofluorobenzene	97		103		101		70-130	%	04.29.19 12:38

Analytical Method: BTEX by EPA 8021B

Seq Number: 3087356

MB Sample Id: 7676754-1-BLK

Matrix: Solid

LCS Sample Id: 7676754-1-BKS

Prep Method: SW5030B

Date Prep: 04.29.19

LCSD Sample Id: 7676754-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.120	121	0.118	118	70-130	2	35	mg/kg	04.29.19 22:28	
Toluene	<0.00198	0.0992	0.108	109	0.106	106	70-130	2	35	mg/kg	04.29.19 22:28	
Ethylbenzene	<0.00198	0.0992	0.115	116	0.113	113	70-130	2	35	mg/kg	04.29.19 22:28	
m,p-Xylenes	<0.00397	0.198	0.232	117	0.229	114	70-130	1	35	mg/kg	04.29.19 22:28	
o-Xylene	<0.00198	0.0992	0.115	116	0.113	113	70-130	2	35	mg/kg	04.29.19 22:28	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		97		96		70-130	%	04.29.19 22:28
4-Bromofluorobenzene	92		103		103		70-130	%	04.29.19 22:28

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

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

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

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



LT Environmental, Inc.

Reumda CTB

Analytical Method: BTEX by EPA 8021B

Seq Number: 3087354

Parent Sample Id: 622386-001

Matrix: Soil

MS Sample Id: 622386-001 S

Prep Method: SW5030B

Date Prep: 04.29.19

MSD Sample Id: 622386-001 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	0.0884	89	0.0869	87	70-130	2	35	mg/kg	04.29.19 13:16	
Toluene	<0.00199	0.0994	0.0815	82	0.0784	78	70-130	4	35	mg/kg	04.29.19 13:16	
Ethylbenzene	<0.00199	0.0994	0.0859	86	0.0816	82	70-130	5	35	mg/kg	04.29.19 13:16	
m,p-Xylenes	<0.00398	0.199	0.176	88	0.166	83	70-130	6	35	mg/kg	04.29.19 13:16	
o-Xylene	<0.00199	0.0994	0.0861	87	0.0815	82	70-130	5	35	mg/kg	04.29.19 13:16	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		99		70-130	%	04.29.19 13:16
4-Bromofluorobenzene	104		102		70-130	%	04.29.19 13:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3087356

Parent Sample Id: 622384-001

Matrix: Soil

MS Sample Id: 622384-001 S

Prep Method: SW5030B

Date Prep: 04.29.19

MSD Sample Id: 622384-001 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	0.0996	0.106	106	0.103	102	70-130	3	35	mg/kg	04.29.19 23:07	
Toluene	<0.00199	0.0996	0.0957	96	0.0942	93	70-130	2	35	mg/kg	04.29.19 23:07	
Ethylbenzene	<0.00199	0.0996	0.102	102	0.0998	99	70-130	2	35	mg/kg	04.29.19 23:07	
m,p-Xylenes	<0.00398	0.199	0.206	104	0.203	101	70-130	1	35	mg/kg	04.29.19 23:07	
o-Xylene	<0.00199	0.0996	0.101	101	0.0995	99	70-130	1	35	mg/kg	04.29.19 23:07	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		97		70-130	%	04.29.19 23:07
4-Bromofluorobenzene	109		107		70-130	%	04.29.19 23:07

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 622512

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Page 1 of 3

Project Manager:	Ashley Ager	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:	aager@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:		Remuda CTB		Turn Around		ANALYSIS REQUEST												Work Order Notes					
Project Number:				Routine ☐																			
P.O. Number:				Rush: 4 DAY TAT																			
Sampler's Name:		Robert McAfee		Due Date: 05/02/2019																			
SAMPLE RECEIPT		Temp Blank: Yes ☒ No ☐		Wet Ice: ☒ Yes ☐ No ☐																			
Temperature (°C):		3.0/2.9		Thermometer ID																			
Received Intact:		☒ Yes ☐ No		Correction Factor: 0.1																			
Cooler Custody Seals:		Yes ☐ No ☒ N/A		Total Containers:																			
Sample Custody Seals:		Yes ☐ No ☒ N/A																					
Sample Identification		Matrix		Date Sampled		Time Sampled		Depth		Number of Containers		TPH (EPA 8015)		BTEX (EPA 0-8021)		Chloride (EPA 300.0)						Sample Comments	
BH01		S		04/24/19		0950		0.5'		1		X		X		X						discrete	
BH01A				04/24/19		1000		1'				X		Y		X							
BH02				04/23/19		1050		1'				X		X		X							
BH02A				04/23/19		1120		2'				X		X		X							
BH03				04/23/19		1400		1'				X		X		X							
BH03A				04/23/19		1405		2'				X		X		X							
BH04				04/23/19		1415		1'				X		X		X							
BH04A				04/23/19		1420		2'				X		X		X							
BH05				04/23/19		1525		1'				X		X		X							
BH05A				04/23/19		1530		2'				X		X		X							

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<u>[Signature]</u>	<u>[Signature]</u>	04/26/2019 13:20	<u>[Signature]</u>	<u>[Signature]</u>	04/26/2019 13:40
	<u>Ford G</u>	4/26/19 15:00		<u>[Signature]</u>	4/29/19
					07/11



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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Work Order No: 02512

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Page 2 of 3

Project Manager:	Ashley Ager	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:	aager@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:	Remuda CTB	Turn Around	ANALYSIS REQUEST																Work Order Notes
Project Number:		Routine ☐																	
P.O. Number:		Rush: ☒ Day TAT																	
Sampler's Name:	Robert McAfee	Due Date: 05/27/2019																	

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	3.0/2.9	Thermometer ID		
Received Intact:	☒ Yes ☐ No	R8		
Cooler Custody Seals:	Yes ☐ No ☒ N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes ☐ No ☒ N/A	Total Containers:		

[illegible]

Total 200.7 / 6010 200.8 / 6020:

[illegible]

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 : Ha

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		04/26/19 13:20			04/26/19 13:20
3 	Feed Ex	4/26/19 15:00			04/29/19
5 			6 		1741

Revised Date 051418 Rev 2018

7750 7484 3644



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 672512

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Page 3 of 3

Project Manager:	Ashley Ager	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:	aager@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:	<u>Remuda CTB</u>	Turn Around	ANALYSIS REQUEST										Work Order Notes					
Project Number:		Routine ☐											TAT starts the day received by the lab, if received by 4:30pm					
P.O. Number:		Rush: <u>4 Day TAT</u>																
Sampler's Name:	Robert McAfee	Due Date: <u>05/02/2019</u>																
SAMPLE RECEIPT		Temp Blank: Yes ☐ No ☒ Wet Ice: Yes ☐ No ☒																
Temperature (°C):	<u>3.0/2.9</u>	Thermometer ID											Sample Comments					
Received Intact:	Yes ☒ No ☐	Correction Factor: <u>R8</u>																
Cooler Custody Seals:	Yes ☐ No ☒ N/A	Total Containers:																
Sample Custody Seals:	Yes ☐ No ☒ N/A																	
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)										
BH11	S	04/24/19	1340	1'	1	X	X	X										
BH11A	S	04/24/19	1350	2'	1	X	X	X										
<i>Robert McAfee</i>																		

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Robert McAfee</i>	<i>[Signature]</i>	04/26/2019 13:20	<i>[Signature]</i>	<i>[Signature]</i>	04/26/2019 13:40
<i>[Signature]</i>	<i>[Signature]</i>	4/26/19 15:00	<i>[Signature]</i>	<i>[Signature]</i>	4/29/19
<i>[Signature]</i>	<i>[Signature]</i>		<i>[Signature]</i>	<i>[Signature]</i>	07/11

Revised Date 051418 Rev. 2018.1

7750 7494 3614

ORIGIN ID:CAOA (281) 240-4200
 SAMPLE CUSTODY
 SAMPLE CUSTODY
 1089 N CANAL ST
 CARLSBAD, NM 88220
 UNITED STATES US

SHIP DATE: 26APR19
 ACTWGT: 53.00 LB
 CAD: 11448676/NET 4100
 DIMS: 24x13x13 IN
 BILL SENDER

TO **SAMPLE RECEIVING MIDLAND**
FEDEX OFFICE PRINT & SHIP CENTER
FEDEX OFFICE PRINT & SHIP CENTER
200 W INTERSTATE 20

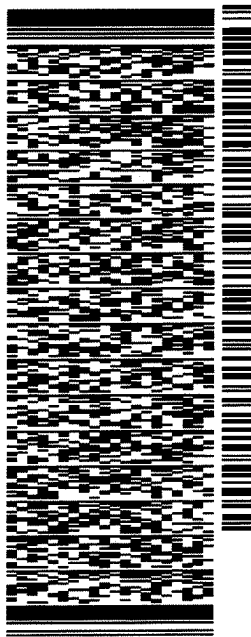
MIDLAND TX 79701

(432) 704-5440

REF:

PO:

DEPT:



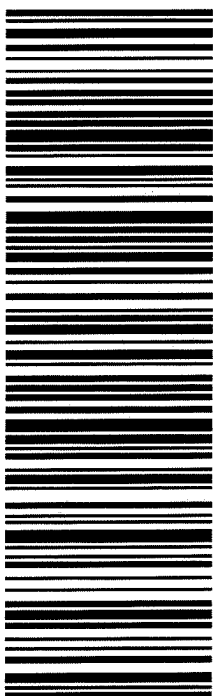
565J11/D7E5/23AD

TRK# 7750 7484 3644
 0201

SATURDAY HOLD
PRIORITY OVERNIGHT

41 MAFA

TX-US LBB
 MAFKI
 HLD



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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04/29/2019 07:41:00 AM

Work Order #: 622512

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

#1 *Temperature of cooler(s)?	2.9
#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?	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: 04/29/2019

Checklist reviewed by:

Jessica Kramer

Date: 04/29/2019

Analytical Report 626934

for
LT Environmental, Inc.

Project Manager: Ashley Ager

Remuda CTB

11-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)



11-JUN-19

Project Manager: **Ashley Ager**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **626934**

Remuda CTB

Project Address: Delaware Basin

Ashley Ager:

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) 626934. 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. 626934 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 626934****LT Environmental, Inc., Arvada, CO**

Remuda CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH12	S	06-04-19 09:10	1.0 ft	626934-001
BH12A	S	06-04-19 09:15	1.5 ft	626934-002



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda CTB

Project ID:
Work Order Number(s): 626934

Report Date: 11-JUN-19
Date Received: 06/07/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3091758 BTEX by EPA 8021B

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



Certificate of Analysis Summary 626934

LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id:

Contact: Ashley Ager

Project Location: Delaware Basin

Date Received in Lab: Fri Jun-07-19 11:40 am

Report Date: 11-JUN-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	626934-001	626934-002				
	Field Id:	BH12	BH12A				
	Depth:	1.0- ft	1.5- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Jun-04-19 09:10	Jun-04-19 09:15				
BTEX by EPA 8021B	Extracted:	Jun-07-19 15:45	Jun-07-19 15:45				
	Analyzed:	Jun-08-19 01:01	Jun-08-19 01:20				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00201 0.00201	<0.00200 0.00200				
	Toluene	<0.00201 0.00201	<0.00200 0.00200				
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200				
m,p-Xylenes		<0.00402 0.00402	<0.00399 0.00399				
o-Xylene		<0.00201 0.00201	<0.00200 0.00200				
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200				
Total BTEX		<0.00201 0.00201	<0.00200 0.00200				
Chloride by EPA 300	Extracted:	Jun-07-19 15:30	Jun-07-19 15:30				
	Analyzed:	Jun-07-19 18:33	Jun-07-19 18:39				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	443 49.5	473 49.5				
TPH by SW8015 Mod	Extracted:	Jun-07-19 16:00	Jun-07-19 16:00				
	Analyzed:	Jun-08-19 02:45	Jun-08-19 03:10				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0	<15.0 15.0				
	Diesel Range Organics (DRO)	27.8 15.0	28.4 15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0				
Total TPH		27.8 15.0	28.4 15.0				
Total GRO-DRO		27.8 15.0	28.4 15.0				

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

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

Version: 1.0%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 626934



LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH12**
Lab Sample Id: 626934-001

Matrix: Soil
Date Collected: 06.04.19 09.10

Date Received: 06.07.19 11.40
Sample Depth: 1.0 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3091686

Date Prep: 06.07.19 15.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	443	49.5	mg/kg	06.07.19 18.33		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3091704

Date Prep: 06.07.19 16.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.08.19 02.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	27.8	15.0	mg/kg	06.08.19 02.45		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.08.19 02.45	U	1
Total TPH	PHC635	27.8	15.0	mg/kg	06.08.19 02.45		1
Total GRO-DRO	PHC628	27.8	15.0	mg/kg	06.08.19 02.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	06.08.19 02.45	
o-Terphenyl	84-15-1	94	%	70-135	06.08.19 02.45	



Certificate of Analytical Results 626934



LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH12**
Lab Sample Id: 626934-001

Matrix: Soil
Date Collected: 06.04.19 09.10

Date Received: 06.07.19 11.40
Sample Depth: 1.0 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.07.19 15.45

Basis: Wet Weight

Seq Number: 3091758

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.08.19 01.01	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.08.19 01.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.08.19 01.01		
1,4-Difluorobenzene	540-36-3	97	%	70-130	06.08.19 01.01		



Certificate of Analytical Results 626934



LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH12A** Matrix: Soil Date Received: 06.07.19 11.40
 Lab Sample Id: 626934-002 Date Collected: 06.04.19 09.15 Sample Depth: 1.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 06.07.19 15.30 Basis: Wet Weight
 Seq Number: 3091686

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	473	49.5	mg/kg	06.07.19 18.39		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 06.07.19 16.00 Basis: Wet Weight
 Seq Number: 3091704

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.08.19 03.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	28.4	15.0	mg/kg	06.08.19 03.10		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.08.19 03.10	U	1
Total TPH	PHC635	28.4	15.0	mg/kg	06.08.19 03.10		1
Total GRO-DRO	PHC628	28.4	15.0	mg/kg	06.08.19 03.10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	06.08.19 03.10	
o-Terphenyl	84-15-1	87	%	70-135	06.08.19 03.10	



Certificate of Analytical Results 626934



LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH12A**
Lab Sample Id: 626934-002

Matrix: Soil
Date Collected: 06.04.19 09.15

Date Received: 06.07.19 11.40
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.07.19 15.45

Basis: Wet Weight

Seq Number: 3091758

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.08.19 01.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.08.19 01.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	06.08.19 01.20		
1,4-Difluorobenzene	540-36-3	101	%	70-130	06.08.19 01.20		



Flagging Criteria



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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3091686

MB Sample Id: 7679458-1-BLK

Matrix: Solid

LCS Sample Id: 7679458-1-BKS

Prep Method: E300P

Date Prep: 06.07.19

LCSD Sample Id: 7679458-1-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	247	99	245	98	90-110	1	20	mg/kg	06.07.19 18:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3091686

Parent Sample Id: 626930-001

Matrix: Soil

MS Sample Id: 626930-001 S

Prep Method: E300P

Date Prep: 06.07.19

MSD Sample Id: 626930-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	50.8	248	312	105	304	102	90-110	3	20	mg/kg	06.07.19 18:23	

Analytical Method: Chloride by EPA 300

Seq Number: 3091686

Parent Sample Id: 626930-009

Matrix: Soil

MS Sample Id: 626930-009 S

Prep Method: E300P

Date Prep: 06.07.19

MSD Sample Id: 626930-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.857	250	259	104	252	101	90-110	3	20	mg/kg	06.07.19 19:36	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3091704

MB Sample Id: 7679504-1-BLK

Matrix: Solid

LCS Sample Id: 7679504-1-BKS

Prep Method: TX1005P

Date Prep: 06.07.19

LCSD Sample Id: 7679504-1-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)	10.7	1000	1190	119	1190	119	70-135	0	20	mg/kg	06.08.19 00:41	
Diesel Range Organics (DRO)	<8.13	1000	1160	116	1190	119	70-135	3	20	mg/kg	06.08.19 00:41	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		120		120		70-135	%	06.08.19 00:41
o-Terphenyl	94		121		111		70-135	%	06.08.19 00:41

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

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

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

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3091704

Parent Sample Id: 626933-005

Matrix: Soil

MS Sample Id: 626933-005 S

Prep Method: TX1005P

Date Prep: 06.07.19

MSD Sample Id: 626933-005 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)	13.6	997	1160	115	1200	119	70-135	3	20	mg/kg	06.08.19 01:56	
Diesel Range Organics (DRO)	8.96	997	1110	110	1150	114	70-135	4	20	mg/kg	06.08.19 01:56	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		119		70-135	%	06.08.19 01:56
o-Terphenyl	111		113		70-135	%	06.08.19 01:56

Analytical Method: BTEX by EPA 8021B

Seq Number: 3091758

MB Sample Id: 7679574-1-BLK

Matrix: Solid

LCS Sample Id: 7679574-1-BKS

Prep Method: SW5030B

Date Prep: 06.07.19

LCSD Sample Id: 7679574-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000383	0.0994	0.0939	94	0.0997	99	70-130	6	35	mg/kg	06.07.19 17:09	
Toluene	<0.000453	0.0994	0.0936	94	0.0987	98	70-130	5	35	mg/kg	06.07.19 17:09	
Ethylbenzene	<0.000561	0.0994	0.104	105	0.109	108	70-130	5	35	mg/kg	06.07.19 17:09	
m,p-Xylenes	<0.00101	0.199	0.213	107	0.224	111	70-130	5	35	mg/kg	06.07.19 17:09	
o-Xylene	<0.000342	0.0994	0.104	105	0.109	108	70-130	5	35	mg/kg	06.07.19 17:09	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	88		101		102		70-130	%	06.07.19 17:09
4-Bromofluorobenzene	87		105		106		70-130	%	06.07.19 17:09

Analytical Method: BTEX by EPA 8021B

Seq Number: 3091758

Parent Sample Id: 626141-011

Matrix: Soil

MS Sample Id: 626141-011 S

Prep Method: SW5030B

Date Prep: 06.07.19

MSD Sample Id: 626141-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.0785	79	0.0993	100	70-130	23	35	mg/kg	06.07.19 17:49	
Toluene	0.000655	0.100	0.0873	87	0.0982	98	70-130	12	35	mg/kg	06.07.19 17:49	
Ethylbenzene	<0.000565	0.100	0.0920	92	0.106	107	70-130	14	35	mg/kg	06.07.19 17:49	
m,p-Xylenes	<0.00101	0.200	0.183	92	0.214	108	70-130	16	35	mg/kg	06.07.19 17:49	
o-Xylene	0.000403	0.100	0.0897	89	0.104	104	70-130	15	35	mg/kg	06.07.19 17:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		109		70-130	%	06.07.19 17:49
4-Bromofluorobenzene	76		98		70-130	%	06.07.19 17:49

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

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

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

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



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 06/07/2019 11:40:00 AM

Work Order #: 626934

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 06/07/2019

Checklist reviewed by:

Jessica Kramer

Date: 06/07/2019

Analytical Report 628180

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

2RP-4958

21-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)



21-JUN-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **628180**

Remuda Basin 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) 628180. 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. 628180 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 628180****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH15	S	06-18-19 11:20	0.5 ft	628180-001
BH15A	S	06-18-19 11:25	1 ft	628180-002
BH16	S	06-18-19 11:30	0.5 ft	628180-003
BH16A	S	06-18-19 11:35	1 ft	628180-004

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Remuda Basin CTB**Project ID: 2RP-4958
Work Order Number(s): 628180Report Date: 21-JUN-19
Date Received: 06/19/2019

Sample receipt non conformances and comments:None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3092947 TPH by SW8015 Mod

Surrogate o-Terphenyl recovered below QC limits. Matrix interferences is suspected.

Samples affected are: 628180-004.

Batch: LBA-3093077 BTEX by EPA 8021B

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

Lab Sample ID 628180-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Ethylbenzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike. Benzene, Toluene 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: 628180-001, -002, -003, -004.

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



Certificate of Analysis Summary 628180

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 2RP-4958
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Wed Jun-19-19 11:40 am
Report Date: 21-JUN-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	628180-001	628180-002	628180-003	628180-004		
	<i>Field Id:</i>	BH15	BH15A	BH16	BH16A		
	<i>Depth:</i>	0.5- ft	1- ft	0.5- ft	1- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Jun-18-19 11:20	Jun-18-19 11:25	Jun-18-19 11:30	Jun-18-19 11:35		
BTEX by EPA 8021B	<i>Extracted:</i>	Jun-19-19 16:00	Jun-19-19 16:00	Jun-19-19 16:00	Jun-19-19 16:00		
	<i>Analyzed:</i>	Jun-20-19 15:55	Jun-20-19 16:16	Jun-20-19 16:36	Jun-20-19 16:56		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
m,p-Xylenes		<0.00399 0.00399	<0.00400 0.00400	<0.00401 0.00401	<0.00402 0.00402		
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201		
Chloride by EPA 300	<i>Extracted:</i>	Jun-19-19 15:50	Jun-19-19 15:50	Jun-19-19 15:50	Jun-19-19 15:50		
	<i>Analyzed:</i>	Jun-19-19 17:38	Jun-19-19 17:42	Jun-20-19 14:23	Jun-20-19 17:08		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		303 5.03	889 4.97	15.2 4.98	49.0 4.95		
TPH by SW8015 Mod	<i>Extracted:</i>	Jun-19-19 17:00	Jun-19-19 17:00	Jun-19-19 17:00	Jun-19-19 17:00		
	<i>Analyzed:</i>	Jun-20-19 00:42	Jun-20-19 01:55	Jun-20-19 02:19	Jun-20-19 02:43		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	27.1 15.0		
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0		
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0	27.1 15.0		
Total GRO-DRO		<15.0 15.0	<14.9 14.9	<15.0 15.0	27.1 15.0		

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

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

Jessica Kramer
Project Assistant



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH15**
Lab Sample Id: 628180-001

Matrix: Soil
Date Collected: 06.18.19 11.20

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092944

Date Prep: 06.19.19 15.50

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	303	5.03	mg/kg	06.19.19 17.38		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 00.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 00.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 00.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 00.42	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 00.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	06.20.19 00.42	
o-Terphenyl	84-15-1	87	%	70-135	06.20.19 00.42	



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH15**
Lab Sample Id: 628180-001

Matrix: Soil
Date Collected: 06.18.19 11.20

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: DVM

% Moisture:

Analyst: DVM

Date Prep: 06.19.19 16.00

Basis: Wet Weight

Seq Number: 3093077

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.20.19 15.55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.20.19 15.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	06.20.19 15.55		
1,4-Difluorobenzene	540-36-3	107	%	70-130	06.20.19 15.55		



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH15A** Matrix: Soil Date Received: 06.19.19 11.40
 Lab Sample Id: 628180-002 Date Collected: 06.18.19 11.25 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 06.19.19 15.50 Basis: Wet Weight
 Seq Number: 3092944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	889	4.97	mg/kg	06.19.19 17.42		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 06.19.19 17.00 Basis: Wet Weight
 Seq Number: 3092947

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	06.20.19 01.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	06.20.19 01.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	06.20.19 01.55	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	06.20.19 01.55	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	06.20.19 01.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	06.20.19 01.55	
o-Terphenyl	84-15-1	82	%	70-135	06.20.19 01.55	



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH15A**
Lab Sample Id: 628180-002

Matrix: Soil
Date Collected: 06.18.19 11.25

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: DVM

% Moisture:

Analyst: DVM

Date Prep: 06.19.19 16.00

Basis: Wet Weight

Seq Number: 3093077

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.20.19 16.16	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.20.19 16.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	06.20.19 16.16		
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.20.19 16.16		



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH16** Matrix: Soil Date Received: 06.19.19 11.40
 Lab Sample Id: 628180-003 Date Collected: 06.18.19 11.30 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 06.19.19 15.50 Basis: Wet Weight
 Seq Number: 3092944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.2	4.98	mg/kg	06.20.19 14.23		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 06.19.19 17.00 Basis: Wet Weight
 Seq Number: 3092947

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 02.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 02.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 02.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 02.19	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 02.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	06.20.19 02.19	
o-Terphenyl	84-15-1	78	%	70-135	06.20.19 02.19	



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH16**
Lab Sample Id: 628180-003

Matrix: Soil
Date Collected: 06.18.19 11.30

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: DVM

Analyst: DVM

Seq Number: 3093077

Date Prep: 06.19.19 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.20.19 16.36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.20.19 16.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	06.20.19 16.36		
4-Bromofluorobenzene	460-00-4	119	%	70-130	06.20.19 16.36		



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH16A**
Lab Sample Id: 628180-004

Matrix: Soil
Date Collected: 06.18.19 11.35

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092944

Date Prep: 06.19.19 15.50

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.0	4.95	mg/kg	06.20.19 17.08		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 02.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	27.1	15.0	mg/kg	06.20.19 02.43		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 02.43	U	1
Total TPH	PHC635	27.1	15.0	mg/kg	06.20.19 02.43		1
Total GRO-DRO	PHC628	27.1	15.0	mg/kg	06.20.19 02.43		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	06.20.19 02.43	
o-Terphenyl	84-15-1	67	%	70-135	06.20.19 02.43	**



Certificate of Analytical Results 628180



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **BH16A**
Lab Sample Id: 628180-004

Matrix: Soil
Date Collected: 06.18.19 11.35

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: DVM

% Moisture:

Analyst: DVM

Date Prep: 06.19.19 16.00

Basis: Wet Weight

Seq Number: 3093077

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.20.19 16.56	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.20.19 16.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.20.19 16.56		
4-Bromofluorobenzene	460-00-4	103	%	70-130	06.20.19 16.56		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3092944

MB Sample Id: 7680338-1-BLK

Matrix: Solid

LCS Sample Id: 7680338-1-BKS

Prep Method: E300P

Date Prep: 06.19.19

LCSD Sample Id: 7680338-1-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	250	100	251	100	90-110	0	20	mg/kg	06.19.19 16:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3092944

Parent Sample Id: 628030-008

Matrix: Soil

MS Sample Id: 628030-008 S

Prep Method: E300P

Date Prep: 06.19.19

MSD Sample Id: 628030-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	21.1	250	280	104	279	103	90-110	0	20	mg/kg	06.19.19 16:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3092944

Parent Sample Id: 628181-002

Matrix: Soil

MS Sample Id: 628181-002 S

Prep Method: E300P

Date Prep: 06.19.19

MSD Sample Id: 628181-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.96	248	259	104	257	104	90-110	1	20	mg/kg	06.19.19 18:07	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3092947

MB Sample Id: 7680348-1-BLK

Matrix: Solid

LCS Sample Id: 7680348-1-BKS

Prep Method: TX1005P

Date Prep: 06.19.19

LCSD Sample Id: 7680348-1-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	916	92	963	96	70-135	5	20	mg/kg	06.19.19 23:53	
Diesel Range Organics (DRO)	<8.13	1000	873	87	876	88	70-135	0	20	mg/kg	06.19.19 23:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		101		105		70-135	%	06.19.19 23:53
o-Terphenyl	103		94		99		70-135	%	06.19.19 23:53

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3092947

Parent Sample Id: 628180-001

Matrix: Soil

MS Sample Id: 628180-001 S

Prep Method: TX1005P

Date Prep: 06.19.19

MSD Sample Id: 628180-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	14.4	998	958	95	998	99	70-135	4	20	mg/kg	06.20.19 01:06	
Diesel Range Organics (DRO)	11.5	998	893	88	1020	101	70-135	13	20	mg/kg	06.20.19 01:06	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		96		70-135	%	06.20.19 01:06
o-Terphenyl	84		94		70-135	%	06.20.19 01:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3093077

MB Sample Id: 7680360-1-BLK

Matrix: Solid

LCS Sample Id: 7680360-1-BKS

Prep Method: SW5030B

Date Prep: 06.19.19

LCSD Sample Id: 7680360-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.000606	0.100	0.0780	78	0.0833	83	70-130	7	35	mg/kg	06.20.19 10:41	
Toluene	0.000616	0.100	0.0767	77	0.0813	81	70-130	6	35	mg/kg	06.20.19 10:41	
Ethylbenzene	0.00182	0.100	0.0837	84	0.0900	90	70-130	7	35	mg/kg	06.20.19 10:41	
m,p-Xylenes	0.00108	0.200	0.165	83	0.175	88	70-130	6	35	mg/kg	06.20.19 10:41	
o-Xylene	0.000557	0.100	0.0813	81	0.0862	86	70-130	6	35	mg/kg	06.20.19 10:41	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		103		103		70-130	%	06.20.19 10:41
4-Bromofluorobenzene	102		96		98		70-130	%	06.20.19 10:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3093077

Parent Sample Id: 628180-001

Matrix: Soil

MS Sample Id: 628180-001 S

Prep Method: SW5030B

Date Prep: 06.19.19

MSD Sample Id: 628180-001 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	0.0998	0.0692	69	0.0651	65	70-130	6	35	mg/kg	06.21.19 00:18	X
Toluene	<0.00200	0.0998	0.0653	65	0.0680	68	70-130	4	35	mg/kg	06.21.19 00:18	X
Ethylbenzene	<0.00200	0.0998	0.0681	68	0.0758	76	70-130	11	35	mg/kg	06.21.19 00:18	X
m,p-Xylenes	<0.00101	0.200	0.133	67	0.150	75	70-130	12	35	mg/kg	06.21.19 00:18	X
o-Xylene	<0.000344	0.0998	0.0672	67	0.0765	77	70-130	13	35	mg/kg	06.21.19 00:18	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		100		70-130	%	06.21.19 00:18
4-Bromofluorobenzene	103		112		70-130	%	06.21.19 00:18

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

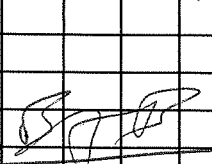
Work Order No: 620190

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:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	bbelill@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:	Remuda Basin CTB		Turn Around	ANALYSIS REQUEST												Work Order Notes					
Project Number:	2RP-4958		Routine													TAT starts the day received by the lab, if received by 4:30pm					
P.O. Number:	012918152		Rush:	24hr																	
Sampler's Name:	Benjamin Belill		Due Date:																		
SAMPLE RECEIPT Temp Blank: Yes ☒ No ☐ Wet Ice: Yes ☒ No ☐ Temperature (°C): 0310.3 Thermometer: <u>120</u> Received Intact: Yes ☒ No ☐ Cooler Custody Seals: Yes ☒ No ☐ N/A Correction Factor: <u>-0.2</u> Sample Custody Seals: Yes ☒ No ☐ N/A Total Containers: <u>1</u>																					
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)													Sample Comments
BH15	S	6/18/19	1120	0.5'	1	X	X	X													
BH15A	↓	↓	1125	1'	↓	X	X	X													
BA16	↓	↓	1130	0.5'	↓	X	X	X													
BH16A	↓	↓	1135	1'	↓	X	X	X													
 6/18/19																					

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <u>[Signature]</u>	<u>[Signature]</u>	6/18/19 @ 15:10	2 <u>[Signature]</u>	<u>[Signature]</u>	06/18/19 15:15
3			4	<u>[Signature]</u>	06/19/19
5			6	<u>[Signature]</u>	<u>[Signature]</u>

Revised Date 051418 Rev. 2018.1



Client: LT Environmental, Inc.

Date/ Time Received: 06/19/2019 11:40:00 AM

Work Order #: 628180

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 06/19/2019

Checklist reviewed by:

Jessica Kramer

Date: 06/19/2019

Analytical Report 628184

for
LT Environmental, Inc.

Project Manager: Dan Moir
Remuda Basin CTB (2RP-4958)

012918152

21-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)



21-JUN-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **628184**

Remuda Basin CTB (2RP-4958)

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) 628184. 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. 628184 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 628184****LT Environmental, Inc., Arvada, CO**

Remuda Basin CTB (2RP-4958)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH13	S	06-17-19 13:06	0.5 ft	628184-001
BH13A	S	06-17-19 13:11	1 ft	628184-002
BH14	S	06-17-19 13:14	0.5 ft	628184-003
BH14A	S	06-17-19 13:15	1 ft	628184-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB (2RP-4958)

Project ID: 012918152

Report Date: 21-JUN-19

Work Order Number(s): 628184

Date Received: 06/19/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3093077 BTEX by EPA 8021B

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



Certificate of Analysis Summary 628184

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB (2RP-4958)

Project Id: 012918152
Contact: Dan Moir
Project Location: Delaware Basin

Date Received in Lab: Wed Jun-19-19 11:40 am
Report Date: 21-JUN-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	628184-001	628184-002	628184-003	628184-004		
	<i>Field Id:</i>	BH13	BH13A	BH14	BH14A		
	<i>Depth:</i>	0.5- ft	1- ft	0.5- ft	1- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Jun-17-19 13:06	Jun-17-19 13:11	Jun-17-19 13:14	Jun-17-19 13:15		
BTEX by EPA 8021B	<i>Extracted:</i>	Jun-19-19 16:00	Jun-19-19 16:00	Jun-19-19 16:00	Jun-19-19 16:00		
	<i>Analyzed:</i>	Jun-20-19 21:54	Jun-20-19 22:17	Jun-20-19 22:37	Jun-20-19 22:57		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400	<0.00398 0.00398	<0.00399 0.00399		
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	Jun-19-19 16:10	Jun-19-19 16:10	Jun-19-19 16:10	Jun-19-19 16:10		
	<i>Analyzed:</i>	Jun-20-19 14:07	Jun-19-19 22:16	Jun-20-19 14:14	Jun-19-19 22:30		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		38.0 5.05	154 50.1	16.8 4.97	176 50.4		
TPH by SW8015 Mod	<i>Extracted:</i>	Jun-19-19 17:00	Jun-19-19 17:00	Jun-19-19 17:00	Jun-19-19 17:00		
	<i>Analyzed:</i>	Jun-20-19 07:10	Jun-20-19 07:34	Jun-20-19 07:59	Jun-20-19 08:23		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 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		
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total GRO-DRO		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH13**
Lab Sample Id: 628184-001

Matrix: Soil
Date Collected: 06.17.19 13.06

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092962

Date Prep: 06.19.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.0	5.05	mg/kg	06.20.19 14.07		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 07.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 07.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 07.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 07.10	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 07.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	06.20.19 07.10	
o-Terphenyl	84-15-1	95	%	70-135	06.20.19 07.10	



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH13**
Lab Sample Id: 628184-001

Matrix: Soil
Date Collected: 06.17.19 13.06

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: DVM

Analyst: DVM

Seq Number: 3093077

Date Prep: 06.19.19 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.20.19 21.54	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.20.19 21.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	06.20.19 21.54		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.20.19 21.54		



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH13A**
Lab Sample Id: 628184-002

Matrix: Soil
Date Collected: 06.17.19 13.11

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092962

Date Prep: 06.19.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	154	50.1	mg/kg	06.19.19 22.16		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 07.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 07.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 07.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 07.34	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 07.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.20.19 07.34	
o-Terphenyl	84-15-1	88	%	70-135	06.20.19 07.34	



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH13A**
Lab Sample Id: 628184-002

Matrix: Soil
Date Collected: 06.17.19 13.11

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: DVM

Analyst: DVM

Seq Number: 3093077

Date Prep: 06.19.19 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.20.19 22.17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.20.19 22.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	06.20.19 22.17		
4-Bromofluorobenzene	460-00-4	122	%	70-130	06.20.19 22.17		



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH14**
Lab Sample Id: 628184-003

Matrix: Soil
Date Collected: 06.17.19 13.14

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092962

Date Prep: 06.19.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.8	4.97	mg/kg	06.20.19 14.14		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 07.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 07.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 07.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 07.59	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 07.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	06.20.19 07.59	
o-Terphenyl	84-15-1	81	%	70-135	06.20.19 07.59	



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH14**
Lab Sample Id: 628184-003

Matrix: Soil
Date Collected: 06.17.19 13.14

Date Received: 06.19.19 11.40
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: DVM

% Moisture:

Analyst: DVM

Date Prep: 06.19.19 16.00

Basis: Wet Weight

Seq Number: 3093077

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.20.19 22.37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.20.19 22.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	70-130	06.20.19 22.37		
1,4-Difluorobenzene	540-36-3	107	%	70-130	06.20.19 22.37		



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH14A**
Lab Sample Id: 628184-004

Matrix: Soil
Date Collected: 06.17.19 13.15

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3092962

Date Prep: 06.19.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	176	50.4	mg/kg	06.19.19 22.30		10

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3092947

Date Prep: 06.19.19 17.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	06.20.19 08.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	06.20.19 08.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	06.20.19 08.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.20.19 08.23	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	06.20.19 08.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	06.20.19 08.23	
o-Terphenyl	84-15-1	90	%	70-135	06.20.19 08.23	



Certificate of Analytical Results 628184



LT Environmental, Inc., Arvada, CO

Remuda Basin CTB (2RP-4958)

Sample Id: **BH14A**
Lab Sample Id: 628184-004

Matrix: Soil
Date Collected: 06.17.19 13.15

Date Received: 06.19.19 11.40
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: DVM

Analyst: DVM

Seq Number: 3093077

Date Prep: 06.19.19 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.20.19 22.57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.20.19 22.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	06.20.19 22.57		
4-Bromofluorobenzene	460-00-4	108	%	70-130	06.20.19 22.57		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB (2RP-4958)

Analytical Method: Chloride by EPA 300

Seq Number: 3092962

MB Sample Id: 7680340-1-BLK

Matrix: Solid

LCS Sample Id: 7680340-1-BKS

Prep Method: E300P

Date Prep: 06.19.19

LCSD Sample Id: 7680340-1-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	246	98	90-110	0	20	mg/kg	06.19.19 21:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3092962

Parent Sample Id: 628183-003

Matrix: Soil

MS Sample Id: 628183-003 S

Prep Method: E300P

Date Prep: 06.19.19

MSD Sample Id: 628183-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	201	252	441	95	441	95	90-110	0	20	mg/kg	06.19.19 21:54	

Analytical Method: Chloride by EPA 300

Seq Number: 3092962

Parent Sample Id: 628185-006

Matrix: Soil

MS Sample Id: 628185-006 S

Prep Method: E300P

Date Prep: 06.19.19

MSD Sample Id: 628185-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	79.2	248	333	102	332	102	90-110	0	20	mg/kg	06.19.19 23:35	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3092947

MB Sample Id: 7680348-1-BLK

Matrix: Solid

LCS Sample Id: 7680348-1-BKS

Prep Method: TX1005P

Date Prep: 06.19.19

LCSD Sample Id: 7680348-1-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	916	92	963	96	70-135	5	20	mg/kg	06.19.19 23:53	
Diesel Range Organics (DRO)	<8.13	1000	873	87	876	88	70-135	0	20	mg/kg	06.19.19 23:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		101		105		70-135	%	06.19.19 23:53
o-Terphenyl	103		94		99		70-135	%	06.19.19 23:53

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB (2RP-4958)

Analytical Method: TPH by SW8015 Mod

Seq Number: 3092947

Parent Sample Id: 628180-001

Matrix: Soil

MS Sample Id: 628180-001 S

Prep Method: TX1005P

Date Prep: 06.19.19

MSD Sample Id: 628180-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	14.4	998	958	95	998	99	70-135	4	20	mg/kg	06.20.19 01:06	
Diesel Range Organics (DRO)	11.5	998	893	88	1020	101	70-135	13	20	mg/kg	06.20.19 01:06	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		96		70-135	%	06.20.19 01:06
o-Terphenyl	84		94		70-135	%	06.20.19 01:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3093077

MB Sample Id: 7680360-1-BLK

Matrix: Solid

LCS Sample Id: 7680360-1-BKS

Prep Method: SW5030B

Date Prep: 06.19.19

LCSD Sample Id: 7680360-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.000606	0.100	0.0780	78	0.0833	83	70-130	7	35	mg/kg	06.20.19 10:41	
Toluene	0.000616	0.100	0.0767	77	0.0813	81	70-130	6	35	mg/kg	06.20.19 10:41	
Ethylbenzene	0.00182	0.100	0.0837	84	0.0900	90	70-130	7	35	mg/kg	06.20.19 10:41	
m,p-Xylenes	0.00108	0.200	0.165	83	0.175	88	70-130	6	35	mg/kg	06.20.19 10:41	
o-Xylene	0.000557	0.100	0.0813	81	0.0862	86	70-130	6	35	mg/kg	06.20.19 10:41	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		103		103		70-130	%	06.20.19 10:41
4-Bromofluorobenzene	102		96		98		70-130	%	06.20.19 10:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3093077

Parent Sample Id: 628180-001

Matrix: Soil

MS Sample Id: 628180-001 S

Prep Method: SW5030B

Date Prep: 06.19.19

MSD Sample Id: 628180-001 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	0.0998	0.0692	69	0.0651	65	70-130	6	35	mg/kg	06.21.19 00:18	X
Toluene	<0.00200	0.0998	0.0653	65	0.0680	68	70-130	4	35	mg/kg	06.21.19 00:18	X
Ethylbenzene	<0.00200	0.0998	0.0681	68	0.0758	76	70-130	11	35	mg/kg	06.21.19 00:18	X
m,p-Xylenes	<0.00101	0.200	0.133	67	0.150	75	70-130	12	35	mg/kg	06.21.19 00:18	X
o-Xylene	<0.000344	0.0998	0.0672	67	0.0765	77	70-130	13	35	mg/kg	06.21.19 00:18	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		100		70-130	%	06.21.19 00:18
4-Bromofluorobenzene	103		112		70-130	%	06.21.19 00:18

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 0274

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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:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	bbelill@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:

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)		Received by: (Signature)		Date/Time	
1		Anne Byers Fed Ex	0915@6/18/19	2	Anne Byers
3			6/18/19 14:00	4	
5				6	



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 06/19/2019 11:40:00 AM

Work Order #: 628184

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 06/19/2019

Checklist reviewed by:

Jessica Kramer

Date: 06/19/2019

Analytical Report 633251

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda CTB

2RP-4958

12-AUG-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), North Carolina (681)

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)



12-AUG-19

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

Reference: XENCO Report No(s): **633251**
Remuda 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) 633251. 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. 633251 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer
Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 633251****LT Environmental, Inc., Arvada, CO**

Remuda CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS07	S	08-06-19 09:55	1 ft	633251-001
FS08	S	08-06-19 09:50	0.5 ft	633251-002



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda CTB

Project ID: 2RP-4958
Work Order Number(s): 633251

Report Date: 12-AUG-19
Date Received: 08/06/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3098254 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 633251-001.

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

Lab Sample ID 633251-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Benzene, Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 633251-001, -002.

The Laboratory Control Sample for Toluene, Benzene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 633251

LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id: 2RP-4958

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue Aug-06-19 04:00 pm

Report Date: 12-AUG-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	633251-001	633251-002				
	Field Id:	FS07	FS08				
	Depth:	1- ft	0.5- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Aug-06-19 09:55	Aug-06-19 09:50				
BTEX by EPA 8021B SUB: T104704400-18-16	Extracted:	Aug-08-19 12:00	Aug-08-19 12:00				
	Analyzed:	Aug-09-19 08:31	Aug-09-19 08:51				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00198 0.00198	<0.00199 0.00199				
	Toluene	<0.00198 0.00198	<0.00199 0.00199				
Ethylbenzene		0.00266 0.00198	<0.00199 0.00199				
m,p-Xylenes		<0.00397 0.00397	<0.00398 0.00398				
o-Xylene		<0.00198 0.00198	<0.00199 0.00199				
Total Xylenes		<0.00198 0.00198	<0.00199 0.00199				
Total BTEX		0.00266 0.00198	<0.00199 0.00199				
Chloride by EPA 300 SUB: T104704400-18-16	Extracted:	Aug-08-19 13:30	Aug-08-19 13:30				
	Analyzed:	Aug-08-19 16:53	Aug-08-19 17:08				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	209 50.0	1150 50.0				
TPH by SW8015 Mod SUB: T104704400-18-16	Extracted:	Aug-09-19 15:00	Aug-09-19 15:00				
	Analyzed:	Aug-11-19 02:44	Aug-11-19 03:40				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0	<15.0 15.0				
	Diesel Range Organics (DRO)	<15.0 15.0	17.3 15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0				
Total TPH		<15.0 15.0	17.3 15.0				
Total GRO-DRO		<15.0 15.0	17.3 15.0				

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

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

Version: 1.0%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 633251

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS07** Matrix: Soil Date Received: 08.06.19 16.00
 Lab Sample Id: 633251-001 Date Collected: 08.06.19 09.55 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.08.19 13.30 Basis: Wet Weight
 Seq Number: 3097977 SUB: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	209	50.0	mg/kg	08.08.19 16.53		10

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: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.11.19 02.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.11.19 02.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	08.11.19 02.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.11.19 02.44	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	08.11.19 02.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	08.11.19 02.44	
o-Terphenyl	84-15-1	94	%	70-135	08.11.19 02.44	



Certificate of Analytical Results 633251

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS07**
 Lab Sample Id: 633251-001

Matrix: Soil
 Date Collected: 08.06.19 09.55

Date Received: 08.06.19 16.00
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: ALG

Seq Number: 3098254

Prep Method: SW5030B

% Moisture:

Date Prep: 08.08.19 12.00

Basis: Wet Weight

SUB: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.09.19 08.31	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.09.19 08.31	U	1
Ethylbenzene	100-41-4	0.00266	0.00198	mg/kg	08.09.19 08.31		1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	08.09.19 08.31	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.09.19 08.31	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.09.19 08.31	U	1
Total BTEX		0.00266	0.00198	mg/kg	08.09.19 08.31		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	08.09.19 08.31		
4-Bromofluorobenzene	460-00-4	240	%	70-130	08.09.19 08.31	**	



Certificate of Analytical Results 633251

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS08** Matrix: Soil Date Received: 08.06.19 16.00
 Lab Sample Id: 633251-002 Date Collected: 08.06.19 09.50 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.08.19 13.30 Basis: Wet Weight
 Seq Number: 3097977 SUB: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1150	50.0	mg/kg	08.08.19 17.08		10

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: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.11.19 03.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	17.3	15.0	mg/kg	08.11.19 03.40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	08.11.19 03.40	U	1
Total TPH	PHC635	17.3	15.0	mg/kg	08.11.19 03.40		1
Total GRO-DRO	PHC628	17.3	15.0	mg/kg	08.11.19 03.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	08.11.19 03.40	
o-Terphenyl	84-15-1	98	%	70-135	08.11.19 03.40	



Certificate of Analytical Results 633251

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS08**
 Lab Sample Id: 633251-002

Matrix: Soil
 Date Collected: 08.06.19 09.50

Date Received: 08.06.19 16.00
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: ALG

Seq Number: 3098254

Prep Method: SW5030B

% Moisture:

Date Prep: 08.08.19 12.00

Basis: Wet Weight

SUB: T104704400-18-16

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.09.19 08.51	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.09.19 08.51	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	08.09.19 08.51		
1,4-Difluorobenzene	540-36-3	107	%	70-130	08.09.19 08.51		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3097977

MB Sample Id: 7683800-1-BLK

Matrix: Solid

LCS Sample Id: 7683800-1-BKS

Prep Method: E300P

Date Prep: 08.08.19

LCSD Sample Id: 7683800-1-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	251	100	249	100	90-110	1	20	mg/kg	08.08.19 13:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3097977

Parent Sample Id: 633408-001

Matrix: Soil

MS Sample Id: 633408-001 S

Prep Method: E300P

Date Prep: 08.08.19

MSD Sample Id: 633408-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.4	250	266	100	266	100	90-110	0	20	mg/kg	08.08.19 14:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3097977

Parent Sample Id: 633409-003

Matrix: Soil

MS Sample Id: 633409-003 S

Prep Method: E300P

Date Prep: 08.08.19

MSD Sample Id: 633409-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.3	248	258	98	258	98	90-110	0	20	mg/kg	08.08.19 15:44	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3098133

MB Sample Id: 7683942-1-BLK

Matrix: Solid

LCS Sample Id: 7683942-1-BKS

Prep Method: TX1005P

Date Prep: 08.09.19

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

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

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

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

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3098133

Parent Sample Id: 633251-001

Matrix: Soil

MS Sample Id: 633251-001 S

Prep Method: TX1005P

Date Prep: 08.09.19

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

Analytical Method: BTEX by EPA 8021B

Seq Number: 3098254

MB Sample Id: 7683789-1-BLK

Matrix: Solid

LCS Sample Id: 7683789-1-BKS

Prep Method: SW5030B

Date Prep: 08.08.19

LCSD Sample Id: 7683789-1-BSO

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	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

Seq Number: 3098254

Parent Sample Id: 633251-001

Matrix: Soil

MS Sample Id: 633251-001 S

Prep Method: SW5030B

Date Prep: 08.08.19

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
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



Inter-Office Shipment

Page 1 of 1

IOS Number **45737**

Date/Time: 08/07/19 10:20

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.: 7759305855567

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
633251-001	S	FS07	08/06/19 09:55	SW8015MOD_NM	TPH by SW8015 Mod	08/09/19	08/20/19	JKR	GRO-DRO PHCC10C28 PF	
633251-001	S	FS07	08/06/19 09:55	SW8021B	BTEX by EPA 8021B	08/09/19	08/20/19	JKR	BR4FBZ BZ BZME EBZ X	
633251-001	S	FS07	08/06/19 09:55	E300_CL	Chloride by EPA 300	08/09/19	02/02/20	JKR	CL	
633251-002	S	FS08	08/06/19 09:50	SW8021B	BTEX by EPA 8021B	08/09/19	08/20/19	JKR	BR4FBZ BZ BZME EBZ X	
633251-002	S	FS08	08/06/19 09:50	E300_CL	Chloride by EPA 300	08/09/19	02/02/20	JKR	CL	
633251-002	S	FS08	08/06/19 09:50	SW8015MOD_NM	TPH by SW8015 Mod	08/09/19	08/20/19	JKR	GRO-DRO PHCC10C28 PF	

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



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 45737

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 10:20 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



Client: LT Environmental, Inc.

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

Work Order #: 633251

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 635229

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda CTB

012918152

28-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)



28-OCT-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **635229**

Remuda CTB

Project Address: Eddy 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) 635229. 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. 635229 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

**Sample Cross Reference 635229****LT Environmental, Inc., Arvada, CO**

Remuda CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH17	S	08-26-19 10:35	0.5 ft	635229-001
BH18	S	08-26-19 10:35	0.5 ft	635229-002
BH19	S	08-26-19 10:36	0.5 ft	635229-003
BH20	S	08-26-19 10:37	0.5 ft	635229-004
BH22	S	08-26-19 10:40	0.5 ft	635229-005
BH17A	S	08-26-19 13:00	1 ft	635229-006
BH18A	S	08-26-19 13:03	1 ft	635229-007
BH19A	S	08-26-19 13:05	1 ft	635229-008
BH20A	S	08-26-19 13:06	1 ft	635229-009
BH22A	S	08-26-19 13:13	1 ft	635229-010
BH21	S	08-27-19 10:09	0.5 ft	635229-011
BH23	S	08-27-19 10:11	0.5 ft	635229-012
BH21A	S	08-27-19 10:13	1 ft	635229-013
BH23A	S	08-27-19 10:19	1 ft	635229-014

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Remuda CTB**Project ID: 012918152
Work Order Number(s): 635229Report Date: 28-OCT-19
Date Received: 08/27/2019**Sample receipt non conformances and comments:**

Per clients emails, corrected sample names below. NEW VERSION GENERATED. JK 09/10/19

SS01 ---- > BH13
SS02 ---- > BH14
SS03 ---- > BH15
SS04 ---- > BH16
SS06 ---- > BH18
SS01A --- > BH13A
SS02A --- > BH14A
SS03A --- > BH15A
SS04A --- > BH16A
SS06A --- > BH18A
SS05 ---- > BH17
SS07 ---- > BH19
SS05A --- > BH17A
SS07A --- > BH19A

Per clients additional email, corrected sample names to match below. NEW VERSION GENERATED. JK 10/28/19

BH13 ->BH17
BH14-> BH18
BH15-> BH19
BH16->BH20
BH18->BH22
BH13A->BH17A
BH14A-> BH18A
BH15A->BH19A
BH16A->BH20A
BH18A->BH22a
BH17->BH21
BH19->BH23
BH17A->BH21A
BH19A->BH23A

Sample receipt non conformances and comments per sample:

None



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda CTB

Project ID: 012918152
Work Order Number(s): 635229

Report Date: 28-OCT-19
Date Received: 08/27/2019

Batch: LBA-3099983 Chloride by EPA 300

Lab Sample ID 635229-005 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 635229-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3100229 BTEX by EPA 8021B

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

Certificate of Analysis Summary 635229



LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id: 012918152

Contact: Dan Moir

Project Location: Eddy County

Date Received in Lab: Tue Aug-27-19 12:35 pm

Report Date: 28-OCT-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	635229-001	635229-002	635229-003	635229-004	635229-005	635229-006
	<i>Field Id:</i>	BH17	BH18	BH19	BH20	BH22	BH17A
	<i>Depth:</i>	0.5- ft	0.5- ft	0.5- ft	0.5- ft	0.5- ft	1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Aug-26-19 10:35	Aug-26-19 10:35	Aug-26-19 10:36	Aug-26-19 10:37	Aug-26-19 10:40	Aug-26-19 13:00
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00
	<i>Analyzed:</i>	Aug-30-19 02:09	Aug-30-19 02:29	Aug-30-19 02:49	Aug-30-19 03:09	Aug-30-19 04:28	Aug-30-19 04:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400	<0.00402 0.00402	<0.00399 0.00399	<0.00398 0.00398	<0.00397 0.00397
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Chloride by EPA 300 SUB: T104704400-19-19	<i>Extracted:</i>	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00
	<i>Analyzed:</i>	Aug-28-19 17:01	Aug-28-19 17:07	Aug-28-19 17:33	Aug-28-19 17:39	Aug-28-19 17:14	Aug-28-19 17:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1960 50.5	2890 50.0	54.5 50.5	3440 49.9	14.1 4.98	5370 100
TPH by SW8015 Mod SUB: T104704400-19-19	<i>Extracted:</i>	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00
	<i>Analyzed:</i>	Aug-28-19 22:32	Aug-28-19 23:31	Aug-28-19 23:50	Aug-29-19 00:10	Aug-29-19 00:30	Aug-29-19 00:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0	<25.0 25.0
Diesel Range Organics (DRO)		<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0	25.1 25.0
Motor Oil Range Hydrocarbons (MRO)		<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0	<25.0 25.0
Total TPH		<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0	25.1 25.0
Total GRO-DRO		<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0	25.1 25.0

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

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Version: 1.9%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 635229



LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id: 012918152

Contact: Dan Moir

Project Location: Eddy County

Date Received in Lab: Tue Aug-27-19 12:35 pm

Report Date: 28-OCT-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	635229-007	635229-008	635229-009	635229-010	635229-011	635229-012
	Field Id:	BH18A	BH19A	BH20A	BH22A	BH21	BH23
	Depth:	1- ft	1- ft	1- ft	1- ft	0.5- ft	0.5- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-26-19 13:03	Aug-26-19 13:05	Aug-26-19 13:06	Aug-26-19 13:13	Aug-27-19 10:09	Aug-27-19 10:11
BTEX by EPA 8021B SUB: T104704400-19-19	Extracted:	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00	Aug-28-19 13:00
	Analyzed:	Aug-30-19 05:08	Aug-30-19 05:28	Aug-30-19 05:48	Aug-30-19 06:08	Aug-30-19 06:28	Aug-30-19 06:49
	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	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00396 0.00396	<0.00398 0.00398	<0.00399 0.00399	<0.00400 0.00400
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300 SUB: T104704400-19-19	Extracted:	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00
	Analyzed:	Aug-28-19 18:04	Aug-29-19 08:49	Aug-28-19 18:17	Aug-28-19 18:23	Aug-28-19 18:30	Aug-28-19 18:36
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		7580 99.8	16.5 4.97	2710 50.5	15.7 5.00	2650 50.0	820 50.0
TPH by SW8015 Mod SUB: T104704400-19-19	Extracted:	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00	Aug-28-19 15:00
	Analyzed:	Aug-29-19 01:09	Aug-29-19 12:42	Aug-29-19 01:48	Aug-29-19 02:08	Aug-29-19 02:27	Aug-29-19 02:47
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<24.9 24.9	<24.9 24.9	<25.0 25.0	<25.0 25.0	<25.0 25.0	<25.0 25.0
Diesel Range Organics (DRO)		44.8 24.9	<24.9 24.9	<25.0 25.0	<25.0 25.0	<25.0 25.0	519 25.0
Motor Oil Range Hydrocarbons (MRO)		<24.9 24.9	<24.9 24.9	<25.0 25.0	<25.0 25.0	<25.0 25.0	145 25.0
Total TPH		44.8 24.9	<24.9 24.9	<25.0 25.0	<25.0 25.0	<25.0 25.0	664 25.0
Total GRO-DRO		44.8 24.9	<24.9 24.9	<25.0 25.0	<25.0 25.0	<25.0 25.0	519 25.0

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 635229

LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id: 012918152

Contact: Dan Moir

Project Location: Eddy County

Date Received in Lab: Tue Aug-27-19 12:35 pm

Report Date: 28-OCT-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	635229-013	635229-014				
	Field Id:	BH21A	BH23A				
	Depth:	1- ft	1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Aug-27-19 10:13	Aug-27-19 10:19				
BTEX by EPA 8021B SUB: T104704400-19-19	Extracted:	Aug-28-19 13:00	Aug-28-19 13:00				
	Analyzed:	Aug-30-19 07:09	Aug-30-19 07:29				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00201 0.00201				
Toluene		<0.00200 0.00200	<0.00201 0.00201				
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201				
m,p-Xylenes		<0.00400 0.00400	<0.00402 0.00402				
o-Xylene		<0.00200 0.00200	<0.00201 0.00201				
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201				
Total BTEX		<0.00200 0.00200	<0.00201 0.00201				
Chloride by EPA 300 SUB: T104704400-19-19	Extracted:	Aug-29-19 09:15	Aug-29-19 09:15				
	Analyzed:	Aug-29-19 11:14	Aug-29-19 11:19				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		3440 49.8	1030 50.0				
TPH by SW8015 Mod SUB: T104704400-19-19	Extracted:	Aug-28-19 15:00	Aug-28-19 15:00				
	Analyzed:	Aug-29-19 03:07	Aug-29-19 03:26				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<25.0 25.0	<24.9 24.9				
Diesel Range Organics (DRO)		<25.0 25.0	430 24.9				
Motor Oil Range Hydrocarbons (MRO)		<25.0 25.0	122 24.9				
Total TPH		<25.0 25.0	552 24.9				
Total GRO-DRO		<25.0 25.0	430 24.9				

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

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Version: 1.0%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH17** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-001 Date Collected: 08.26.19 10.35 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3099983 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1960	50.5	mg/kg	08.28.19 17.01		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.28.19 22.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<24.9	24.9	mg/kg	08.28.19 22.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<24.9	24.9	mg/kg	08.28.19 22.32	U	1
Total TPH	PHC635	<24.9	24.9	mg/kg	08.28.19 22.32	U	1
Total GRO-DRO	PHC628	<24.9	24.9	mg/kg	08.28.19 22.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.28.19 22.32	
o-Terphenyl	84-15-1	90	%	70-135	08.28.19 22.32	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH17**
 Lab Sample Id: 635229-001

Matrix: Soil
 Date Collected: 08.26.19 10.35

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.30.19 02.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.30.19 02.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 02.09		
4-Bromofluorobenzene	460-00-4	112	%	70-130	08.30.19 02.09		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH18** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-002 Date Collected: 08.26.19 10.35 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3099983 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2890	50.0	mg/kg	08.28.19 17.07		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.28.19 23.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<24.9	24.9	mg/kg	08.28.19 23.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<24.9	24.9	mg/kg	08.28.19 23.31	U	1
Total TPH	PHC635	<24.9	24.9	mg/kg	08.28.19 23.31	U	1
Total GRO-DRO	PHC628	<24.9	24.9	mg/kg	08.28.19 23.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	08.28.19 23.31	
o-Terphenyl	84-15-1	90	%	70-135	08.28.19 23.31	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH18**
 Lab Sample Id: 635229-002

Matrix: Soil
 Date Collected: 08.26.19 10.35

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	08.30.19 02.29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 02.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 02.29		
4-Bromofluorobenzene	460-00-4	106	%	70-130	08.30.19 02.29		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH19** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-003 Date Collected: 08.26.19 10.36 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3099983 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	54.5	50.5	mg/kg	08.28.19 17.33		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.28.19 23.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.28.19 23.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.28.19 23.50	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.28.19 23.50	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.28.19 23.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	08.28.19 23.50	
o-Terphenyl	84-15-1	84	%	70-135	08.28.19 23.50	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH19**
 Lab Sample Id: 635229-003

Matrix: Soil
 Date Collected: 08.26.19 10.36

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.30.19 02.49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.30.19 02.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 02.49		
4-Bromofluorobenzene	460-00-4	107	%	70-130	08.30.19 02.49		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH20** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-004 Date Collected: 08.26.19 10.37 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3099983 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3440	49.9	mg/kg	08.28.19 17.39		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.29.19 00.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<24.9	24.9	mg/kg	08.29.19 00.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<24.9	24.9	mg/kg	08.29.19 00.10	U	1
Total TPH	PHC635	<24.9	24.9	mg/kg	08.29.19 00.10	U	1
Total GRO-DRO	PHC628	<24.9	24.9	mg/kg	08.29.19 00.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	08.29.19 00.10	
o-Terphenyl	84-15-1	87	%	70-135	08.29.19 00.10	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH20**
Lab Sample Id: 635229-004

Matrix: Soil
Date Collected: 08.26.19 10.37

Date Received: 08.27.19 12.35
Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.30.19 03.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 03.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	08.30.19 03.09		
4-Bromofluorobenzene	460-00-4	106	%	70-130	08.30.19 03.09		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH22**
Lab Sample Id: 635229-005

Matrix: Soil
Date Collected: 08.26.19 10.40

Date Received: 08.27.19 12.35
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.1	4.98	mg/kg	08.28.19 17.14		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 00.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.29.19 00.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 00.30	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.29.19 00.30	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.29.19 00.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	08.29.19 00.30	
o-Terphenyl	84-15-1	84	%	70-135	08.29.19 00.30	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH22**
 Lab Sample Id: 635229-005

Matrix: Soil
 Date Collected: 08.26.19 10.40

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.30.19 04.28	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.30.19 04.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	08.30.19 04.28		
4-Bromofluorobenzene	460-00-4	105	%	70-130	08.30.19 04.28		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH17A** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-006 Date Collected: 08.26.19 13.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3099983 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5370	100	mg/kg	08.28.19 17.58		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 00.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	25.1	25.0	mg/kg	08.29.19 00.49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 00.49	U	1
Total TPH	PHC635	25.1	25.0	mg/kg	08.29.19 00.49		1
Total GRO-DRO	PHC628	25.1	25.0	mg/kg	08.29.19 00.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	08.29.19 00.49	
o-Terphenyl	84-15-1	87	%	70-135	08.29.19 00.49	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH17A**
 Lab Sample Id: 635229-006

Matrix: Soil
 Date Collected: 08.26.19 13.00

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 08.28.19 13.00

Basis: Wet Weight

Seq Number: 3100229

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	08.30.19 04.48	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.30.19 04.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	08.30.19 04.48		
1,4-Difluorobenzene	540-36-3	96	%	70-130	08.30.19 04.48		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH18A**
Lab Sample Id: 635229-007

Matrix: Soil
Date Collected: 08.26.19 13.03

Date Received: 08.27.19 12.35
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7580	99.8	mg/kg	08.28.19 18.04		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.29.19 01.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	44.8	24.9	mg/kg	08.29.19 01.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<24.9	24.9	mg/kg	08.29.19 01.09	U	1
Total TPH	PHC635	44.8	24.9	mg/kg	08.29.19 01.09		1
Total GRO-DRO	PHC628	44.8	24.9	mg/kg	08.29.19 01.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	08.29.19 01.09	
o-Terphenyl	84-15-1	86	%	70-135	08.29.19 01.09	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH18A**
 Lab Sample Id: 635229-007

Matrix: Soil
 Date Collected: 08.26.19 13.03

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 08.28.19 13.00

Basis: Wet Weight

Seq Number: 3100229

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.30.19 05.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.30.19 05.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	08.30.19 05.08		
1,4-Difluorobenzene	540-36-3	93	%	70-130	08.30.19 05.08		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH19A**
Lab Sample Id: 635229-008

Matrix: Soil
Date Collected: 08.26.19 13.05

Date Received: 08.27.19 12.35
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.5	4.97	mg/kg	08.29.19 08.49		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.29.19 12.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<24.9	24.9	mg/kg	08.29.19 12.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<24.9	24.9	mg/kg	08.29.19 12.42	U	1
Total TPH	PHC635	<24.9	24.9	mg/kg	08.29.19 12.42	U	1
Total GRO-DRO	PHC628	<24.9	24.9	mg/kg	08.29.19 12.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.29.19 12.42	
o-Terphenyl	84-15-1	90	%	70-135	08.29.19 12.42	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH19A**
 Lab Sample Id: 635229-008

Matrix: Soil
 Date Collected: 08.26.19 13.05

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.30.19 05.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 05.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	08.30.19 05.28		
4-Bromofluorobenzene	460-00-4	106	%	70-130	08.30.19 05.28		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH20A**
Lab Sample Id: 635229-009

Matrix: Soil
Date Collected: 08.26.19 13.06

Date Received: 08.27.19 12.35
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2710	50.5	mg/kg	08.28.19 18.17		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 01.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.29.19 01.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 01.48	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.29.19 01.48	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.29.19 01.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	08.29.19 01.48	
o-Terphenyl	84-15-1	86	%	70-135	08.29.19 01.48	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH20A**
 Lab Sample Id: 635229-009

Matrix: Soil
 Date Collected: 08.26.19 13.06

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 08.28.19 13.00

Basis: Wet Weight

Seq Number: 3100229

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	08.30.19 05.48	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.30.19 05.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	08.30.19 05.48		
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 05.48		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH22A**
Lab Sample Id: 635229-010

Matrix: Soil
Date Collected: 08.26.19 13.13

Date Received: 08.27.19 12.35
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.7	5.00	mg/kg	08.28.19 18.23		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 02.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.29.19 02.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 02.08	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.29.19 02.08	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.29.19 02.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	08.29.19 02.08	
o-Terphenyl	84-15-1	87	%	70-135	08.29.19 02.08	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH22A**
 Lab Sample Id: 635229-010

Matrix: Soil
 Date Collected: 08.26.19 13.13

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 08.28.19 13.00

Basis: Wet Weight

Seq Number: 3100229

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.30.19 06.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.30.19 06.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	08.30.19 06.08		
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 06.08		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH21**
Lab Sample Id: 635229-011

Matrix: Soil
Date Collected: 08.27.19 10.09

Date Received: 08.27.19 12.35
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2650	50.0	mg/kg	08.28.19 18.30		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 02.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.29.19 02.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 02.27	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.29.19 02.27	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.29.19 02.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	08.29.19 02.27	
o-Terphenyl	84-15-1	88	%	70-135	08.29.19 02.27	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH21**
 Lab Sample Id: 635229-011

Matrix: Soil
 Date Collected: 08.27.19 10.09

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.30.19 06.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 06.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	08.30.19 06.28		
4-Bromofluorobenzene	460-00-4	114	%	70-130	08.30.19 06.28		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH23**
Lab Sample Id: 635229-012

Matrix: Soil
Date Collected: 08.27.19 10.11

Date Received: 08.27.19 12.35
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3099983

Date Prep: 08.28.19 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	820	50.0	mg/kg	08.28.19 18.36		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3100069

Date Prep: 08.28.19 15.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 02.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	519	25.0	mg/kg	08.29.19 02.47		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	145	25.0	mg/kg	08.29.19 02.47		1
Total TPH	PHC635	664	25.0	mg/kg	08.29.19 02.47		1
Total GRO-DRO	PHC628	519	25.0	mg/kg	08.29.19 02.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	08.29.19 02.47	
o-Terphenyl	84-15-1	87	%	70-135	08.29.19 02.47	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH23**
 Lab Sample Id: 635229-012

Matrix: Soil
 Date Collected: 08.27.19 10.11

Date Received: 08.27.19 12.35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	08.30.19 06.49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 06.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	08.30.19 06.49		
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.30.19 06.49		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH21A** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-013 Date Collected: 08.27.19 10.13 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.29.19 09.15 Basis: Wet Weight
 Seq Number: 3100132 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3440	49.8	mg/kg	08.29.19 11.14		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<25.0	25.0	mg/kg	08.29.19 03.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	08.29.19 03.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<25.0	25.0	mg/kg	08.29.19 03.07	U	1
Total TPH	PHC635	<25.0	25.0	mg/kg	08.29.19 03.07	U	1
Total GRO-DRO	PHC628	<25.0	25.0	mg/kg	08.29.19 03.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	08.29.19 03.07	
o-Terphenyl	84-15-1	85	%	70-135	08.29.19 03.07	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH21A**
 Lab Sample Id: 635229-013

Matrix: Soil
 Date Collected: 08.27.19 10.13

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	08.30.19 07.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.30.19 07.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	08.30.19 07.09		
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.30.19 07.09		



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH23A** Matrix: Soil Date Received: 08.27.19 12.35
 Lab Sample Id: 635229-014 Date Collected: 08.27.19 10.19 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.29.19 09.15 Basis: Wet Weight
 Seq Number: 3100132 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1030	50.0	mg/kg	08.29.19 11.19		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.28.19 15.00 Basis: Wet Weight
 Seq Number: 3100069 SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<24.9	24.9	mg/kg	08.29.19 03.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	430	24.9	mg/kg	08.29.19 03.26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	122	24.9	mg/kg	08.29.19 03.26		1
Total TPH	PHC635	552	24.9	mg/kg	08.29.19 03.26		1
Total GRO-DRO	PHC628	430	24.9	mg/kg	08.29.19 03.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.29.19 03.26	
o-Terphenyl	84-15-1	92	%	70-135	08.29.19 03.26	



Certificate of Analytical Results 635229

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **BH23A**
 Lab Sample Id: 635229-014

Matrix: Soil
 Date Collected: 08.27.19 10.19

Date Received: 08.27.19 12.35
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3100229

Prep Method: SW5030B

% Moisture:

Date Prep: 08.28.19 13.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.30.19 07.29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.30.19 07.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	08.30.19 07.29		
1,4-Difluorobenzene	540-36-3	100	%	70-130	08.30.19 07.29		



Flagging Criteria

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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3099983

MB Sample Id: 7685187-1-BLK

Matrix: Solid

LCS Sample Id: 7685187-1-BKS

Prep Method: E300P

Date Prep: 08.28.19

LCSD Sample Id: 7685187-1-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	242	97	242	97	90-110	0	20	mg/kg	08.28.19 15:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3100132

MB Sample Id: 7685222-1-BLK

Matrix: Solid

LCS Sample Id: 7685222-1-BKS

Prep Method: E300P

Date Prep: 08.29.19

LCSD Sample Id: 7685222-1-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	258	103	256	102	90-110	1	20	mg/kg	08.29.19 10:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3099983

Parent Sample Id: 635225-006

Matrix: Soil

MS Sample Id: 635225-006 S

Prep Method: E300P

Date Prep: 08.28.19

MSD Sample Id: 635225-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	44.3	250	257	85	258	85	90-110	0	20	mg/kg	08.28.19 15:48	X

Analytical Method: Chloride by EPA 300

Seq Number: 3099983

Parent Sample Id: 635229-005

Matrix: Soil

MS Sample Id: 635229-005 S

Prep Method: E300P

Date Prep: 08.28.19

MSD Sample Id: 635229-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14.1	249	226	85	226	85	90-110	0	20	mg/kg	08.28.19 17:20	X

Analytical Method: Chloride by EPA 300

Seq Number: 3100132

Parent Sample Id: 635165-001

Matrix: Soil

MS Sample Id: 635165-001 S

Prep Method: E300P

Date Prep: 08.29.19

MSD Sample Id: 635165-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.51	252	267	103	262	101	90-110	2	20	mg/kg	08.29.19 11:02	

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3100132

Parent Sample Id: 635362-013

Matrix: Soil

MS Sample Id: 635362-013 S

Prep Method: E300P

Date Prep: 08.29.19

MSD Sample Id: 635362-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	25.0	250	272	99	272	99	90-110	0	20	mg/kg	08.29.19 12:24	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3100069

MB Sample Id: 7685195-1-BLK

Matrix: Solid

LCS Sample Id: 7685195-1-BKS

Prep Method: SW8015P

Date Prep: 08.28.19

LCSD Sample Id: 7685195-1-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	988	99	1010	101	70-135	2	20	mg/kg	08.28.19 21:53	
Diesel Range Organics (DRO)	<25.0	1000	916	92	935	94	70-135	2	20	mg/kg	08.28.19 21:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	85		116		120		70-135	%	08.28.19 21:53
o-Terphenyl	82		105		108		70-135	%	08.28.19 21:53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3100069

Parent Sample Id: 635229-001

Matrix: Soil

MS Sample Id: 635229-001 S

Prep Method: SW8015P

Date Prep: 08.28.19

MSD Sample Id: 635229-001 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)	<15.0	999	966	97	981	98	70-135	2	20	mg/kg	08.28.19 22:51	
Diesel Range Organics (DRO)	<25.0	999	895	90	906	91	70-135	1	20	mg/kg	08.28.19 22:51	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		112		70-135	%	08.28.19 22:51
o-Terphenyl	93		95		70-135	%	08.28.19 22:51

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

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

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

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: BTEX by EPA 8021B

Seq Number: 3100229

MB Sample Id: 7685216-1-BLK

Matrix: Solid

LCS Sample Id: 7685216-1-BKS

Prep Method: SW5030B

Date Prep: 08.28.19

LCSD Sample Id: 7685216-1-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	0.0961	96	0.0955	96	70-130	1	35	mg/kg	08.29.19 22:09	
Toluene	<0.000456	0.100	0.0976	98	0.0969	97	70-130	1	35	mg/kg	08.29.19 22:09	
Ethylbenzene	<0.00200	0.100	0.107	107	0.106	106	70-130	1	35	mg/kg	08.29.19 22:09	
m,p-Xylenes	<0.00101	0.200	0.209	105	0.206	103	70-130	1	35	mg/kg	08.29.19 22:09	
o-Xylene	<0.000344	0.100	0.109	109	0.109	109	70-130	0	35	mg/kg	08.29.19 22:09	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		98		100		70-130	%	08.29.19 22:09
4-Bromofluorobenzene	104		114		117		70-130	%	08.29.19 22:09

Analytical Method: BTEX by EPA 8021B

Seq Number: 3100229

Parent Sample Id: 635142-001

Matrix: Soil

MS Sample Id: 635142-001 S

Prep Method: SW5030B

Date Prep: 08.28.19

MSD Sample Id: 635142-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000383	0.0994	0.0763	77	0.0771	78	70-130	1	35	mg/kg	08.29.19 22:49	
Toluene	<0.00199	0.0994	0.0690	69	0.0711	72	70-130	3	35	mg/kg	08.29.19 22:49	X
Ethylbenzene	<0.00199	0.0994	0.0713	72	0.0776	78	70-130	8	35	mg/kg	08.29.19 22:49	
m,p-Xylenes	<0.00101	0.199	0.130	65	0.145	73	70-130	11	35	mg/kg	08.29.19 22:49	X
o-Xylene	<0.000342	0.0994	0.0724	73	0.0814	82	70-130	12	35	mg/kg	08.29.19 22:49	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		101		70-130	%	08.29.19 22:49
4-Bromofluorobenzene	124		123		70-130	%	08.29.19 22:49

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 1035229

www.xenco.com Page 1 of 2

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:	Remuda CTB	Turn Around	ANALYSIS REQUEST																Work Order Notes					
Project Number:	12918152	Routine ☒																	TAT starts the day received by the lab, if received by 4:30pm					
P.O. Number:	Eddy County	Rush:																						
Sampler's Name:	William Mather	Due Date:																						
SAMPLE RECEIPT		Temp Blank: ☒ Yes ☐ No																		Wet Ice: ☒ Yes ☐ No				
Temperature (°C):	6.2	Thermometer ID																		Sample Comments				
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:																						
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)																
SS01	s	8/26/2019	10:35	0.5	1	X	X	X																
SS02	s	8/26/2019	10:35	0.5	1	X	X	X																
SS03	s	8/26/2019	10:36	0.5	1	X	X	X																
SS04	s	8/26/2019	10:37	0.5	1	X	X	X																
SS06	s	8/26/2019	10:40	0.5	1	X	X	X																
SS01a	s	8/26/2019	13:00	1	1	X	X	X																
SS02a	s	8/26/2019	13:03	1	1	X	X	X																
SS03a	s	8/26/2019	13:05	1	1	X	X	X																
SS04a	s	8/26/2019	13:06	1	1	X	X	X																
SS06a	s	8/26/2019	13:13	1	1	X	X	X																

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		8/27/19 12:35			



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

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

Work Order No: 635229

www.xenco.com Page 2 of 2

Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-988-3333)			
Project Manager:	Dan Moir		Bill to: (if different)
Company Name:	LT Environmental, Inc., Permian office		Company Name:
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:				

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U **1631 / 245.1 / 7470 / 7471 : Hg**

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

Service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		8/27/19 12:35 ²			



Inter-Office Shipment

Page 1 of 2

IOS Number **46978**

Date/Time: 08/27/19 14:40

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.: 776092467348

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
635229-001	S	SS01	08/26/19 10:35	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-001	S	SS01	08/26/19 10:35	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-001	S	SS01	08/26/19 10:35	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-002	S	SS02	08/26/19 10:35	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-002	S	SS02	08/26/19 10:35	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-002	S	SS02	08/26/19 10:35	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-003	S	SS03	08/26/19 10:36	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-003	S	SS03	08/26/19 10:36	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-003	S	SS03	08/26/19 10:36	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-004	S	SS04	08/26/19 10:37	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-004	S	SS04	08/26/19 10:37	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-004	S	SS04	08/26/19 10:37	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-005	S	SS06	08/26/19 10:40	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-005	S	SS06	08/26/19 10:40	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-005	S	SS06	08/26/19 10:40	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-006	S	SS01a	08/26/19 13:00	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-006	S	SS01a	08/26/19 13:00	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-006	S	SS01a	08/26/19 13:00	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-007	S	SS02a	08/26/19 13:03	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-007	S	SS02a	08/26/19 13:03	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-007	S	SS02a	08/26/19 13:03	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-008	S	SS03a	08/26/19 13:05	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-008	S	SS03a	08/26/19 13:05	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-008	S	SS03a	08/26/19 13:05	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-009	S	SS04a	08/26/19 13:06	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	



Inter-Office Shipment

Page 2 of 2

IOS Number **46978**

Date/Time: 08/27/19 14:40

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.: 776092467348

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
635229-009	S	SS04a	08/26/19 13:06	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-009	S	SS04a	08/26/19 13:06	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-010	S	SS06a	08/26/19 13:13	SW8021B	BTEX by EPA 8021B	09/03/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-010	S	SS06a	08/26/19 13:13	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/09/19	JKR	GRO-DRO PHCC10C28 PF	
635229-010	S	SS06a	08/26/19 13:13	E300_CL	Chloride by EPA 300	09/03/19	02/22/20	JKR	CL	
635229-011	S	SS05	08/27/19 10:09	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/10/19	JKR	GRO-DRO PHCC10C28 PF	
635229-011	S	SS05	08/27/19 10:09	SW8021B	BTEX by EPA 8021B	09/03/19	09/10/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-011	S	SS05	08/27/19 10:09	E300_CL	Chloride by EPA 300	09/03/19	02/23/20	JKR	CL	
635229-012	S	SS07	08/27/19 10:11	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/10/19	JKR	GRO-DRO PHCC10C28 PF	
635229-012	S	SS07	08/27/19 10:11	SW8021B	BTEX by EPA 8021B	09/03/19	09/10/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-012	S	SS07	08/27/19 10:11	E300_CL	Chloride by EPA 300	09/03/19	02/23/20	JKR	CL	
635229-013	S	SS05a	08/27/19 10:13	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/10/19	JKR	GRO-DRO PHCC10C28 PF	
635229-013	S	SS05a	08/27/19 10:13	E300_CL	Chloride by EPA 300	09/03/19	02/23/20	JKR	CL	
635229-013	S	SS05a	08/27/19 10:13	SW8021B	BTEX by EPA 8021B	09/03/19	09/10/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-014	S	SS07a	08/27/19 10:19	SW8021B	BTEX by EPA 8021B	09/03/19	09/10/19	JKR	BR4FBZ BZ BZME EBZ X	
635229-014	S	SS07a	08/27/19 10:19	SW8015MOD_NM	TPH by SW8015 Mod	09/03/19	09/10/19	JKR	GRO-DRO PHCC10C28 PF	
635229-014	S	SS07a	08/27/19 10:19	E300_CL	Chloride by EPA 300	09/03/19	02/23/20	JKR	CL	

Inter Office Shipment or Sample Comments:

Relinquished By:

Elizabeth McClellan

Date Relinquished: 08/27/2019

Received By:

Brianna Teel

Date Received: 08/28/2019 11:29

Cooler Temperature: 2.3



XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 46978

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sent By: Elizabeth McClellan

Date Sent: 08/27/2019 02:40 PM

Received By: Brianna Teel

Date Received: 08/28/2019 11:29 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.3
#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: 08/28/2019



Client: LT Environmental, Inc.

Date/ Time Received: 08/27/2019 12:35:00 PM

Work Order #: 635229

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)?	6.2	
#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: 08/27/2019

Checklist reviewed by:

Jessica Kramer

Date: 08/28/2019

Analytical Report 638241

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda CTB

27-SEP-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 (TX104704295-19-21), 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-Tampa: Florida (E87429), North Carolina (483)



27-SEP-19

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

Reference: XENCO Report No(s): **638241**
Remuda 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) 638241. 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. 638241 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer
Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



Sample Cross Reference 638241

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS09	S	09-26-19 12:45	1 ft	638241-001
FS10	S	09-26-19 13:10	1.5 ft	638241-002



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda CTB

Project ID:
Work Order Number(s): 638241

Report Date: 27-SEP-19
Date Received: 09/26/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3102632 BTEX by EPA 8021B

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



Certificate of Analysis Summary 638241

LT Environmental, Inc., Arvada, CO

Project Name: Remuda CTB

Project Id:

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu Sep-26-19 03:25 pm

Report Date: 27-SEP-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	638241-001	638241-002				
	Field Id:	FS09	FS10				
	Depth:	1- ft	1.5- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Sep-26-19 12:45	Sep-26-19 13:10				
BTEX by EPA 8021B	Extracted:	Sep-26-19 16:09	Sep-26-19 16:09				
	Analyzed:	Sep-26-19 22:36	Sep-26-19 23:54				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00100 0.00100	<0.00100 0.00100				
Toluene		<0.00100 0.00100	<0.00100 0.00100				
Ethylbenzene		<0.00100 0.00100	<0.00100 0.00100				
m,p-Xylenes		<0.00200 0.00200	<0.00201 0.00201				
o-Xylene		<0.00100 0.00100	<0.00100 0.00100				
Total Xylenes		<0.00100 0.00100	<0.00100 0.00100				
Total BTEX		<0.00100 0.00100	<0.00100 0.00100				
Chloride by EPA 300	Extracted:	Sep-26-19 17:00	Sep-26-19 17:00				
	Analyzed:	Sep-26-19 20:29	Sep-26-19 20:35				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		887 101	2040 D 501				
TPH by SW8015 Mod	Extracted:	Sep-26-19 17:00	Sep-26-19 17:00				
	Analyzed:	Sep-27-19 02:08	Sep-27-19 02:28				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0				
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0				
Total GRO-DRO		<50.0 50.0	<50.0 50.0				
Total TPH		<50.0 50.0	<50.0 50.0				

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 638241

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS09**
Lab Sample Id: 638241-001

Matrix: Soil
Date Collected: 09.26.19 12.45

Date Received: 09.26.19 15.25
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3102664

Date Prep: 09.26.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	887	101	mg/kg	09.26.19 20.29		10

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3102656

Date Prep: 09.26.19 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.27.19 02.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.27.19 02.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.27.19 02.08	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.27.19 02.08	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.27.19 02.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	09.27.19 02.08	
o-Terphenyl	84-15-1	109	%	70-135	09.27.19 02.08	



Certificate of Analytical Results 638241

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS09**
 Lab Sample Id: 638241-001

Matrix: Soil
 Date Collected: 09.26.19 12.45

Date Received: 09.26.19 15.25
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: DTH

Date Prep: 09.26.19 16.09

Basis: Wet Weight

Seq Number: 3102632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
Toluene	108-88-3	<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
Ethylbenzene	100-41-4	<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	09.26.19 22.36	U	1
o-Xylene	95-47-6	<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
Total Xylenes	1330-20-7	<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
Total BTEX		<0.00100	0.00100	mg/kg	09.26.19 22.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	09.26.19 22.36		
4-Bromofluorobenzene	460-00-4	97	%	70-130	09.26.19 22.36		



Certificate of Analytical Results 638241

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS10** Matrix: Soil Date Received: 09.26.19 15.25
 Lab Sample Id: 638241-002 Date Collected: 09.26.19 13.10 Sample Depth: 1.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 09.26.19 17.00 Basis: Wet Weight
 Seq Number: 3102664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2040	501	mg/kg	09.26.19 21.00	D	50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 09.26.19 17.00 Basis: Wet Weight
 Seq Number: 3102656

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.27.19 02.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.27.19 02.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.27.19 02.28	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.27.19 02.28	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.27.19 02.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	09.27.19 02.28	
o-Terphenyl	84-15-1	106	%	70-135	09.27.19 02.28	



Certificate of Analytical Results 638241

LT Environmental, Inc., Arvada, CO

Remuda CTB

Sample Id: **FS10**
 Lab Sample Id: 638241-002

Matrix: Soil
 Date Collected: 09.26.19 13.10

Date Received: 09.26.19 15.25
 Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: DTH

Date Prep: 09.26.19 16.09

Basis: Wet Weight

Seq Number: 3102632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
Toluene	108-88-3	<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
Ethylbenzene	100-41-4	<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	09.26.19 23.54	U	1
o-Xylene	95-47-6	<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
Total Xylenes	1330-20-7	<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
Total BTEX		<0.00100	0.00100	mg/kg	09.26.19 23.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	09.26.19 23.54		
1,4-Difluorobenzene	540-36-3	111	%	70-130	09.26.19 23.54		



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



LT Environmental, Inc.

Remuda CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3102664

Parent Sample Id: 638155-026

Matrix: Soil

MS Sample Id: 638155-026 S

Prep Method: E300P

Date Prep: 09.26.19

MSD Sample Id: 638155-026 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8230	19800	31400	117	31300	116	90-110	0	20	mg/kg	09.26.19 20:04	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3102656

MB Sample Id: 7687016-1-BLK

Matrix: Solid

LCS Sample Id: 7687016-1-BKS

Prep Method: SW8015P

Date Prep: 09.26.19

LCSD Sample Id: 7687016-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1100	110	1170	117	70-135	6	35	mg/kg	09.26.19 23:25	
Diesel Range Organics (DRO)	<50.0	1000	1280	128	1340	134	70-135	5	35	mg/kg	09.26.19 23:25	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		119		130		70-135	%	09.26.19 23:25
o-Terphenyl	100		113		119		70-135	%	09.26.19 23:25

Analytical Method: TPH by SW8015 Mod

Seq Number: 3102656

Parent Sample Id: 638155-003

Matrix: Soil

MS Sample Id: 638155-003 S

Prep Method: SW8015P

Date Prep: 09.26.19

MSD Sample Id: 638155-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	1110	111	1220	122	70-135	9	35	mg/kg	09.27.19 00:26	
Diesel Range Organics (DRO)	<50.2	1000	1270	127	1300	130	70-135	2	35	mg/kg	09.27.19 00:26	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	130		126		70-135	%	09.27.19 00:26
o-Terphenyl	114		121		70-135	%	09.27.19 00:26

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

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

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

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



LT Environmental, Inc.

Remuda CTB

Analytical Method: BTEX by EPA 8021B

Seq Number: 3102632

MB Sample Id: 7687011-1-BLK

Matrix: Solid

LCS Sample Id: 7687011-1-BKS

Prep Method: SW5030B

Date Prep: 09.26.19

LCSD Sample Id: 7687011-1-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	0.0853	85	0.0890	89	70-130	4	35	mg/kg	09.26.19 21:37	
Toluene	<0.00100	0.100	0.0942	94	0.0962	96	70-130	2	35	mg/kg	09.26.19 21:37	
Ethylbenzene	<0.00100	0.100	0.106	106	0.113	113	71-129	6	35	mg/kg	09.26.19 21:37	
m,p-Xylenes	<0.00200	0.200	0.216	108	0.229	115	70-135	6	35	mg/kg	09.26.19 21:37	
o-Xylene	<0.00100	0.100	0.106	106	0.113	113	71-133	6	35	mg/kg	09.26.19 21:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		101		95		70-130	%	09.26.19 21:37
4-Bromofluorobenzene	90		107		106		70-130	%	09.26.19 21:37

Analytical Method: BTEX by EPA 8021B

Seq Number: 3102632

Parent Sample Id: 638241-001

Matrix: Soil

MS Sample Id: 638241-001 S

Prep Method: SW5030B

Date Prep: 09.26.19

MSD Sample Id: 638241-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0958	96	0.0881	87	70-130	8	35	mg/kg	09.26.19 22:55	
Toluene	<0.00100	0.100	0.105	105	0.0968	96	70-130	8	35	mg/kg	09.26.19 22:55	
Ethylbenzene	<0.00100	0.100	0.112	112	0.101	100	71-129	10	35	mg/kg	09.26.19 22:55	
m,p-Xylenes	<0.00200	0.200	0.227	114	0.207	102	70-135	9	35	mg/kg	09.26.19 22:55	
o-Xylene	<0.00100	0.100	0.110	110	0.100	99	71-133	10	35	mg/kg	09.26.19 22:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		97		70-130	%	09.26.19 22:55
4-Bromofluorobenzene	110		106		70-130	%	09.26.19 22:55

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 638241

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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:	Remuda CTB		Turn Around	ANALYSIS REQUEST												Work Order Notes																														
Project Number:			Routine													TAT starts the day received by the lab, if received by 4:30pm																														
P.O. Number:			Rush: 24hr																																											
Sampler's Name:	Robert McAfee		Due Date:																																											
<table border="1"> <tr> <th colspan="2">SAMPLE RECEIPT</th> <th>Temp Blank:</th> <th>Yes</th> <th>No</th> <th>Wet Ice:</th> <th>Yes</th> <th>No</th> </tr> <tr> <td>Temperature (°C):</td> <td>2.4</td> <td></td> <td></td> <td></td> <td>Thermometer ID</td> <td colspan="2">T-NM-007</td> </tr> <tr> <td>Received Intact:</td> <td>Yes</td> <td>No</td> <td></td> <td></td> <td>Correction Factor:</td> <td colspan="2">-0.2</td> </tr> <tr> <td>Cooler Custody Seals:</td> <td>Yes</td> <td>No</td> <td>N/A</td> <td></td> <td>Total Containers:</td> <td colspan="2">2</td> </tr> </table>			SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No	Temperature (°C):	2.4					Thermometer ID	T-NM-007		Received Intact:	Yes	No			Correction Factor:	-0.2		Cooler Custody Seals:	Yes	No	N/A		Total Containers:	2												
SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No																																							
Temperature (°C):	2.4				Thermometer ID	T-NM-007																																								
Received Intact:	Yes	No			Correction Factor:	-0.2																																								
Cooler 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)													Sample Comments																									
FS09	S	09/26/19	1245	1	1	X	X	X													Composite																									
FS10	S	09/26/19	1310	1.5	1	X	X	X													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 Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCPL / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9/26/19 15:25			



Client: LT Environmental, Inc.

Date/ Time Received: 09/26/2019 03:25:00 PM

Work Order #: 638241

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)?	4.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Elizabeth McClellan

Date: 09/26/2019

Checklist reviewed by:

Jessica Kramer

Date: 09/27/2019

Analytical Report 653844

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

27-FEB-20

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

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

Xenco-Dallas (EPA Lab Code: TX01468):

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

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

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

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

Xenco-Carlsbad (LELAP): Louisiana (05092)

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

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

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



27-FEB-20

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **653844**

Remuda Basin 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) 653844. 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. 653844 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



Sample Cross Reference 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS08A	S	02-26-20 12:35	0.75 ft	653844-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 653844

Report Date: 27-FEB-20
Date Received: 02/26/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3117847 BTEX by EPA 8021B

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



Certificate of Analysis Summary 653844

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Feb-26-20 04:52 pm

Report Date: 27-FEB-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	653844-001					
	Field Id:	FS08A					
	Depth:	0.75- ft					
	Matrix:	SOIL					
	Sampled:	Feb-26-20 12:35					
BTEX by EPA 8021B	Extracted:	Feb-26-20 17:00					
	Analyzed:	Feb-26-20 21:30					
	Units/RL:	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00400 0.00400					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
Chloride by EPA 300	Extracted:	Feb-27-20 07:22					
	Analyzed:	Feb-27-20 09:38					
	Units/RL:	mg/kg RL					
Chloride		327 20.1					
TPH by SW8015 Mod	Extracted:	Feb-26-20 21:29					
	Analyzed:	Feb-27-20 06:42					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1					
Diesel Range Organics (DRO)		<50.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total GRO-DRO		<50.1 50.1					
Total TPH		<50.1 50.1					

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

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

Version: 1.0%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS08A** Matrix: Soil Date Received: 02.26.20 16.52
 Lab Sample Id: 653844-001 Date Collected: 02.26.20 12.35 Sample Depth: 0.75 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 02.27.20 07.22 Basis: Wet Weight
 Seq Number: 3117872

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	327	20.1	mg/kg	02.27.20 09.38		2

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: MAB % Moisture:
 Analyst: CAC Date Prep: 02.26.20 21.29 Basis: Wet Weight
 Seq Number: 3117842

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.27.20 06.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.27.20 06.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.27.20 06.42	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.27.20 06.42	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.27.20 06.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.27.20 06.42	
o-Terphenyl	84-15-1	118	%	70-135	02.27.20 06.42	



Certificate of Analytical Results 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS08A**
 Lab Sample Id: 653844-001

Matrix: Soil
 Date Collected: 02.26.20 12.35

Date Received: 02.26.20 16.52
 Sample Depth: 0.75 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.26.20 17.00

Basis: Wet Weight

Seq Number: 3117847

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.26.20 21.30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.26.20 21.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	02.26.20 21.30		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.26.20 21.30		



Flagging Criteria

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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

MB Sample Id: 7697574-1-BLK

Matrix: Solid

LCS Sample Id: 7697574-1-BKS

Prep Method: E300P

Date Prep: 02.27.20

LCSD Sample Id: 7697574-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.56	250	259	104	261	104	90-110	1	20	mg/kg	02.27.20 08:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

Parent Sample Id: 653845-008

Matrix: Soil

MS Sample Id: 653845-008 S

Prep Method: E300P

Date Prep: 02.27.20

MSD Sample Id: 653845-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	316	200	525	105	524	104	90-110	0	20	mg/kg	02.27.20 08:42	

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

Parent Sample Id: 653863-001

Matrix: Soil

MS Sample Id: 653863-001 S

Prep Method: E300P

Date Prep: 02.27.20

MSD Sample Id: 653863-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	28.5	200	244	108	245	108	90-110	0	20	mg/kg	02.27.20 10:21	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

MB Sample Id: 7697576-1-BLK

Matrix: Solid

LCS Sample Id: 7697576-1-BKS

Prep Method: SW8015P

Date Prep: 02.26.20

LCSD Sample Id: 7697576-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1100	110	1050	105	70-135	5	35	mg/kg	02.27.20 05:25	
Diesel Range Organics (DRO)	<50.0	1000	1310	131	1230	123	70-135	6	35	mg/kg	02.27.20 05:25	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		113		117		70-135	%	02.27.20 05:25
o-Terphenyl	119		116		108		70-135	%	02.27.20 05:25

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

Matrix: Solid

MB Sample Id: 7697576-1-BLK

Prep Method: SW8015P

Date Prep: 02.26.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.27.20 05:05	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

Parent Sample Id: 653827-028

Matrix: Soil

MS Sample Id: 653827-028 S

Prep Method: SW8015P

Date Prep: 02.26.20

MSD Sample Id: 653827-028 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)	<49.6	992	801	81	887	89	70-135	10	35	mg/kg	02.27.20 06:03	
Diesel Range Organics (DRO)	<49.6	992	923	93	1010	101	70-135	9	35	mg/kg	02.27.20 06:03	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		121		70-135	%	02.27.20 06:03
o-Terphenyl	117		131		70-135	%	02.27.20 06:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117847

MB Sample Id: 7697498-1-BLK

Matrix: Solid

LCS Sample Id: 7697498-1-BKS

Prep Method: SW5030B

Date Prep: 02.26.20

LCSD Sample Id: 7697498-1-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	0.108	108	70-130	2	35	mg/kg	02.26.20 13:21	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	02.26.20 13:21	
Ethylbenzene	<0.00200	0.100	0.0973	97	0.0989	99	71-129	2	35	mg/kg	02.26.20 13:21	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.204	102	70-135	1	35	mg/kg	02.26.20 13:21	
o-Xylene	<0.00200	0.100	0.100	100	0.102	102	71-133	2	35	mg/kg	02.26.20 13:21	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		105		70-130	%	02.26.20 13:21
4-Bromofluorobenzene	94		94		94		70-130	%	02.26.20 13:21

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117847

Parent Sample Id: 653719-001

Matrix: Soil

MS Sample Id: 653719-001 S

Prep Method: SW5030B

Date Prep: 02.26.20

MSD Sample Id: 653719-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.114	115	0.0885	89	70-130	25	35	mg/kg	02.26.20 14:02	
Toluene	<0.00198	0.0992	0.107	108	0.0822	82	70-130	26	35	mg/kg	02.26.20 14:02	
Ethylbenzene	<0.00198	0.0992	0.0984	99	0.0752	75	71-129	27	35	mg/kg	02.26.20 14:02	
m,p-Xylenes	<0.00397	0.198	0.200	101	0.154	77	70-135	26	35	mg/kg	02.26.20 14:02	
o-Xylene	<0.00198	0.0992	0.0978	99	0.0770	77	71-133	24	35	mg/kg	02.26.20 14:02	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		105		70-130	%	02.26.20 14:02
4-Bromofluorobenzene	92		100		70-130	%	02.26.20 14:02

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

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: 653844

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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 ☐	UST/UST ☐ RRP ☐ Level IV ☐
Deliverables:	EDD ☐	ADaPT ☐	Other: ☐

Project Name:	Remuda Bash CTB	Turn Around
Project Number:	012918152	Routine ☐
P.O. Number:	8	Rush: 24hr
Sampler's Name:	Robert McAfee	Due Date:

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA)	STEX (EPA)	Chloride (EPA)
FS08A	S	02/26/20	1235	0.75'	1	x	x	x

BPM

Sample Comments
composite

lab, if received by 4:30pm

4:03 AM

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Cl Ac Br P C Hg O S

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		2/26/20 16:52			

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02.26.2020 04.52.00 PM

Work Order #: 653844

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 02.26.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.27.2020

Certificate of Analysis Summary 653844



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Date Received in Lab: Wed 02.26.2020 16:52

Contact: Dan Moir

Report Date: 11.19.2020 16:05

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	653844-001					
	Field Id:	FS08A					
	Depth:	1.0- ft					
	Matrix:	SOIL					
	Sampled:	02.26.2020 12:35					
BTEX by EPA 8021B	Extracted:	02.26.2020 17:00					
	Analyzed:	02.26.2020 21:30					
	Units/RL:	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00400 0.00400					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
Chloride by EPA 300	Extracted:	02.27.2020 07:22					
	Analyzed:	02.27.2020 09:38					
	Units/RL:	mg/kg RL					
Chloride		327 20.1					
TPH by SW8015 Mod	Extracted:	02.26.2020 21:29					
	Analyzed:	02.27.2020 06:42					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1					
Diesel Range Organics (DRO)		<50.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total GRO-DRO		<50.1 50.1					
Total TPH		<50.1 50.1					

BRL - Below Reporting Limit

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



Analytical Report 653844

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

11.19.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.19.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **653844**

Remuda Basin 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 Eurofins Xenco, LLC Report Number(s) 653844. 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 Eurofins Xenco, LLC. 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. 653844 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS08A	S	02.26.2020 12:35	1.0 ft	653844-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin CTB*

Project ID: 012918152
Work Order Number(s): 653844

Report Date: 11.19.2020
Date Received: 02.26.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3117847 BTEX by EPA 8021B

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



Certificate of Analytical Results 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS08A** Matrix: Soil Date Received: 02.26.2020 16:52
 Lab Sample Id: 653844-001 Date Collected: 02.26.2020 12:35 Sample Depth: 1.0 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 02.27.2020 07:22 % Moisture:
 Seq Number: 3117872 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	327	20.1	mg/kg	02.27.2020 09:38		2

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: MAB
 Analyst: CAC Date Prep: 02.26.2020 21:29 % Moisture:
 Seq Number: 3117842 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.27.2020 06:42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.27.2020 06:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.27.2020 06:42	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	02.27.2020 06:42	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.27.2020 06:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.27.2020 06:42	
o-Terphenyl	84-15-1	118	%	70-135	02.27.2020 06:42	



Certificate of Analytical Results 653844

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS08A**
 Lab Sample Id: 653844-001

Matrix: Soil
 Date Collected: 02.26.2020 12:35

Date Received: 02.26.2020 16:52
 Sample Depth: 1.0 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

Analyst: MAB

Date Prep: 02.26.2020 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3117847

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.26.2020 21:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.26.2020 21:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	02.26.2020 21:30		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.26.2020 21:30		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

MB Sample Id: 7697574-1-BLK

Matrix: Solid

LCS Sample Id: 7697574-1-BKS

Prep Method: E300P

Date Prep: 02.27.2020

LCSD Sample Id: 7697574-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.56	250	259	104	261	104	90-110	1	20	mg/kg	02.27.2020 08:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

Parent Sample Id: 653845-008

Matrix: Soil

MS Sample Id: 653845-008 S

Prep Method: E300P

Date Prep: 02.27.2020

MSD Sample Id: 653845-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	316	200	525	105	524	104	90-110	0	20	mg/kg	02.27.2020 08:42	

Analytical Method: Chloride by EPA 300

Seq Number: 3117872

Parent Sample Id: 653863-001

Matrix: Soil

MS Sample Id: 653863-001 S

Prep Method: E300P

Date Prep: 02.27.2020

MSD Sample Id: 653863-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	28.5	200	244	108	245	108	90-110	0	20	mg/kg	02.27.2020 10:21	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

MB Sample Id: 7697576-1-BLK

Matrix: Solid

LCS Sample Id: 7697576-1-BKS

Prep Method: SW8015P

Date Prep: 02.26.2020

LCSD Sample Id: 7697576-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1100	110	1050	105	70-135	5	35	mg/kg	02.27.2020 05:25	
Diesel Range Organics (DRO)	<50.0	1000	1310	131	1230	123	70-135	6	35	mg/kg	02.27.2020 05:25	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		113		117		70-135	%	02.27.2020 05:25
o-Terphenyl	119		116		108		70-135	%	02.27.2020 05:25

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

Matrix: Solid

MB Sample Id: 7697576-1-BLK

Prep Method: SW8015P

Date Prep: 02.26.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.27.2020 05:05	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3117842

Parent Sample Id: 653827-028

Matrix: Soil

MS Sample Id: 653827-028 S

Prep Method: SW8015P

Date Prep: 02.26.2020

MSD Sample Id: 653827-028 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)	<49.6	992	801	81	887	89	70-135	10	35	mg/kg	02.27.2020 06:03	
Diesel Range Organics (DRO)	<49.6	992	923	93	1010	101	70-135	9	35	mg/kg	02.27.2020 06:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		121		70-135	%	02.27.2020 06:03
o-Terphenyl	117		131		70-135	%	02.27.2020 06:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117847

MB Sample Id: 7697498-1-BLK

Matrix: Solid

LCS Sample Id: 7697498-1-BKS

Prep Method: SW5030B

Date Prep: 02.26.2020

LCSD Sample Id: 7697498-1-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	0.108	108	70-130	2	35	mg/kg	02.26.2020 13:21	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	02.26.2020 13:21	
Ethylbenzene	<0.00200	0.100	0.0973	97	0.0989	99	71-129	2	35	mg/kg	02.26.2020 13:21	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.204	102	70-135	1	35	mg/kg	02.26.2020 13:21	
o-Xylene	<0.00200	0.100	0.100	100	0.102	102	71-133	2	35	mg/kg	02.26.2020 13:21	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		105		70-130	%	02.26.2020 13:21
4-Bromofluorobenzene	94		94		94		70-130	%	02.26.2020 13:21

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117847

Parent Sample Id: 653719-001

Matrix: Soil

MS Sample Id: 653719-001 S

Prep Method: SW5030B

Date Prep: 02.26.2020

MSD Sample Id: 653719-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.114	115	0.0885	89	70-130	25	35	mg/kg	02.26.2020 14:02	
Toluene	<0.00198	0.0992	0.107	108	0.0822	82	70-130	26	35	mg/kg	02.26.2020 14:02	
Ethylbenzene	<0.00198	0.0992	0.0984	99	0.0752	75	71-129	27	35	mg/kg	02.26.2020 14:02	
m,p-Xylenes	<0.00397	0.198	0.200	101	0.154	77	70-135	26	35	mg/kg	02.26.2020 14:02	
o-Xylene	<0.00198	0.0992	0.0978	99	0.0770	77	71-133	24	35	mg/kg	02.26.2020 14:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		105		70-130	%	02.26.2020 14:02
4-Bromofluorobenzene	92		100		70-130	%	02.26.2020 14:02

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

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: 653844

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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 ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD	☐ ADaPT ☐ Other:

Project Name:	Remuda Basin CTB	Turn Around	
Project Number:	012918152	Routine	☐
P.O. Number:	8	Rush:	24hr
Sampler's Name:	Robert McAfee	Due Date:	

SAMPLE RECEIPT		Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	0.2	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:	1		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
FS08A	S	02/26/20	1235	0.75'

ANALYSIS REQUEST											
Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)								
1	x	x	x								

Work Order Notes
TAT starts the day received 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 Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		2/26/20 16:52			

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02.26.2020 04.52.00 PM

Work Order #: 653844

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 02.26.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.27.2020

Analytical Report 654568

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

05-MAR-20

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

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

Xenco-Dallas (EPA Lab Code: TX01468):

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

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

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

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

Xenco-Carlsbad (LELAP): Louisiana (05092)

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

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

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



05-MAR-20

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **654568**

Remuda Basin 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) 654568. 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. 654568 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



Sample Cross Reference 654568

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS11	S	03-03-20 15:10	1 ft	654568-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 654568

Report Date: 05-MAR-20
Date Received: 03/04/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3118585 BTEX by EPA 8021B

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



Certificate of Analysis Summary 654568

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Mar-04-20 12:40 pm

Report Date: 05-MAR-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	654568-001					
	Field Id:	FS11					
	Depth:	1- ft					
	Matrix:	SOIL					
	Sampled:	Mar-03-20 15:10					
BTEX by EPA 8021B	Extracted:	Mar-04-20 15:00					
	Analyzed:	Mar-04-20 18:25					
	Units/RL:	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00400 0.00400					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
Chloride by EPA 300	Extracted:	Mar-04-20 15:00					
	Analyzed:	Mar-04-20 19:04					
	Units/RL:	mg/kg RL					
Chloride		260 99.6					
TPH by SW8015 Mod	Extracted:	Mar-04-20 16:00					
	Analyzed:	Mar-04-20 16:21					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2					
Diesel Range Organics (DRO)		<50.2 50.2					
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2					
Total GRO-DRO		<50.2 50.2					
Total TPH		<50.2 50.2					

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

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

Jessica Kramer
Project Assistant



Certificate of Analytical Results 654568

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS11**
 Lab Sample Id: 654568-001

Matrix: Soil
 Date Collected: 03.03.20 15.10

Date Received: 03.04.20 12.40
 Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3118583

Date Prep: 03.04.20 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	260	99.6	mg/kg	03.04.20 19.04		10

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3118601

Date Prep: 03.04.20 16.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	03.04.20 16.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	03.04.20 16.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	03.04.20 16.21	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	03.04.20 16.21	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	03.04.20 16.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	03.04.20 16.21	
o-Terphenyl	84-15-1	107	%	70-135	03.04.20 16.21	



Certificate of Analytical Results 654568

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS11**
 Lab Sample Id: 654568-001

Matrix: Soil
 Date Collected: 03.03.20 15.10

Date Received: 03.04.20 12.40
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.04.20 15.00

Basis: Wet Weight

Seq Number: 3118585

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.04.20 18.25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.04.20 18.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.04.20 18.25		
4-Bromofluorobenzene	460-00-4	93	%	70-130	03.04.20 18.25		



Flagging Criteria

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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3118583

MB Sample Id: 7698069-1-BLK

Matrix: Solid

LCS Sample Id: 7698069-1-BKS

Prep Method: E300P

Date Prep: 03.04.20

LCSD Sample Id: 7698069-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	245	98	260	104	90-110	6	20	mg/kg	03.04.20 17:31	

Analytical Method: Chloride by EPA 300

Seq Number: 3118583

Parent Sample Id: 654483-007

Matrix: Soil

MS Sample Id: 654483-007 S

Prep Method: E300P

Date Prep: 03.04.20

MSD Sample Id: 654483-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	854	200	1060	103	1060	103	90-110	0	20	mg/kg	03.04.20 17:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3118583

Parent Sample Id: 654571-001

Matrix: Soil

MS Sample Id: 654571-001 S

Prep Method: E300P

Date Prep: 03.04.20

MSD Sample Id: 654571-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	926	200	1130	102	1130	102	90-110	0	20	mg/kg	03.04.20 19:16	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3118601

MB Sample Id: 7698123-1-BLK

Matrix: Solid

LCS Sample Id: 7698123-1-BKS

Prep Method: SW8015P

Date Prep: 03.04.20

LCSD Sample Id: 7698123-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	872	87	839	84	70-135	4	35	mg/kg	03.04.20 13:20	
Diesel Range Organics (DRO)	<50.0	1000	852	85	814	81	70-135	5	35	mg/kg	03.04.20 13:20	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		99		95		70-135	%	03.04.20 13:20
o-Terphenyl	112		107		102		70-135	%	03.04.20 13:20

Analytical Method: TPH by SW8015 Mod

Seq Number: 3118601

Matrix: Solid

MB Sample Id: 7698123-1-BLK

Prep Method: SW8015P

Date Prep: 03.04.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	03.04.20 13:00	

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3118601

Parent Sample Id: 654483-002

Matrix: Soil

MS Sample Id: 654483-002 S

Prep Method: SW8015P

Date Prep: 03.04.20

MSD Sample Id: 654483-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	998	990	99	987	98	70-135	0	35	mg/kg	03.04.20 14:20	
Diesel Range Organics (DRO)	<49.9	998	965	97	974	96	70-135	1	35	mg/kg	03.04.20 14:20	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		109		70-135	%	03.04.20 14:20
o-Terphenyl	121		118		70-135	%	03.04.20 14:20

Analytical Method: BTEX by EPA 8021B

Seq Number: 3118585

MB Sample Id: 7698065-1-BLK

Matrix: Solid

LCS Sample Id: 7698065-1-BKS

Prep Method: SW5030B

Date Prep: 03.04.20

LCSD Sample Id: 7698065-1-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	0.127	127	0.126	126	70-130	1	35	mg/kg	03.04.20 13:39	
Toluene	<0.00200	0.100	0.117	117	0.116	116	70-130	1	35	mg/kg	03.04.20 13:39	
Ethylbenzene	<0.00200	0.100	0.111	111	0.110	110	71-129	1	35	mg/kg	03.04.20 13:39	
m,p-Xylenes	<0.00400	0.200	0.218	109	0.215	108	70-135	1	35	mg/kg	03.04.20 13:39	
o-Xylene	<0.00200	0.100	0.110	110	0.109	109	71-133	1	35	mg/kg	03.04.20 13:39	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		112		111		70-130	%	03.04.20 13:39
4-Bromofluorobenzene	93		90		89		70-130	%	03.04.20 13:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3118585

Parent Sample Id: 654483-002

Matrix: Soil

MS Sample Id: 654483-002 S

Prep Method: SW5030B

Date Prep: 03.04.20

MSD Sample Id: 654483-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.126	127	0.124	123	70-130	2	35	mg/kg	03.04.20 14:20	
Toluene	<0.00199	0.0994	0.125	126	0.121	120	70-130	3	35	mg/kg	03.04.20 14:20	
Ethylbenzene	<0.00199	0.0994	0.118	119	0.123	122	71-129	4	35	mg/kg	03.04.20 14:20	
m,p-Xylenes	<0.00398	0.199	0.229	115	0.258	128	70-135	12	35	mg/kg	03.04.20 14:20	
o-Xylene	<0.00199	0.0994	0.114	115	0.129	128	71-133	12	35	mg/kg	03.04.20 14:20	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	03.04.20 14:20
4-Bromofluorobenzene	88		89		70-130	%	03.04.20 14:20

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

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

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

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 03.04.2020 12.40.00 PM

Work Order #: 654568

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)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 03.04.2020

Checklist reviewed by:



Jessica Kramer

Date: 03.05.2020

Analytical Report 655230

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

11-MAR-20

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

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

Xenco-Dallas (EPA Lab Code: TX01468):

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

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

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

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

Xenco-Carlsbad (LELAP): Louisiana (05092)

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

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

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



11-MAR-20

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

Reference: XENCO Report No(s): **655230**
Remuda Basin 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) 655230. 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. 655230 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer
Project Manager

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



Sample Cross Reference 655230

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS12	S	03-10-20 10:15	1.5 ft	655230-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID:
Work Order Number(s): 655230

Report Date: 11-MAR-20
Date Received: 03/10/2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3119169 BTEX by EPA 8021B

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



Certificate of Analysis Summary 655230

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id:

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue Mar-10-20 03:45 pm

Report Date: 11-MAR-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	655230-001					
	Field Id:	FS12					
	Depth:	1.5- ft					
	Matrix:	SOIL					
	Sampled:	Mar-10-20 10:15					
BTEX by EPA 8021B	Extracted:	Mar-10-20 16:00					
	Analyzed:	Mar-11-20 03:56					
	Units/RL:	mg/kg RL					
Benzene		<0.00198 0.00198					
Toluene		<0.00198 0.00198					
Ethylbenzene		<0.00198 0.00198					
m,p-Xylenes		<0.00396 0.00396					
o-Xylene		0.0129 0.00198					
Total Xylenes		0.0129 0.00198					
Total BTEX		0.0129 0.00198					
Chloride by EPA 300	Extracted:	Mar-10-20 16:00					
	Analyzed:	Mar-10-20 20:35					
	Units/RL:	mg/kg RL					
Chloride		113 50.0					
TPH by SW8015 Mod	Extracted:	Mar-10-20 17:10					
	Analyzed:	Mar-11-20 01:50					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1					
Diesel Range Organics (DRO)		<50.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total GRO-DRO		<50.1 50.1					
Total TPH		<50.1 50.1					

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

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

Version: 1.0%

Jessica Kramer
Project Manager



Certificate of Analytical Results 655230

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS12** Matrix: **Soil** Date Received: 03.10.20 15.45
 Lab Sample Id: 655230-001 Date Collected: 03.10.20 10.15 Sample Depth: 1.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: **MAB** % Moisture:
 Analyst: **MAB** Date Prep: 03.10.20 16.00 Basis: **Wet Weight**
 Seq Number: 3119172

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	50.0	mg/kg	03.10.20 20.35		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: **DTH** % Moisture:
 Analyst: **DTH** Date Prep: 03.10.20 17.10 Basis: **Wet Weight**
 Seq Number: 3119195

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	03.11.20 01.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	03.11.20 01.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.11.20 01.50	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	03.11.20 01.50	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.11.20 01.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	03.11.20 01.50	
o-Terphenyl	84-15-1	121	%	70-135	03.11.20 01.50	



Certificate of Analytical Results 655230

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS12**
 Lab Sample Id: 655230-001

Matrix: Soil
 Date Collected: 03.10.20 10.15

Date Received: 03.10.20 15.45
 Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.10.20 16.00

Basis: Wet Weight

Seq Number: 3119169

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	03.11.20 03.56	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.11.20 03.56	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.11.20 03.56	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	03.11.20 03.56	U	1
o-Xylene	95-47-6	0.0129	0.00198	mg/kg	03.11.20 03.56		1
Total Xylenes	1330-20-7	0.0129	0.00198	mg/kg	03.11.20 03.56		1
Total BTEX		0.0129	0.00198	mg/kg	03.11.20 03.56		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	03.11.20 03.56		
4-Bromofluorobenzene	460-00-4	100	%	70-130	03.11.20 03.56		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3119172

MB Sample Id: 7698498-1-BLK

Matrix: Solid

LCS Sample Id: 7698498-1-BKS

Prep Method: E300P

Date Prep: 03.10.20

LCSD Sample Id: 7698498-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	258	103	258	103	90-110	0	20	mg/kg	03.10.20 17:52	

Analytical Method: Chloride by EPA 300

Seq Number: 3119172

Parent Sample Id: 655117-005

Matrix: Soil

MS Sample Id: 655117-005 S

Prep Method: E300P

Date Prep: 03.10.20

MSD Sample Id: 655117-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.96	199	213	107	214	108	90-110	0	20	mg/kg	03.10.20 18:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3119172

Parent Sample Id: 655117-015

Matrix: Soil

MS Sample Id: 655117-015 S

Prep Method: E300P

Date Prep: 03.10.20

MSD Sample Id: 655117-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	200	206	103	206	102	90-110	0	20	mg/kg	03.10.20 19:35	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119195

MB Sample Id: 7698558-1-BLK

Matrix: Solid

LCS Sample Id: 7698558-1-BKS

Prep Method: SW8015P

Date Prep: 03.10.20

LCSD Sample Id: 7698558-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	913	91	859	86	70-135	6	35	mg/kg	03.11.20 01:10	
Diesel Range Organics (DRO)	<50.0	1000	903	90	854	85	70-135	6	35	mg/kg	03.11.20 01:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		120		95		70-135	%	03.11.20 01:10
o-Terphenyl	105		113		99		70-135	%	03.11.20 01:10

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119195

Matrix: Solid

MB Sample Id: 7698558-1-BLK

Prep Method: SW8015P

Date Prep: 03.10.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	03.11.20 00:49	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3119195

Parent Sample Id: 655230-001

Matrix: Soil

MS Sample Id: 655230-001 S

Prep Method: SW8015P

Date Prep: 03.10.20

MSD Sample Id: 655230-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	1070	107	1040	104	70-135	3	35	mg/kg	03.11.20 02:11	
Diesel Range Organics (DRO)	<50.2	1000	1040	104	981	98	70-135	6	35	mg/kg	03.11.20 02:11	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	126		121		70-135	%	03.11.20 02:11
o-Terphenyl	125		119		70-135	%	03.11.20 02:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3119169

MB Sample Id: 7698477-1-BLK

Matrix: Solid

LCS Sample Id: 7698477-1-BKS

Prep Method: SW5030B

Date Prep: 03.10.20

LCSD Sample Id: 7698477-1-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	0.109	109	0.110	110	70-130	1	35	mg/kg	03.10.20 22:09	
Toluene	<0.00200	0.100	0.103	103	0.105	105	70-130	2	35	mg/kg	03.10.20 22:09	
Ethylbenzene	<0.00200	0.100	0.0973	97	0.0988	99	71-129	2	35	mg/kg	03.10.20 22:09	
m,p-Xylenes	<0.00400	0.200	0.200	100	0.203	102	70-135	1	35	mg/kg	03.10.20 22:09	
o-Xylene	<0.00200	0.100	0.101	101	0.103	103	71-133	2	35	mg/kg	03.10.20 22:09	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		108		70-130	%	03.10.20 22:09
4-Bromofluorobenzene	97		94		92		70-130	%	03.10.20 22:09

Analytical Method: BTEX by EPA 8021B

Seq Number: 3119169

Parent Sample Id: 655094-006

Matrix: Soil

MS Sample Id: 655094-006 S

Prep Method: SW5030B

Date Prep: 03.10.20

MSD Sample Id: 655094-006 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	0.0983	99	0.108	109	70-130	9	35	mg/kg	03.10.20 22:50	
Toluene	<0.00199	0.0994	0.0947	95	0.102	103	70-130	7	35	mg/kg	03.10.20 22:50	
Ethylbenzene	<0.00199	0.0994	0.0887	89	0.0952	96	71-129	7	35	mg/kg	03.10.20 22:50	
m,p-Xylenes	<0.00398	0.199	0.181	91	0.194	98	70-135	7	35	mg/kg	03.10.20 22:50	
o-Xylene	<0.00199	0.0994	0.0911	92	0.0978	99	71-133	7	35	mg/kg	03.10.20 22:50	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		70-130	%	03.10.20 22:50
4-Bromofluorobenzene	96		96		70-130	%	03.10.20 22:50

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: 055230

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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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:	Remuda Basin CTB	Turn Around
Project Number:		Routine ☐
P.O. Number:	2RP-4958	Rush: 24 hr
Sampler's Name:	Robert McAfee	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	2.6		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:	1	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA)	BTEX (EPA)	Chloride (EPA)
FS12	S	03/19/20	1015	1.5'	1	X	X	X

Sample Comments
composite

03 AM

Total 200.3 / 6040 200.3 / 6040

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$6 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)			Received by: (Signature)			Date/Time		
1					3/10/20 15:45			
2								
3								
4								
5								
6								



Analytical Report 659288

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

04.21.2020

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



04.21.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659288**

Remuda Basin 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) 659288. 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. 659288 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 659288

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS13	S	04.15.2020 11:10	0.5 ft	659288-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin CTB*

Project ID: 012918152
Work Order Number(s): 659288

Report Date: 04.21.2020
Date Received: 04.20.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3123538 BTEX by EPA 8021B

Soil samples received in bulk containers..



Certificate of Analysis Summary 659288

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon 04.20.2020 14:35

Report Date: 04.21.2020 13:31

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659288-001					
	Field Id:	FS13					
	Depth:	0.5- ft					
	Matrix:	SOIL					
	Sampled:	04.15.2020 11:10					
BTEX by EPA 8021B	Extracted:	04.20.2020 16:00					
	Analyzed:	04.20.2020 20:19					
	Units/RL:	mg/kg RL					
Benzene		<0.00201 0.00201					
Toluene		<0.00201 0.00201					
Ethylbenzene		<0.00201 0.00201					
m,p-Xylenes		<0.00402 0.00402					
o-Xylene		<0.00201 0.00201					
Total Xylenes		<0.00201 0.00201					
Total BTEX		<0.00201 0.00201					
Chloride by EPA 300	Extracted:	** ** *					
	Analyzed:	04.20.2020 21:47					
	Units/RL:	mg/kg RL					
Chloride		502 99.8					
TPH by SW8015 Mod	Extracted:	04.20.2020 16:00					
	Analyzed:	04.20.2020 17:35					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0					
Diesel Range Organics (DRO)		<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0					
Total GRO-DRO		<50.0 50.0					
Total TPH		<50.0 50.0					

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

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

Jessica Kramer
Project Manager



Certificate of Analytical Results 659288

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS13** Matrix: Soil Date Received: 04.20.2020 14:35
 Lab Sample Id: 659288-001 Date Collected: 04.15.2020 11:10 Sample Depth: 0.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.20.2020 14:24 Basis: Wet Weight
 Seq Number: 3123547

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	502	99.8	mg/kg	04.20.2020 21:47		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.20.2020 16:00 Basis: Wet Weight
 Seq Number: 3123594

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	04.20.2020 17:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.20.2020 17:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.20.2020 17:35	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.20.2020 17:35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.20.2020 17:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.20.2020 17:35	
o-Terphenyl	84-15-1	108	%	70-135	04.20.2020 17:35	



Certificate of Analytical Results 659288

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS13**
 Lab Sample Id: 659288-001

Matrix: Soil
 Date Collected: 04.15.2020 11:10

Date Received: 04.20.2020 14:35
 Sample Depth: 0.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 16:00

Basis: Wet Weight

Seq Number: 3123538

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.20.2020 20:19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.20.2020 20:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.20.2020 20:19	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.20.2020 20:19	



Flagging Criteria

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

****** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3123547

MB Sample Id: 7701592-1-BLK

Matrix: Solid

LCS Sample Id: 7701592-1-BKS

Prep Method: E300P

Date Prep: 04.20.2020

LCSD Sample Id: 7701592-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	274	110	270	108	90-110	1	20	mg/kg	04.20.2020 19:04	

Analytical Method: Chloride by EPA 300

Seq Number: 3123547

Parent Sample Id: 659247-003

Matrix: Soil

MS Sample Id: 659247-003 S

Prep Method: E300P

Date Prep: 04.20.2020

MSD Sample Id: 659247-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	18.1	200	233	107	233	108	90-110	0	20	mg/kg	04.20.2020 19:20	

Analytical Method: Chloride by EPA 300

Seq Number: 3123547

Parent Sample Id: 659247-013

Matrix: Soil

MS Sample Id: 659247-013 S

Prep Method: E300P

Date Prep: 04.20.2020

MSD Sample Id: 659247-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	215	108	216	108	90-110	0	20	mg/kg	04.20.2020 20:37	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

MB Sample Id: 7701656-1-BLK

Matrix: Solid

LCS Sample Id: 7701656-1-BKS

Prep Method: SW8015P

Date Prep: 04.20.2020

LCSD Sample Id: 7701656-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	916	92	850	85	70-135	7	35	mg/kg	04.20.2020 12:30	
Diesel Range Organics (DRO)	<50.0	1000	1020	102	912	91	70-135	11	35	mg/kg	04.20.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	71		96		90		70-135	%	04.20.2020 12:30
o-Terphenyl	70		91		83		70-135	%	04.20.2020 12:30

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

Matrix: Solid

MB Sample Id: 7701656-1-BLK

Prep Method: SW8015P

Date Prep: 04.20.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.20.2020 12:09	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

Parent Sample Id: 659247-001

Matrix: Soil

MS Sample Id: 659247-001 S

Prep Method: SW8015P

Date Prep: 04.20.2020

MSD Sample Id: 659247-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	1100	110	1210	121	70-135	10	35	mg/kg	04.20.2020 13:30	
Diesel Range Organics (DRO)	<50.2	1000	1080	108	1220	122	70-135	12	35	mg/kg	04.20.2020 13:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		123		70-135	%	04.20.2020 13:30
o-Terphenyl	111		123		70-135	%	04.20.2020 13:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123538

MB Sample Id: 7701580-1-BLK

Matrix: Solid

LCS Sample Id: 7701580-1-BKS

Prep Method: SW5030B

Date Prep: 04.20.2020

LCSD Sample Id: 7701580-1-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	0.114	114	0.112	112	70-130	2	35	mg/kg	04.20.2020 10:27	
Toluene	<0.00200	0.100	0.108	108	0.108	108	70-130	0	35	mg/kg	04.20.2020 10:27	
Ethylbenzene	<0.00200	0.100	0.0979	98	0.0992	99	71-129	1	35	mg/kg	04.20.2020 10:27	
m,p-Xylenes	<0.00400	0.200	0.199	100	0.201	101	70-135	1	35	mg/kg	04.20.2020 10:27	
o-Xylene	<0.00200	0.100	0.102	102	0.103	103	71-133	1	35	mg/kg	04.20.2020 10:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		104		105		70-130	%	04.20.2020 10:27
4-Bromofluorobenzene	93		91		92		70-130	%	04.20.2020 10:27

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123538

Parent Sample Id: 659235-001

Matrix: Soil

MS Sample Id: 659235-001 S

Prep Method: SW5030B

Date Prep: 04.20.2020

MSD Sample Id: 659235-001 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	0.0981	98	0.0946	95	70-130	4	35	mg/kg	04.20.2020 12:30	
Toluene	<0.00200	0.100	0.0927	93	0.0895	90	70-130	4	35	mg/kg	04.20.2020 12:30	
Ethylbenzene	<0.00200	0.100	0.0849	85	0.0824	83	71-129	3	35	mg/kg	04.20.2020 12:30	
m,p-Xylenes	<0.00400	0.200	0.172	86	0.169	85	70-135	2	35	mg/kg	04.20.2020 12:30	
o-Xylene	<0.00200	0.100	0.0863	86	0.0843	85	71-133	2	35	mg/kg	04.20.2020 12:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		103		70-130	%	04.20.2020 12:30
4-Bromofluorobenzene	93		92		70-130	%	04.20.2020 12:30

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 1059288

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 St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com rmcafee@ltenv.com

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

[illegible]

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		4/20/20 1435	2		
			4		
			6		

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.20.2020 02.35.00 PM

Work Order #: 659288

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)?	2.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 04.20.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.21.2020

Certificate of Analysis Summary 659293



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Date Received in Lab: Mon 04.20.2020 14:35

Contact: Dan Moir

Report Date: 11.05.2020 07:56

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659293-001	659293-002	659293-003			
	Field Id:	FS10A	FS14	FS15			
	Depth:	2.5- ft	1.75- ft	2.0- ft			
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	04.16.2020 13:55	04.17.2020 10:15	04.20.2020 11:20			
BTEX by EPA 8021B	Extracted:	04.20.2020 16:00	04.20.2020 17:08	04.20.2020 17:08			
	Analyzed:	04.20.2020 20:39	04.20.2020 23:43	04.21.2020 00:03			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
m,p-Xylenes		<0.00398 0.00398	<0.00401 0.00401	<0.00404 0.00404			
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202			
Chloride by EPA 300	Extracted:	04.20.2020 17:25	04.20.2020 17:25	04.20.2020 17:25			
	Analyzed:	04.20.2020 22:23	04.20.2020 22:41	04.20.2020 22:47			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		62.9 9.96	161 98.8	426 99.8			
TPH by SW8015 Mod	Extracted:	04.20.2020 16:00	04.20.2020 16:00	04.20.2020 16:00			
	Analyzed:	04.20.2020 17:56	04.20.2020 18:16	04.20.2020 18:36			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<49.8 49.8	<50.1 50.1			
Diesel Range Organics (DRO)		<50.2 50.2	<49.8 49.8	<50.1 50.1			
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<49.8 49.8	<50.1 50.1			
Total GRO-DRO		<50.2 50.2	<49.8 49.8	<50.1 50.1			
Total TPH		<50.2 50.2	<49.8 49.8	<50.1 50.1			

BRL - Below Reporting Limit

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



Analytical Report 659293

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

11.05.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.05.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **659293**

Remuda Basin 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 Eurofins Xenco, LLC Report Number(s) 659293. 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 Eurofins Xenco, LLC. 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. 659293 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS10A	S	04.16.2020 13:55	2.5 ft	659293-001
FS14	S	04.17.2020 10:15	1.75 ft	659293-002
FS15	S	04.20.2020 11:20	2.0 ft	659293-003



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 659293

Report Date: 11.05.2020
Date Received: 04.20.2020

Sample receipt non conformances and comments:

Revision - Corrected sample 001 ID from FS10 to FS10A

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3123538 BTEX by EPA 8021B

Soil samples received in bulk containers.

Batch: LBA-3123539 BTEX by EPA 8021B

Soil samples received in bulk containers.



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS10A**
Lab Sample Id: 659293-001

Matrix: Soil
Date Collected: 04.16.2020 13:55

Date Received: 04.20.2020 14:35
Sample Depth: 2.5 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 04.20.2020 17:25

% Moisture:
Basis: Wet Weight

Seq Number: 3123548

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	62.9	9.96	mg/kg	04.20.2020 22:23		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 04.20.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3123594

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.20.2020 17:56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.20.2020 17:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.20.2020 17:56	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.20.2020 17:56	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.20.2020 17:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	04.20.2020 17:56	
o-Terphenyl	84-15-1	113	%	70-135	04.20.2020 17:56	



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS10A**
 Lab Sample Id: 659293-001

Matrix: Soil
 Date Collected: 04.16.2020 13:55

Date Received: 04.20.2020 14:35
 Sample Depth: 2.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

Analyst: MAB

Date Prep: 04.20.2020 16:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3123538

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.20.2020 20:39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.20.2020 20:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.20.2020 20:39	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.20.2020 20:39	



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS14** Matrix: Soil Date Received: 04.20.2020 14:35
 Lab Sample Id: 659293-002 Date Collected: 04.17.2020 10:15 Sample Depth: 1.75 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 04.20.2020 17:25 % Moisture:
 Seq Number: 3123548 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	161	98.8	mg/kg	04.20.2020 22:41		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH
 Analyst: DTH Date Prep: 04.20.2020 16:00 % Moisture:
 Seq Number: 3123594 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.20.2020 18:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.20.2020 18:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.20.2020 18:16	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.20.2020 18:16	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.20.2020 18:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	04.20.2020 18:16	
o-Terphenyl	84-15-1	117	%	70-135	04.20.2020 18:16	



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS14**
 Lab Sample Id: 659293-002

Matrix: Soil
 Date Collected: 04.17.2020 10:15

Date Received: 04.20.2020 14:35
 Sample Depth: 1.75 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

Analyst: MAB

Date Prep: 04.20.2020 17:08

% Moisture:
 Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.20.2020 23:43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.20.2020 23:43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.20.2020 23:43		
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.20.2020 23:43		



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS15** Matrix: Soil Date Received: 04.20.2020 14:35
 Lab Sample Id: 659293-003 Date Collected: 04.20.2020 11:20 Sample Depth: 2.0 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 04.20.2020 17:25 % Moisture:
 Seq Number: 3123548 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	426	99.8	mg/kg	04.20.2020 22:47		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH
 Analyst: DTH Date Prep: 04.20.2020 16:00 % Moisture:
 Seq Number: 3123594 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.20.2020 18:36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.20.2020 18:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.20.2020 18:36	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.20.2020 18:36	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.20.2020 18:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.20.2020 18:36	
o-Terphenyl	84-15-1	107	%	70-135	04.20.2020 18:36	



Certificate of Analytical Results 659293

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS15**
Lab Sample Id: 659293-003

Matrix: Soil
Date Collected: 04.20.2020 11:20

Date Received: 04.20.2020 14:35
Sample Depth: 2.0 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

Analyst: MAB

Date Prep: 04.20.2020 17:08

% Moisture:
Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.21.2020 00:03	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.21.2020 00:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.21.2020 00:03	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.21.2020 00:03	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3123548

MB Sample Id: 7701627-1-BLK

Matrix: Solid

LCS Sample Id: 7701627-1-BKS

Prep Method: E300P

Date Prep: 04.20.2020

LCSD Sample Id: 7701627-1-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	300	278	93	279	93	90-110	0	20	mg/kg	04.20.2020 22:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3123548

Parent Sample Id: 659293-001

Matrix: Soil

MS Sample Id: 659293-001 S

Prep Method: E300P

Date Prep: 04.20.2020

MSD Sample Id: 659293-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	62.9	200	266	102	269	103	90-110	1	20	mg/kg	04.20.2020 22:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3123548

Parent Sample Id: 659315-002

Matrix: Soil

MS Sample Id: 659315-002 S

Prep Method: E300P

Date Prep: 04.20.2020

MSD Sample Id: 659315-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	180	199	368	94	378	99	90-110	3	20	mg/kg	04.20.2020 23:51	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

MB Sample Id: 7701656-1-BLK

Matrix: Solid

LCS Sample Id: 7701656-1-BKS

Prep Method: SW8015P

Date Prep: 04.20.2020

LCSD Sample Id: 7701656-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	916	92	850	85	70-135	7	35	mg/kg	04.20.2020 12:30	
Diesel Range Organics (DRO)	<50.0	1000	1020	102	912	91	70-135	11	35	mg/kg	04.20.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	71		96		90		70-135	%	04.20.2020 12:30
o-Terphenyl	70		91		83		70-135	%	04.20.2020 12:30

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

Matrix: Solid

MB Sample Id: 7701656-1-BLK

Prep Method: SW8015P

Date Prep: 04.20.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.20.2020 12:09	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123594

Parent Sample Id: 659247-001

Matrix: Soil

MS Sample Id: 659247-001 S

Prep Method: SW8015P

Date Prep: 04.20.2020

MSD Sample Id: 659247-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	1100	110	1210	121	70-135	10	35	mg/kg	04.20.2020 13:30	
Diesel Range Organics (DRO)	<50.2	1000	1080	108	1220	122	70-135	12	35	mg/kg	04.20.2020 13:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		123		70-135	%	04.20.2020 13:30
o-Terphenyl	111		123		70-135	%	04.20.2020 13:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123538

MB Sample Id: 7701580-1-BLK

Matrix: Solid

LCS Sample Id: 7701580-1-BKS

Prep Method: SW5030B

Date Prep: 04.20.2020

LCSD Sample Id: 7701580-1-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	0.114	114	0.112	112	70-130	2	35	mg/kg	04.20.2020 10:27	
Toluene	<0.00200	0.100	0.108	108	0.108	108	70-130	0	35	mg/kg	04.20.2020 10:27	
Ethylbenzene	<0.00200	0.100	0.0979	98	0.0992	99	71-129	1	35	mg/kg	04.20.2020 10:27	
m,p-Xylenes	<0.00400	0.200	0.199	100	0.201	101	70-135	1	35	mg/kg	04.20.2020 10:27	
o-Xylene	<0.00200	0.100	0.102	102	0.103	103	71-133	1	35	mg/kg	04.20.2020 10:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		104		105		70-130	%	04.20.2020 10:27
4-Bromofluorobenzene	93		91		92		70-130	%	04.20.2020 10:27

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123539

MB Sample Id: 7701629-1-BLK

Matrix: Solid

LCS Sample Id: 7701629-1-BKS

Prep Method: SW5030B

Date Prep: 04.20.2020

LCSD Sample Id: 7701629-1-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	0.108	108	0.105	105	70-130	3	35	mg/kg	04.20.2020 22:01	
Toluene	<0.00200	0.100	0.103	103	0.101	101	70-130	2	35	mg/kg	04.20.2020 22:01	
Ethylbenzene	<0.00200	0.100	0.0958	96	0.0949	95	71-129	1	35	mg/kg	04.20.2020 22:01	
m,p-Xylenes	<0.00400	0.200	0.197	99	0.194	97	70-135	2	35	mg/kg	04.20.2020 22:01	
o-Xylene	<0.00200	0.100	0.100	100	0.0984	98	71-133	2	35	mg/kg	04.20.2020 22:01	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		104		104		70-130	%	04.20.2020 22:01
4-Bromofluorobenzene	94		92		93		70-130	%	04.20.2020 22:01

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123538

Parent Sample Id: 659235-001

Matrix: Soil

MS Sample Id: 659235-001 S

Prep Method: SW5030B

Date Prep: 04.20.2020

MSD Sample Id: 659235-001 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	0.0981	98	0.0946	95	70-130	4	35	mg/kg	04.20.2020 12:30	
Toluene	<0.00200	0.100	0.0927	93	0.0895	90	70-130	4	35	mg/kg	04.20.2020 12:30	
Ethylbenzene	<0.00200	0.100	0.0849	85	0.0824	83	71-129	3	35	mg/kg	04.20.2020 12:30	
m,p-Xylenes	<0.00400	0.200	0.172	86	0.169	85	70-135	2	35	mg/kg	04.20.2020 12:30	
o-Xylene	<0.00200	0.100	0.0863	86	0.0843	85	71-133	2	35	mg/kg	04.20.2020 12:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		103		70-130	%	04.20.2020 12:30
4-Bromofluorobenzene	93		92		70-130	%	04.20.2020 12:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123539

Parent Sample Id: 659293-002

Matrix: Soil

MS Sample Id: 659293-002 S

Prep Method: SW5030B

Date Prep: 04.20.2020

MSD Sample Id: 659293-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.104	103	0.109	108	70-130	5	35	mg/kg	04.20.2020 22:42	
Toluene	<0.00202	0.101	0.0983	97	0.104	103	70-130	6	35	mg/kg	04.20.2020 22:42	
Ethylbenzene	<0.00202	0.101	0.0914	90	0.0973	96	71-129	6	35	mg/kg	04.20.2020 22:42	
m,p-Xylenes	<0.00403	0.202	0.186	92	0.200	100	70-135	7	35	mg/kg	04.20.2020 22:42	
o-Xylene	<0.00202	0.101	0.0943	93	0.100	99	71-133	6	35	mg/kg	04.20.2020 22:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		104		70-130	%	04.20.2020 22:42
4-Bromofluorobenzene	94		94		70-130	%	04.20.2020 22:42

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: 659293

 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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 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 St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com rmcafee@ltenv.com

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

Project Name:	Remuda Basin CTB	Turn Around
Project Number:	012918152	Routine ☒
P.O. Number:		Rush:
Sampler's Name:	Robert McAfee	Due Date:

SAMPLE RECEIPT		Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	2.4	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:	3		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes	
FS10	S	04/16/20	1355	2.5'	1	X	X	X												
FS14	↓	04/17/20	1015	1.75'	↓	X	X	X												
FS15	↓	04/20/20	1120	2.0'	↓	X	X	X												

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		4/20/20 / 4:35			

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.20.2020 02.35.00 PM

Work Order #: 659293

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)?	2.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 04.20.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.21.2020



Certificate of Analysis Summary 661355

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152
Contact: Tacoma Morrissey
Project Location:

Date Received in Lab: Wed 05.13.2020 08:55
Report Date: 05.15.2020 15:42
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	661355-001					
	Field Id:	FS16					
	Depth:	2.5- ft					
	Matrix:	SOIL					
	Sampled:	05.12.2020 11:15					
BTEX by EPA 8021B	Extracted:	05.13.2020 11:21					
	Analyzed:	05.13.2020 14:58					
	Units/RL:	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00401 0.00401					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
Chloride by EPA 300	Extracted:	05.13.2020 12:02					
	Analyzed:	05.13.2020 12:48					
	Units/RL:	mg/kg RL					
Chloride		101 X 99.0					
TPH by SW8015 Mod	Extracted:	05.14.2020 12:00					
	Analyzed:	05.14.2020 18:46					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1					
Diesel Range Organics (DRO)		<50.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total GRO-DRO		<50.1 50.1					
Total TPH		<50.1 50.1					

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

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

Jessica Kramer
Project Manager



Analytical Report 661355

for

LT Environmental, Inc.

Project Manager: Tacoma Morrissey

Remuda Basin CTB

012918152

05.15.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.15.2020

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

Reference: XENCO Report No(s): **661355**
Remuda Basin CTB
Project Address:

Tacoma Morrissey:

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) 661355. 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. 661355 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 661355

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS16	S	05.12.2020 11:15	2.5 ft	661355-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 661355

Report Date: 05.15.2020
Date Received: 05.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3125878 Chloride by EPA 300

Lab Sample ID 661355-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 661355-001.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 661355

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS16** Matrix: Soil Date Received: 05.13.2020 08:55
 Lab Sample Id: 661355-001 Date Collected: 05.12.2020 11:15 Sample Depth: 2.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 05.13.2020 12:02 Basis: Wet Weight
 Seq Number: 3125878

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	101	99.0	mg/kg	05.13.2020 12:48	X	10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 05.14.2020 12:00 Basis: Wet Weight
 Seq Number: 3126032

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	05.14.2020 18:46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	05.14.2020 18:46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	05.14.2020 18:46	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	05.14.2020 18:46	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	05.14.2020 18:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	05.14.2020 18:46	
o-Terphenyl	84-15-1	108	%	70-135	05.14.2020 18:46	



Certificate of Analytical Results 661355

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS16**
 Lab Sample Id: 661355-001

Matrix: Soil
 Date Collected: 05.12.2020 11:15

Date Received: 05.13.2020 08:55
 Sample Depth: 2.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.13.2020 11:21

Basis: Wet Weight

Seq Number: 3125869

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.13.2020 14:58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.13.2020 14:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	05.13.2020 14:58	
4-Bromofluorobenzene	460-00-4	107	%	70-130	05.13.2020 14:58	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3125878

MB Sample Id: 7703240-1-BLK

Matrix: Solid

LCS Sample Id: 7703240-1-BKS

Prep Method: E300P

Date Prep: 05.13.2020

LCSD Sample Id: 7703240-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	250	100	90-110	0	20	mg/kg	05.13.2020 12:37	

Analytical Method: Chloride by EPA 300

Seq Number: 3125878

Parent Sample Id: 661355-001

Matrix: Soil

MS Sample Id: 661355-001 S

Prep Method: E300P

Date Prep: 05.13.2020

MSD Sample Id: 661355-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	101	202	276	87	278	88	90-110	1	20	mg/kg	05.13.2020 12:54	X

Analytical Method: Chloride by EPA 300

Seq Number: 3125878

Parent Sample Id: 661356-010

Matrix: Soil

MS Sample Id: 661356-010 S

Prep Method: E300P

Date Prep: 05.13.2020

MSD Sample Id: 661356-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	197	200	380	92	380	92	90-110	0	20	mg/kg	05.13.2020 14:16	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126032

MB Sample Id: 7703325-1-BLK

Matrix: Solid

LCS Sample Id: 7703325-1-BKS

Prep Method: SW8015P

Date Prep: 05.14.2020

LCSD Sample Id: 7703325-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	990	99	1030	103	70-135	4	35	mg/kg	05.14.2020 14:16	
Diesel Range Organics (DRO)	<50.0	1000	1080	108	1130	113	70-135	5	35	mg/kg	05.14.2020 14:16	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		116		122		70-135	%	05.14.2020 14:16
o-Terphenyl	114		118		122		70-135	%	05.14.2020 14:16

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126032

Matrix: Solid

MB Sample Id: 7703325-1-BLK

Prep Method: SW8015P

Date Prep: 05.14.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.14.2020 13:55	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126032

Parent Sample Id: 661339-003

Matrix: Soil

MS Sample Id: 661339-003 S

Prep Method: SW8015P

Date Prep: 05.14.2020

MSD Sample Id: 661339-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	966	97	959	96	70-135	1	35	mg/kg	05.14.2020 15:18	
Diesel Range Organics (DRO)	<50.2	1000	1090	109	1040	104	70-135	5	35	mg/kg	05.14.2020 15:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		93		70-135	%	05.14.2020 15:18
o-Terphenyl	120		77		70-135	%	05.14.2020 15:18

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125869

MB Sample Id: 7703236-1-BLK

Matrix: Solid

LCS Sample Id: 7703236-1-BKS

Prep Method: SW5035A

Date Prep: 05.13.2020

LCSD Sample Id: 7703236-1-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	0.120	120	0.117	117	70-130	3	35	mg/kg	05.13.2020 12:50	
Toluene	<0.00200	0.100	0.110	110	0.0931	93	70-130	17	35	mg/kg	05.13.2020 12:50	
Ethylbenzene	<0.00200	0.100	0.105	105	0.108	108	71-129	3	35	mg/kg	05.13.2020 12:50	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.194	97	70-135	5	35	mg/kg	05.13.2020 12:50	
o-Xylene	<0.00200	0.100	0.103	103	0.100	100	71-133	3	35	mg/kg	05.13.2020 12:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		107		108		70-130	%	05.13.2020 12:50
4-Bromofluorobenzene	104		100		101		70-130	%	05.13.2020 12:50

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125869

Parent Sample Id: 661355-001

Matrix: Soil

MS Sample Id: 661355-001 S

Prep Method: SW5035A

Date Prep: 05.13.2020

MSD Sample Id: 661355-001 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	0.0998	0.120	120	0.122	122	70-130	2	35	mg/kg	05.13.2020 13:33	
Toluene	<0.00200	0.0998	0.110	110	0.113	113	70-130	3	35	mg/kg	05.13.2020 13:33	
Ethylbenzene	<0.00200	0.0998	0.103	103	0.107	107	71-129	4	35	mg/kg	05.13.2020 13:33	
m,p-Xylenes	<0.00399	0.200	0.200	100	0.207	104	70-135	3	35	mg/kg	05.13.2020 13:33	
o-Xylene	<0.00200	0.0998	0.102	102	0.105	105	71-133	3	35	mg/kg	05.13.2020 13:33	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		106		70-130	%	05.13.2020 13:33
4-Bromofluorobenzene	102		102		70-130	%	05.13.2020 13:33

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

Work Order No: 661355

www.xenco.com

Page 1 of

Project Manager:		Tacoma Morrissey		Bill to: (if different)		Kyle Littrell	
Company Name:		LT Environmental, Inc., Permian office		Company Name:		XTO Energy	
Address:		3300 North A St. Bldg 1, Unit 222		Address:		3104 E Greene St.	
City, State ZIP:		Midland, TX 79705		City, State ZIP:		Carlsbad, NM	
Phone:		(432) 704-5178		Email:		tmorrissey@ltenv.com kjennings@ltenv.com tcasey@ltenv.com	

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

Project Name:	Remuda Basin CTB	Turn Around
Project Number:	012918152	Routine ☒
P.O. Number:		Rush:
Sampler's Name:	Travis Casey	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	3-4	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:	1	

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCI P/SPI P 6010: 8RCRA Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)		Received by: (Signature)		Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
				5/13/20 855			

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 05.13.2020 08.55.00 AM

Work Order #: 661355

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)?	3.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Sample received in bulk container.

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

Analyst:

PH Device/Lot#:

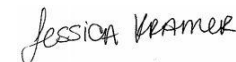
Checklist completed by:



Elizabeth McClellan

Date: 05.13.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.14.2020



Certificate of Analysis Summary 661533

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id:

Date Received in Lab: Wed 05.13.2020 16:30

Contact: Tacoma Morrissey

Report Date: 05.14.2020 12:25

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 661533-001 Field Id: FS17 Depth: 0.5-1 ft Matrix: SOIL Sampled: 05.13.2020 13:20					
BTEX by EPA 8021B	Extracted: 05.13.2020 17:06 Analyzed: 05.13.2020 20:23 Units/RL: mg/kg RL					
Benzene	<0.00234 0.00234					
Toluene	<0.00234 0.00234					
Ethylbenzene	0.147 0.00935					
m,p-Xylenes	0.0484 0.0187					
o-Xylene	0.0980 0.00935					
Total Xylenes	0.146 0.00935					
Total BTEX	0.293 0.00234					
Chloride by EPA 300	Extracted: 05.13.2020 16:59 Analyzed: 05.13.2020 20:26 Units/RL: mg/kg RL					
Chloride	7810 99.6					
TPH by SW8015 Mod	Extracted: 05.13.2020 17:30 Analyzed: 05.14.2020 06:00 Units/RL: mg/kg RL					
Gasoline Range Hydrocarbons (GRO)	277 251					
Diesel Range Organics (DRO)	9560 502					
Motor Oil Range Hydrocarbons (MRO)	1000 502					
Total GRO-DRO	9840 251					
Total TPH	10800 251					

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

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

Jessica Kramer
Project Manager



Analytical Report 661533

for

LT Environmental, Inc.

Project Manager: Tacoma Morrissey

Remuda Basin CTB

05.14.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.14.2020

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

Reference: XENCO Report No(s): **661533**
Remuda Basin CTB
Project Address:

Tacoma Morrissey:

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) 661533. 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. 661533 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 661533

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS17	S	05.13.2020 13:20	0.5 - 1 ft	661533-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin CTB*

Project ID:
Work Order Number(s): 661533

Report Date: 05.14.2020
Date Received: 05.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 661533

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS17** Matrix: **Soil** Date Received: 05.13.2020 16:30
 Lab Sample Id: 661533-001 Date Collected: 05.13.2020 13:20 Sample Depth: 0.5 - 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: **MAB** % Moisture:
 Analyst: **MAB** Date Prep: 05.13.2020 16:59 Basis: **Wet Weight**
 Seq Number: 3125884

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7810	99.6	mg/kg	05.13.2020 20:26		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: **DTH** % Moisture:
 Analyst: **DTH** Date Prep: 05.13.2020 17:30 Basis: **Wet Weight**
 Seq Number: 3125891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	277	251	mg/kg	05.14.2020 06:00		10
Diesel Range Organics (DRO)	C10C28DRO	9560	502	mg/kg	05.14.2020 06:00		10
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1000	502	mg/kg	05.14.2020 06:00		10
Total GRO-DRO	PHC628	9840	251	mg/kg	05.14.2020 06:00		10
Total TPH	PHC635	10800	251	mg/kg	05.14.2020 06:00		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	131	%	70-135	05.14.2020 06:00	
o-Terphenyl	84-15-1	116	%	70-135	05.14.2020 06:00	



Certificate of Analytical Results 661533

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS17**
 Lab Sample Id: 661533-001

Matrix: Soil
 Date Collected: 05.13.2020 13:20

Date Received: 05.13.2020 16:30
 Sample Depth: 0.5 - 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.13.2020 17:06

Basis: Wet Weight

Seq Number: 3125871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00234	0.00234	mg/kg	05.13.2020 20:23	U	1
Toluene	108-88-3	<0.00234	0.00234	mg/kg	05.13.2020 20:23	U	1
Ethylbenzene	100-41-4	0.147	0.00935	mg/kg	05.13.2020 20:23		1
m,p-Xylenes	179601-23-1	0.0484	0.0187	mg/kg	05.13.2020 20:23		1
o-Xylene	95-47-6	0.0980	0.00935	mg/kg	05.13.2020 20:23		1
Total Xylenes	1330-20-7	0.146	0.00935	mg/kg	05.13.2020 20:23		1
Total BTEX		0.293	0.00234	mg/kg	05.13.2020 20:23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	05.13.2020 20:23	
1,4-Difluorobenzene	540-36-3	101	%	70-130	05.13.2020 20:23	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3125884

MB Sample Id: 7703272-1-BLK

Matrix: Solid

LCS Sample Id: 7703272-1-BKS

Prep Method: E300P

Date Prep: 05.13.2020

LCSD Sample Id: 7703272-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	250	100	90-110	0	20	mg/kg	05.13.2020 19:04	

Analytical Method: Chloride by EPA 300

Seq Number: 3125884

Parent Sample Id: 661488-008

Matrix: Soil

MS Sample Id: 661488-008 S

Prep Method: E300P

Date Prep: 05.13.2020

MSD Sample Id: 661488-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	208	200	404	98	403	98	90-110	0	20	mg/kg	05.13.2020 19:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3125884

Parent Sample Id: 661526-002

Matrix: Soil

MS Sample Id: 661526-002 S

Prep Method: E300P

Date Prep: 05.13.2020

MSD Sample Id: 661526-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	898	198	1080	92	1100	100	90-110	2	20	mg/kg	05.13.2020 20:44	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125891

MB Sample Id: 7703300-1-BLK

Matrix: Solid

LCS Sample Id: 7703300-1-BKS

Prep Method: SW8015P

Date Prep: 05.13.2020

LCSD Sample Id: 7703300-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	905	91	903	90	70-135	0	35	mg/kg	05.13.2020 22:04	
Diesel Range Organics (DRO)	<50.0	1000	1050	105	1050	105	70-135	0	35	mg/kg	05.13.2020 22:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		116		114		70-135	%	05.13.2020 22:04
o-Terphenyl	110		116		116		70-135	%	05.13.2020 22:04

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125891

Matrix: Solid

MB Sample Id: 7703300-1-BLK

Prep Method: SW8015P

Date Prep: 05.13.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.13.2020 21:43	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125891

Parent Sample Id: 661488-001

Matrix: Soil

MS Sample Id: 661488-001 S

Prep Method: SW8015P

Date Prep: 05.13.2020

MSD Sample Id: 661488-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	954	95	914	91	70-135	4	35	mg/kg	05.13.2020 23:07	
Diesel Range Organics (DRO)	113	1000	1230	112	1170	106	70-135	5	35	mg/kg	05.13.2020 23:07	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		119		70-135	%	05.13.2020 23:07
o-Terphenyl	120		117		70-135	%	05.13.2020 23:07

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125871

MB Sample Id: 7703274-1-BLK

Matrix: Solid

LCS Sample Id: 7703274-1-BKS

Prep Method: SW5035A

Date Prep: 05.13.2020

LCSD Sample Id: 7703274-1-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	0.108	108	0.106	106	70-130	2	35	mg/kg	05.13.2020 17:19	
Toluene	<0.00200	0.100	0.104	104	0.104	104	70-130	0	35	mg/kg	05.13.2020 17:19	
Ethylbenzene	<0.00200	0.100	0.0991	99	0.0982	98	71-129	1	35	mg/kg	05.13.2020 17:19	
m,p-Xylenes	<0.00400	0.200	0.205	103	0.203	102	70-135	1	35	mg/kg	05.13.2020 17:19	
o-Xylene	<0.00200	0.100	0.104	104	0.102	102	71-133	2	35	mg/kg	05.13.2020 17:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		104		103		70-130	%	05.13.2020 17:19
4-Bromofluorobenzene	97		92		94		70-130	%	05.13.2020 17:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125871

Parent Sample Id: 661356-020

Matrix: Soil

MS Sample Id: 661356-020 S

Prep Method: SW5035A

Date Prep: 05.13.2020

MSD Sample Id: 661356-020 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	0.0998	0.108	108	0.104	104	70-130	4	35	mg/kg	05.13.2020 18:00	
Toluene	<0.00200	0.0998	0.103	103	0.0998	100	70-130	3	35	mg/kg	05.13.2020 18:00	
Ethylbenzene	<0.00200	0.0998	0.0962	96	0.0920	92	71-129	4	35	mg/kg	05.13.2020 18:00	
m,p-Xylenes	<0.00399	0.200	0.198	99	0.188	94	70-135	5	35	mg/kg	05.13.2020 18:00	
o-Xylene	<0.00200	0.0998	0.100	100	0.0950	95	71-133	5	35	mg/kg	05.13.2020 18:00	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		109		70-130	%	05.13.2020 18:00
4-Bromofluorobenzene	95		95		70-130	%	05.13.2020 18:00

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



Chain of Custody

Work Order No: 661533

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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Page 1 of 1

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 704-5178	Email:	tmorrissey@ltenv.com tcasey@ltenv.com kjennings@ltenv.com

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

Project Name:	Remuda Basin CTB		Turn Around
Project Number:			Routine ☐
P.O. Number:			Rush: 24hr
Sampler's Name:	Travis Casey		Due Date 5-14-20

SAMPLE RECEIPT	Temp Blank:	Yes No	Wet Ice:	Yes No
Temperature (°C):	2.0	Thermometer ID		
Received Intact:	Yes No	T-111-007		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Total Containers:	1	

[illegible]

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

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

Relinquished by: (Signature)		Received by: (Signature)		Date/Time	Relinquished by: (Signature)		Received by: (Signature)		Date/Time
1				5/13/20 10:30	2				
3					4				
5					6				

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 05.13.2020 04.30.00 PM

Work Order #: 661533

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

Sample received in bulk container.

*** 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: 05.13.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.14.2020



Certificate of Analysis Summary 661637

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152
 Contact: Tacoma Morrissey
 Project Location:

Date Received in Lab: Thu 05.14.2020 14:03
 Report Date: 05.15.2020 13:39
 Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 661637-001 Field Id: FS18 Depth: 1- ft Matrix: SOIL Sampled: 05.14.2020 10:05					
BTEX by EPA 8021B	Extracted: 05.14.2020 14:39 Analyzed: 05.15.2020 10:03 Units/RL: mg/kg RL					
Benzene	<0.00200 0.00200					
Toluene	<0.00200 0.00200					
Ethylbenzene	<0.00200 0.00200					
m,p-Xylenes	<0.00399 0.00399					
o-Xylene	<0.00200 0.00200					
Total Xylenes	<0.00200 0.00200					
Total BTEX	<0.00200 0.00200					
Chloride by EPA 300	Extracted: 05.14.2020 15:23 Analyzed: 05.14.2020 16:18 Units/RL: mg/kg RL					
Chloride	146 100					
TPH by SW8015 Mod	Extracted: 05.14.2020 17:30 Analyzed: 05.15.2020 02:21 Units/RL: mg/kg RL					
Gasoline Range Hydrocarbons (GRO)	<50.0 50.0					
Diesel Range Organics (DRO)	<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)	<50.0 50.0					
Total GRO-DRO	<50.0 50.0					
Total TPH	<50.0 50.0					

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

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

Jessica Kramer
Project Manager



Analytical Report 661637

for

LT Environmental, Inc.

Project Manager: Tacoma Morrissey

Remuda Basin CTB

012918152

05.15.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.15.2020

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

Reference: XENCO Report No(s): **661637**
Remuda Basin CTB
Project Address:

Tacoma Morrissey:

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) 661637. 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. 661637 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 661637

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS18	S	05.14.2020 10:05	1 ft	661637-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin CTB*

Project ID: 012918152
Work Order Number(s): 661637

Report Date: 05.15.2020
Date Received: 05.14.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 661637

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS18** Matrix: Soil Date Received: 05.14.2020 14:03
 Lab Sample Id: 661637-001 Date Collected: 05.14.2020 10:05 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 05.14.2020 15:23 Basis: Wet Weight
 Seq Number: 3126022

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	146	100	mg/kg	05.14.2020 16:18		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 05.14.2020 17:30 Basis: Wet Weight
 Seq Number: 3126041

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.15.2020 02:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.15.2020 02:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.15.2020 02:21	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	05.15.2020 02:21	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.15.2020 02:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	05.15.2020 02:21	
o-Terphenyl	84-15-1	126	%	70-135	05.15.2020 02:21	



Certificate of Analytical Results 661637

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS18**
 Lab Sample Id: 661637-001

Matrix: Soil
 Date Collected: 05.14.2020 10:05

Date Received: 05.14.2020 14:03
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.14.2020 14:39

Basis: Wet Weight

Seq Number: 3126047

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.15.2020 10:03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.15.2020 10:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.15.2020 10:03	
4-Bromofluorobenzene	460-00-4	100	%	70-130	05.15.2020 10:03	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3126022

MB Sample Id: 7703314-1-BLK

Matrix: Solid

LCS Sample Id: 7703314-1-BKS

Prep Method: E300P

Date Prep: 05.14.2020

LCSD Sample Id: 7703314-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	250	100	249	100	90-110	0	20	mg/kg	05.14.2020 13:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3126022

Parent Sample Id: 661534-001

Matrix: Soil

MS Sample Id: 661534-001 S

Prep Method: E300P

Date Prep: 05.14.2020

MSD Sample Id: 661534-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	551	199	741	95	740	95	90-110	0	20	mg/kg	05.14.2020 13:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3126022

Parent Sample Id: 661534-011

Matrix: Soil

MS Sample Id: 661534-011 S

Prep Method: E300P

Date Prep: 05.14.2020

MSD Sample Id: 661534-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	57.1	201	246	94	246	94	90-110	0	20	mg/kg	05.14.2020 14:55	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126041

MB Sample Id: 7703406-1-BLK

Matrix: Solid

LCS Sample Id: 7703406-1-BKS

Prep Method: SW8015P

Date Prep: 05.14.2020

LCSD Sample Id: 7703406-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	999	100	1010	101	70-135	1	35	mg/kg	05.15.2020 00:16	
Diesel Range Organics (DRO)	<50.0	1000	1120	112	1120	112	70-135	0	35	mg/kg	05.15.2020 00:16	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		118		120		70-135	%	05.15.2020 00:16
o-Terphenyl	117		125		120		70-135	%	05.15.2020 00:16

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126041

Matrix: Solid

MB Sample Id: 7703406-1-BLK

Prep Method: SW8015P

Date Prep: 05.14.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.14.2020 23:56	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126041

Parent Sample Id: 661534-009

Matrix: Soil

MS Sample Id: 661534-009 S

Prep Method: SW8015P

Date Prep: 05.14.2020

MSD Sample Id: 661534-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.1	1000	1120	112	1070	106	70-135	5	35	mg/kg	05.15.2020 01:18	
Diesel Range Organics (DRO)	<50.1	1000	1100	110	1210	120	70-135	10	35	mg/kg	05.15.2020 01:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	126		127		70-135	%	05.15.2020 01:18
o-Terphenyl	116		132		70-135	%	05.15.2020 01:18

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126047

MB Sample Id: 7703381-1-BLK

Matrix: Solid

LCS Sample Id: 7703381-1-BKS

Prep Method: SW5035A

Date Prep: 05.14.2020

LCSD Sample Id: 7703381-1-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	0.101	101	70-130	6	35	mg/kg	05.14.2020 16:04	
Toluene	<0.00200	0.100	0.103	103	0.0974	97	70-130	6	35	mg/kg	05.14.2020 16:04	
Ethylbenzene	<0.00200	0.100	0.0974	97	0.0926	93	71-129	5	35	mg/kg	05.14.2020 16:04	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.192	96	70-135	5	35	mg/kg	05.14.2020 16:04	
o-Xylene	<0.00200	0.100	0.101	101	0.0971	97	71-133	4	35	mg/kg	05.14.2020 16:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		104		100		70-130	%	05.14.2020 16:04
4-Bromofluorobenzene	97		93		91		70-130	%	05.14.2020 16:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126047

Parent Sample Id: 661635-001

Matrix: Soil

MS Sample Id: 661635-001 S

Prep Method: SW5035A

Date Prep: 05.14.2020

MSD Sample Id: 661635-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.107	108	0.0992	100	70-130	8	35	mg/kg	05.14.2020 16:45	
Toluene	0.00986	0.0992	0.106	97	0.0955	87	70-130	10	35	mg/kg	05.14.2020 16:45	
Ethylbenzene	0.0147	0.0992	0.0911	77	0.0894	75	71-129	2	35	mg/kg	05.14.2020 16:45	
m,p-Xylenes	0.0337	0.198	0.191	79	0.183	75	70-135	4	35	mg/kg	05.14.2020 16:45	
o-Xylene	0.0207	0.0992	0.0979	78	0.0939	74	71-133	4	35	mg/kg	05.14.2020 16:45	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		105		70-130	%	05.14.2020 16:45
4-Bromofluorobenzene	95		94		70-130	%	05.14.2020 16:45

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

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

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

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



Chain of Custody

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

Work Order No: 2221637

www.xenco.com

Page 1 of 1

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 704-5178	Email:	tmorrissey@ltenv.com tcasey@ltenv.com kjennings@ltenv.com

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

[illegible]

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					
				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															
Circle Method(s) and Metal(s) to be analyzed						customer and subcontractors: it assigns standard terms and conditions																																

Circle Method(s) and Metal(s) to be analyzed

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

Project Name	Relinquished by: (Signature)	Received by:

of service. Xenco will be liable only for the cost of analysis and preparation of samples submitted to Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms						
	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			5/14/20 14:03	2		
3				4		
5				6		

Revised Date 051418 Rev. 201

Revised Date 051418 Rev. 2018.1

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 05.14.2020 02.03.00 PM

Work Order #: 661637

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)?	1.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Sample received in bulk container.

*** 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: 05.14.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.15.2020

Certificate of Analysis Summary 666199

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152
Contact: Tacoma Morrissey
Project Location:

Date Received in Lab: Thu 07.02.2020 09:20
Report Date: 07.09.2020 13:56
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	666199-001					
	Field Id:	FS19					
	Depth:	1-3 ft					
	Matrix:	SOIL					
	Sampled:	07.02.2020 08:30					
BTEX by EPA 8021B	Extracted:	07.02.2020 13:09					
	Analyzed:	07.02.2020 18:43					
	Units/RL:	mg/kg RL					
	Benzene	<0.0101 0.0101					
	Toluene	<0.0101 0.0101					
	Ethylbenzene	<0.0101 0.0101					
	m,p-Xylenes	<0.0202 0.0202					
	o-Xylene	<0.0101 0.0101					
	Total Xylenes	<0.0101 0.0101					
Chloride by EPA 300	Extracted:	07.02.2020 14:00					
	Analyzed:	07.02.2020 14:53					
	Units/RL:	mg/kg RL					
	Chloride	450 50.1					
	Extracted:	07.02.2020 15:00					
	Analyzed:	07.02.2020 18:29					
	Units/RL:	mg/kg RL					
	Gasoline Range Hydrocarbons (GRO)	<49.8 49.8					
	Diesel Range Organics (DRO)	2830 49.8					
TPH by SW8015 Mod	Motor Oil Range Hydrocarbons (MRO)	353 49.8					
	Total GRO-DRO	2830 49.8					
	Total TPH	3180 49.8					

BRL - Below Reporting Limit

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





Xenco

Analytical Report 666199

for

LT Environmental, Inc.

Project Manager: Tacoma Morrissey

Remuda Basin CTB

012918152

07.09.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.09.2020

Project Manager: **Tacoma Morrissey**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **666199**

Remuda Basin CTB

Project Address:

Tacoma Morrissey:

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 Eurofins Xenco, LLC Report Number(s) 666199. 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 Eurofins Xenco, LLC. 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. 666199 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 666199

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS19	S	07.02.2020 08:30	1 - 3 ft	666199-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 666199

Report Date: 07.09.2020
Date Received: 07.02.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 666199

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS19** Matrix: Soil Date Received: 07.02.2020 09:20
 Lab Sample Id: 666199-001 Date Collected: 07.02.2020 08:30 Sample Depth: 1 - 3 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 07.02.2020 14:00 Basis: Wet Weight
 Seq Number: 3130685

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	450	50.1	mg/kg	07.02.2020 14:53		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 07.02.2020 15:00 Basis: Wet Weight
 Seq Number: 3130683

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.02.2020 18:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	2830	49.8	mg/kg	07.02.2020 18:29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	353	49.8	mg/kg	07.02.2020 18:29		1
Total GRO-DRO	PHC628	2830	49.8	mg/kg	07.02.2020 18:29		1
Total TPH	PHC635	3180	49.8	mg/kg	07.02.2020 18:29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	07.02.2020 18:29	
o-Terphenyl	84-15-1	96	%	70-135	07.02.2020 18:29	



Certificate of Analytical Results 666199

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS19**
 Lab Sample Id: 666199-001

Matrix: Soil
 Date Collected: 07.02.2020 08:30

Date Received: 07.02.2020 09:20
 Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.02.2020 13:09

Basis: Wet Weight

Seq Number: 3130687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1
Toluene	108-88-3	<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1
Ethylbenzene	100-41-4	<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1
m,p-Xylenes	179601-23-1	<0.0202	0.0202	mg/kg	07.02.2020 18:43	U	1
o-Xylene	95-47-6	<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1
Total Xylenes	1330-20-7	<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1
Total BTEX		<0.0101	0.0101	mg/kg	07.02.2020 18:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	07.02.2020 18:43	
4-Bromofluorobenzene	460-00-4	102	%	70-130	07.02.2020 18:43	

Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



Xenco

QC Summary 666199

LT Environmental, Inc.

Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3130685

MB Sample Id: 7706678-1-BLK

Matrix: Solid

Prep Method: E300P

Date Prep: 07.02.2020

LCS Sample Id: 7706678-1-BKS

LCSD Sample Id: 7706678-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	258	103	266	106	90-110	3	20	mg/kg	07.02.2020 14:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3130685

Parent Sample Id: 666198-001

Matrix: Soil

Prep Method: E300P

Date Prep: 07.02.2020

MS Sample Id: 666198-001 S

MSD Sample Id: 666198-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	174	201	360	93	360	93	90-110	0	20	mg/kg	07.02.2020 15:17	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3130683

MB Sample Id: 7706690-1-BLK

Matrix: Solid

Prep Method: SW8015P

Date Prep: 07.02.2020

LCS Sample Id: 7706690-1-BKS

LCSD Sample Id: 7706690-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	978	98	999	100	70-135	2	35	mg/kg	07.02.2020 13:27	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1070	107	70-135	1	35	mg/kg	07.02.2020 13:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	81		116		116		70-135	%	07.02.2020 13:27
o-Terphenyl	77		103		103		70-135	%	07.02.2020 13:27

Analytical Method: TPH by SW8015 Mod

Seq Number: 3130683

Matrix: Solid

Prep Method: SW8015P

Date Prep: 07.02.2020

MB Sample Id: 7706690-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.02.2020 13:06	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3130683

Matrix: Soil

Prep Method: SW8015P

Date Prep: 07.02.2020

Parent Sample Id: 666235-001

MS Sample Id: 666235-001 S

MSD Sample Id: 666235-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.3	1010	969	96	992	99	70-135	2	35	mg/kg	07.02.2020 15:04	
Diesel Range Organics (DRO)	<50.3	1010	1060	105	1100	110	70-135	4	35	mg/kg	07.02.2020 15:04	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	89		94		70-135	%	07.02.2020 15:04
o-Terphenyl	79		84		70-135	%	07.02.2020 15:04

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

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

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

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

LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130687

MB Sample Id: 7706683-1-BLK

Matrix: Solid

LCS Sample Id: 7706683-1-BKS

Prep Method: SW5035A

Date Prep: 07.02.2020

LCSD Sample Id: 7706683-1-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	0.108	108	0.105	105	70-130	3	35	mg/kg	07.02.2020 13:32	
Toluene	<0.00200	0.100	0.104	104	0.104	104	70-130	0	35	mg/kg	07.02.2020 13:32	
Ethylbenzene	<0.00200	0.100	0.0990	99	0.101	101	71-129	2	35	mg/kg	07.02.2020 13:32	
m,p-Xylenes	<0.00400	0.200	0.200	100	0.206	103	70-135	3	35	mg/kg	07.02.2020 13:32	
o-Xylene	<0.00200	0.100	0.0992	99	0.102	102	71-133	3	35	mg/kg	07.02.2020 13:32	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		98		70-130	%	07.02.2020 13:32
4-Bromofluorobenzene	95		101		106		70-130	%	07.02.2020 13:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130687

Parent Sample Id: 666198-001

Matrix: Soil

MS Sample Id: 666198-001 S

Prep Method: SW5035A

Date Prep: 07.02.2020

MSD Sample Id: 666198-001 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	0.0998	0.112	112	0.0984	97	70-130	13	35	mg/kg	07.02.2020 14:15	
Toluene	<0.00200	0.0998	0.109	109	0.0962	95	70-130	12	35	mg/kg	07.02.2020 14:15	
Ethylbenzene	<0.00200	0.0998	0.105	105	0.0919	91	71-129	13	35	mg/kg	07.02.2020 14:15	
m,p-Xylenes	<0.00399	0.200	0.213	107	0.187	93	70-135	13	35	mg/kg	07.02.2020 14:15	
o-Xylene	<0.00200	0.0998	0.104	104	0.0915	91	71-133	13	35	mg/kg	07.02.2020 14:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		70-130	%	07.02.2020 14:15
4-Bromofluorobenzene	103		104		70-130	%	07.02.2020 14:15

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

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 07.02.2020 09.20.00 AM

Work Order #: 666199

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)?	2.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Sample received in bulk container.

* 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: 07.02.2020

Checklist reviewed by:



Jessica Kramer

Date: 07.09.2020

Certificate of Analysis Summary 674596



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin CTB

Project Id: 012918152

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 10.07.2020 14:50

Report Date: 10.12.2020 11:52

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	674596-001					
	Field Id:	FS19					
	Depth:	1-3 ft					
	Matrix:	SOIL					
	Sampled:	10.07.2020 10:45					
BTEX by EPA 8021B	Extracted:	10.09.2020 11:05					
	Analyzed:	10.09.2020 15:00					
	Units/RL:	mg/kg RL					
Benzene		<0.00198 0.00198					
Toluene		<0.00198 0.00198					
Ethylbenzene		<0.00198 0.00198					
m,p-Xylenes		<0.00397 0.00397					
o-Xylene		<0.00198 0.00198					
Total Xylenes		<0.00198 0.00198					
Total BTEX		<0.00198 0.00198					
Chloride by EPA 300	Extracted:	10.08.2020 16:45					
	Analyzed:	10.09.2020 05:56					
	Units/RL:	mg/kg RL					
Chloride		516 49.8					
TPH by SW8015 Mod	Extracted:	10.08.2020 16:30					
	Analyzed:	10.09.2020 04:43					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<250 250					
Diesel Range Organics (DRO)		1280 250					
Motor Oil Range Hydrocarbons (MRO)		273 250					
Total GRO-DRO		1280 250					
Total TPH		1550 250					

BRL - Below Reporting Limit

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



Analytical Report 674596

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin CTB

012918152

10.12.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.12.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **674596**

Remuda Basin 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 Eurofins Xenco, LLC Report Number(s) 674596. 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 Eurofins Xenco, LLC. 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. 674596 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 674596

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS19	S	10.07.2020 10:45	1 - 3 ft	674596-001



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin CTB

Project ID: 012918152
Work Order Number(s): 674596

Report Date: 10.12.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674596

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS19** Matrix: Soil Date Received: 10.07.2020 14:50
 Lab Sample Id: 674596-001 Date Collected: 10.07.2020 10:45 Sample Depth: 1 - 3 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 10.08.2020 16:45 % Moisture:
 Seq Number: 3139233 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	516	49.8	mg/kg	10.09.2020 05:56		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH
 Analyst: DTH Date Prep: 10.08.2020 16:30 % Moisture:
 Seq Number: 3139215 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<250	250	mg/kg	10.09.2020 04:43	U	5
Diesel Range Organics (DRO)	C10C28DRO	1280	250	mg/kg	10.09.2020 04:43		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	273	250	mg/kg	10.09.2020 04:43		5
Total GRO-DRO	PHC628	1280	250	mg/kg	10.09.2020 04:43		5
Total TPH	PHC635	1550	250	mg/kg	10.09.2020 04:43		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	10.09.2020 04:43	
o-Terphenyl	84-15-1	120	%	70-135	10.09.2020 04:43	



Certificate of Analytical Results 674596

LT Environmental, Inc., Arvada, CO

Remuda Basin CTB

Sample Id: **FS19**
 Lab Sample Id: 674596-001

Matrix: Soil
 Date Collected: 10.07.2020 10:45

Date Received: 10.07.2020 14:50
 Sample Depth: 1 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.09.2020 11:05

% Moisture:
 Basis: Wet Weight

Seq Number: 3139368

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.09.2020 15:00	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.09.2020 15:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	10.09.2020 15:00	
4-Bromofluorobenzene	460-00-4	82	%	70-130	10.09.2020 15:00	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3139233

MB Sample Id: 7712913-1-BLK

Matrix: Solid

LCS Sample Id: 7712913-1-BKS

Prep Method: E300P

Date Prep: 10.08.2020

LCSD Sample Id: 7712913-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	262	105	263	105	90-110	0	20	mg/kg	10.09.2020 03:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3139233

Parent Sample Id: 674634-081

Matrix: Soil

MS Sample Id: 674634-081 S

Prep Method: E300P

Date Prep: 10.08.2020

MSD Sample Id: 674634-081 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	37.8	199	243	103	241	102	90-110	1	20	mg/kg	10.09.2020 03:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3139233

Parent Sample Id: 674634-091

Matrix: Soil

MS Sample Id: 674634-091 S

Prep Method: E300P

Date Prep: 10.08.2020

MSD Sample Id: 674634-091 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5260	201	5460	100	5450	94	90-110	0	20	mg/kg	10.09.2020 05:14	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139215

MB Sample Id: 7712908-1-BLK

Matrix: Solid

LCS Sample Id: 7712908-1-BKS

Prep Method: SW8015P

Date Prep: 10.08.2020

LCSD Sample Id: 7712908-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	886	89	863	86	70-135	3	35	mg/kg	10.08.2020 20:16	
Diesel Range Organics (DRO)	<50.0	1000	1020	102	972	97	70-135	5	35	mg/kg	10.08.2020 20:16	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		131		129		70-135	%	10.08.2020 20:16
o-Terphenyl	112		127		118		70-135	%	10.08.2020 20:16

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139215

Matrix: Solid

MB Sample Id: 7712908-1-BLK

Prep Method: SW8015P

Date Prep: 10.08.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.08.2020 20:56	

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

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

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

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



LT Environmental, Inc.
Remuda Basin CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139215

Parent Sample Id: 674634-049

Matrix: Soil

MS Sample Id: 674634-049 S

Prep Method: SW8015P

Date Prep: 10.08.2020

MSD Sample Id: 674634-049 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.1	1000	874	87	829	83	70-135	5	35	mg/kg	10.08.2020 21:37	
Diesel Range Organics (DRO)	<50.1	1000	1010	101	940	94	70-135	7	35	mg/kg	10.08.2020 21:37	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	134		130		70-135	%	10.08.2020 21:37
o-Terphenyl	129		122		70-135	%	10.08.2020 21:37

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139368

MB Sample Id: 7712985-1-BLK

Matrix: Solid

LCS Sample Id: 7712985-1-BKS

Prep Method: SW5035A

Date Prep: 10.09.2020

LCSD Sample Id: 7712985-1-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	0.0971	97	0.105	105	70-130	8	35	mg/kg	10.09.2020 12:34	
Toluene	<0.00200	0.100	0.0930	93	0.102	102	70-130	9	35	mg/kg	10.09.2020 12:34	
Ethylbenzene	<0.00200	0.100	0.0871	87	0.0945	95	71-129	8	35	mg/kg	10.09.2020 12:34	
m,p-Xylenes	<0.00400	0.200	0.175	88	0.191	96	70-135	9	35	mg/kg	10.09.2020 12:34	
o-Xylene	<0.00200	0.100	0.0867	87	0.0937	94	71-133	8	35	mg/kg	10.09.2020 12:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		98		98		70-130	%	10.09.2020 12:34
4-Bromofluorobenzene	82		86		84		70-130	%	10.09.2020 12:34

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139368

Parent Sample Id: 674596-001

Matrix: Soil

MS Sample Id: 674596-001 S

Prep Method: SW5035A

Date Prep: 10.09.2020

MSD Sample Id: 674596-001 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	0.0996	0.101	101	0.0971	97	70-130	4	35	mg/kg	10.09.2020 13:19	
Toluene	<0.00199	0.0996	0.0901	90	0.0930	93	70-130	3	35	mg/kg	10.09.2020 13:19	
Ethylbenzene	<0.00199	0.0996	0.0738	74	0.0860	86	71-129	15	35	mg/kg	10.09.2020 13:19	
m,p-Xylenes	<0.00398	0.199	0.145	73	0.171	86	70-135	16	35	mg/kg	10.09.2020 13:19	
o-Xylene	<0.00199	0.0996	0.0723	73	0.0844	85	71-133	15	35	mg/kg	10.09.2020 13:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		95		70-130	%	10.09.2020 13:19
4-Bromofluorobenzene	85		81		70-130	%	10.09.2020 13:19

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

Work Order No: 674596

www.xenco.com

Page 1 of 1

Project Manager:		Taloma Morrissey	Bill to: (if different)	Kyle Littrell
Company Name:		LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:		3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:		Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:		(432) 704-5178	Email:	tmorrissey@ltenv.com tcasey@ltenv.com kiennings@ltenv.com

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

Project Name:	Remuda Basin CTB		Turn Around
Project Number:	012418152		Routine ☒
P.O. Number:			Rush:
Sampler's Name:	Travis Casey		Due Date:

SAMPLE RECEIPT	Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	1.8/1.6	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:	1	

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6040 8200A 8210A 8220A 8230A 8240A 8250A 8260A 8270A 8280A 8290A 8300A 8310A 8320A 8330A 8340A 8350A 8360A 8370A 8380A 8390A 8400A 8410A 8420A 8430A 8440A 8450A 8460A 8470A 8480A 8490A 8500A 8510A 8520A 8530A 8540A 8550A 8560A 8570A 8580A 8590A 8600A 8610A 8620A 8630A 8640A 8650A 8660A 8670A 8680A 8690A 8700A 8710A 8720A 8730A 8740A 8750A 8760A 8770A 8780A 8790A 8800A 8810A 8820A 8830A 8840A 8850A 8860A 8870A 8880A 8890A 8900A 8910A 8920A 8930A 8940A 8950A 8960A 8970A 8980A 8990A 9000A 9010A 9020A 9030A 9040A 9050A 9060A 9070A 9080A 9090A 9100A 9110A 9120A 9130A 9140A 9150A 9160A 9170A 9180A 9190A 9200A 9210A 9220A 9230A 9240A 9250A 9260A 9270A 9280A 9290A 9300A 9310A 9320A 9330A 9340A 9350A 9360A 9370A 9380A 9390A 9400A 9410A 9420A 9430A 9440A 9450A 9460A 9470A 9480A 9490A 9500A 9510A 9520A 9530A 9540A 9550A 9560A 9570A 9580A 9590A 9600A 9610A 9620A 9630A 9640A 9650A 9660A 9670A 9680A 9690A 9700A 9710A 9720A 9730A 9740A 9750A 9760A 9770A 9780A 9790A 9800A 9810A 9820A 9830A 9840A 9850A 9860A 9870A 9880A 9890A 9900A 9910A 9920A 9930A 9940A 9950A 9960A 9970A 9980A 9990A 10000A 10010A 10020A 10030A 10040A 10050A 10060A 10070A 10080A 10090A 10100A 10110A 10120A 10130A 10140A 10150A 10160A 10170A 10180A 10190A 10200A 10210A 10220A 10230A 10240A 10250A 10260A 10270A 10280A 10290A 10300A 10310A 10320A 10330A 10340A 10350A 10360A 10370A 10380A 10390A 10400A 10410A 10420A 10430A 10440A 10450A 10460A 10470A 10480A 10490A 10500A 10510A 10520A 10530A 10540A 10550A 10560A 10570A 10580A 10590A 10600A 10610A 10620A 10630A 10640A 10650A 10660A 10670A 10680A 10690A 10700A 10710A 10720A 10730A 10740A 10750A 10760A 10770A 10780A 10790A 10800A 10810A 10820A 10830A 10840A 10850A 10860A 10870A 10880A 10890A 10900A 10910A 10920A 10930A 10940A 10950A 10960A 10970A 10980A 10990A 11000A 11010A 11020A 11030A 11040A 11050A 11060A 11070A 11080A 11090A 11100A 11110A 11120A 11130A 11140A 11150A 11160A 11170A 11180A 11190A 11200A 11210A 11220A 11230A 11240A 11250A 11260A 11270A 11280A 11290A 11300A 11310A 11320A 11330A 11340A 11350A 11360A 11370A 11380A 11390A 11400A 11410A 11420A 11430A 11440A 11450A 11460A 11470A 11480A 11490A 11500A 11510A 11520A 11530A 11540A 11550A 11560A 11570A 11580A 11590A 11600A 11610A 11620A 11630A 11640A 11650A 11660A 11670A 11680A 11690A 11700A 11710A 11720A 11730A 11740A 11750A 11760A 11770A 11780A 11790A 11800A 11810A 11820A 11830A 11840A 11850A 11860A 11870A 11880A 11890A 11900A 11910A 11920A 11930A 11940A 11950A 11960A 11970A 11980A 11990A 12000A 12010A 12020A 12030A 12040A 12050A 12060A 12070A 12080A 12090A 12100A 12110A 12120A 12130A 12140A 12150A 12160A 12170A 12180A 12190A 12200A 12210A 12220A 12230A 12240A 12250A 12260A 12270A 12280A 12290A 12300A 12310A 12320A 12330A 12340A 12350A 12360A 12370A 12380A 12390A 12400A 12410A 12420A 12430A 12440A 12450A 12460A 12470A 12480A 12490A 12500A 12510A 12520A 12530A 12540A 12550A 12560A 12570A 12580A 12590A 12600A 12610A 12620A 12630A 12640A 12650A 12660A 12670A 12680A 12690A 12700A 12710A 12720A 12730A 12740A 12750A 12760A 12770A 12780A 12790A 12800A 12810A 12820A 12830A 12840A 12850A 12860A 12870A 12880A 12890A 12900A 12910A 12920A 12930A 12940A 12950A 12960A 12970A 12980A 12990A 13000A 13010A 13020A 13030A 13040A 13050A 13060A 13070A 13080A 13090A 13100A 13110A 13120A 13130A 13140A 13150A 13160A 13170A 13180A 13190A 13200A 13210A 13220A 13230A 13240A 13250A 13260A 13270A 13280A 13290A 13300A 13310A 13320A 13330A 13340A 13350A 13360A 13370A 13380A 13390A 13400A 13410A 13420A 13430A 13440A 13450A 13460A 13470A 13480A 13490A 13500A 13510A 13520A 13530A 13540A 13550A 13560A 13570A 13580A 13590A 13600A 13610A 13620A 13630A 13640A 13650A 13660A 13670A 13680A 13690A 13700A 13710A 13720A 13730A 13740A 13750A 13760A 13770A 13780A 13790A 13800A 13810A 13820A 13830A 13840A 13850A 13860A 13870A 13880A 13890A 13900A 13910A 13920A 13930A 13940A 13950A 13960A 13970A 13980A 13990A 14000A 14010A 14020A 14030A 14040A 14050A 14060A 14070A 14080A 14090A 14100A 14110A 14120A 14130A 14140A 14150A 14160A 14170A 14180A 14190A 14200A 14210A 1422

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

These terms will be enforced unless previously negotiated.					
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		10.7.20 1450	2		
			4		
			6		

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10.07.2020 02:50.00 PM

Work Order #: 674596

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)?	1.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 10.07.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.12.2020

Certificate of Analysis Summary 675438

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basih CTB

Project Id: 012918152

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 10.16.2020 14:12

Report Date: 10.20.2020 12:20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 675438-001 Field Id: FS17 Depth: 0.5-1 ft Matrix: SOIL Sampled: 10.16.2020 13:00					
BTEX by EPA 8021B	Extracted: 10.19.2020 10:37 Analyzed: 10.19.2020 15:02 Units/RL: mg/kg RL					
Benzene	<0.0200 0.0200					
Toluene	<0.0200 0.0200					
Ethylbenzene	<0.0200 0.0200					
m,p-Xylenes	<0.0400 0.0400					
o-Xylene	<0.0200 0.0200					
Total Xylenes	<0.0200 0.0200					
Total BTEX	<0.0200 0.0200					
Chloride by EPA 300	Extracted: 10.16.2020 17:02 Analyzed: 10.17.2020 03:09 Units/RL: mg/kg RL					
Chloride	2350 199					
TPH by SW8015 Mod	Extracted: 10.16.2020 17:30 Analyzed: 10.17.2020 02:14 Units/RL: mg/kg RL					
Gasoline Range Hydrocarbons (GRO)	<251 251					
Diesel Range Organics (DRO)	8620 251					
Motor Oil Range Hydrocarbons (MRO)	1490 251					
Total GRO-DRO	8620 251					
Total TPH	10100 251					

BRL - Below Reporting Limit

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





Analytical Report 675438

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basih CTB

012918152

10.20.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.20.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **675438**

Remuda Basih 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 Eurofins Xenco, LLC Report Number(s) 675438. 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 Eurofins Xenco, LLC. 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. 675438 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 675438

LT Environmental, Inc., Arvada, CO

Remuda Basih CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS17	S	10.16.2020 13:00	0.5 - 1 ft	675438-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basih CTB*

Project ID: 012918152
Work Order Number(s): 675438

Report Date: 10.20.2020
Date Received: 10.16.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 675438

LT Environmental, Inc., Arvada, CO

Remuda Basih CTB

Sample Id: **FS17**
Lab Sample Id: 675438-001

Matrix: Soil
Date Collected: 10.16.2020 13:00

Date Received: 10.16.2020 14:12
Sample Depth: 0.5 - 1 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.16.2020 17:02

% Moisture:
Basis: Wet Weight

Seq Number: 3139977

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2350	199	mg/kg	10.17.2020 03:09		20

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.16.2020 17:30

% Moisture:
Basis: Wet Weight

Seq Number: 3139959

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<251	251	mg/kg	10.17.2020 02:14	U	5
Diesel Range Organics (DRO)	C10C28DRO	8620	251	mg/kg	10.17.2020 02:14		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1490	251	mg/kg	10.17.2020 02:14		5
Total GRO-DRO	PHC628	8620	251	mg/kg	10.17.2020 02:14		5
Total TPH	PHC635	10100	251	mg/kg	10.17.2020 02:14		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.17.2020 02:14	
o-Terphenyl	84-15-1	105	%	70-135	10.17.2020 02:14	



Certificate of Analytical Results 675438

LT Environmental, Inc., Arvada, CO

Remuda Basih CTB

Sample Id: **FS17**
Lab Sample Id: 675438-001

Matrix: Soil
Date Collected: 10.16.2020 13:00

Date Received: 10.16.2020 14:12
Sample Depth: 0.5 - 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.19.2020 10:37

% Moisture:
Basis: Wet Weight

Seq Number: 3140036

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
Toluene	108-88-3	<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
Ethylbenzene	100-41-4	<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
m,p-Xylenes	179601-23-1	<0.0400	0.0400	mg/kg	10.19.2020 15:02	U	1
o-Xylene	95-47-6	<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
Total Xylenes	1330-20-7	<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
Total BTEX		<0.0200	0.0200	mg/kg	10.19.2020 15:02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	10.19.2020 15:02		
4-Bromofluorobenzene	460-00-4	77	%	70-130	10.19.2020 15:02		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basih CTB

Analytical Method: Chloride by EPA 300

Seq Number: 3139977

MB Sample Id: 7713427-1-BLK

Matrix: Solid

LCS Sample Id: 7713427-1-BKS

Prep Method: E300P

Date Prep: 10.16.2020

LCSD Sample Id: 7713427-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	259	104	258	103	90-110	0	20	mg/kg	10.17.2020 00:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3139977

Parent Sample Id: 675400-001

Matrix: Soil

MS Sample Id: 675400-001 S

Prep Method: E300P

Date Prep: 10.16.2020

MSD Sample Id: 675400-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	201	101	198	99	90-110	2	20	mg/kg	10.17.2020 01:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3139977

Parent Sample Id: 675416-003

Matrix: Soil

MS Sample Id: 675416-003 S

Prep Method: E300P

Date Prep: 10.16.2020

MSD Sample Id: 675416-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16400	200	16600	100	16600	100	90-110	0	20	mg/kg	10.17.2020 02:42	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139959

MB Sample Id: 7713463-1-BLK

Matrix: Solid

LCS Sample Id: 7713463-1-BKS

Prep Method: SW8015P

Date Prep: 10.16.2020

LCSD Sample Id: 7713463-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	960	96	988	99	70-135	3	35	mg/kg	10.16.2020 10:10	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1070	107	70-135	1	35	mg/kg	10.16.2020 10:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		118		116		70-135	%	10.16.2020 10:10
o-Terphenyl	100		105		104		70-135	%	10.16.2020 10:10

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139959

Matrix: Solid

MB Sample Id: 7713463-1-BLK

Prep Method: SW8015P

Date Prep: 10.16.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.16.2020 09:50	

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

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

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

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



LT Environmental, Inc.
Remuda Basih CTB

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139959

Parent Sample Id: 675356-009

Matrix: Soil

MS Sample Id: 675356-009 S

Prep Method: SW8015P

Date Prep: 10.16.2020

MSD Sample Id: 675356-009 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)	<49.9	998	1080	108	1050	105	70-135	3	35	mg/kg	10.16.2020 19:04	
Diesel Range Organics (DRO)	<49.9	998	1180	118	1140	114	70-135	3	35	mg/kg	10.16.2020 19:04	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	133		130		70-135	%	10.16.2020 19:04
o-Terphenyl	114		114		70-135	%	10.16.2020 19:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3140036

MB Sample Id: 7713513-1-BLK

Matrix: Solid

LCS Sample Id: 7713513-1-BKS

Prep Method: SW5035A

Date Prep: 10.19.2020

LCSD Sample Id: 7713513-1-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	0.105	105	0.107	107	70-130	2	35	mg/kg	10.19.2020 11:06	
Toluene	<0.00200	0.100	0.101	101	0.103	103	70-130	2	35	mg/kg	10.19.2020 11:06	
Ethylbenzene	<0.00200	0.100	0.0951	95	0.0966	97	71-129	2	35	mg/kg	10.19.2020 11:06	
m,p-Xylenes	<0.00400	0.200	0.191	96	0.195	98	70-135	2	35	mg/kg	10.19.2020 11:06	
o-Xylene	<0.00200	0.100	0.0930	93	0.0947	95	71-133	2	35	mg/kg	10.19.2020 11:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		98		99		70-130	%	10.19.2020 11:06
4-Bromofluorobenzene	86		87		85		70-130	%	10.19.2020 11:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3140036

Parent Sample Id: 675472-001

Matrix: Soil

MS Sample Id: 675472-001 S

Prep Method: SW5035A

Date Prep: 10.19.2020

MSD Sample Id: 675472-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.127	126	0.128	128	70-130	1	35	mg/kg	10.19.2020 12:14	
Toluene	<0.00201	0.101	0.131	130	0.123	123	70-130	6	35	mg/kg	10.19.2020 12:14	
Ethylbenzene	<0.00201	0.101	0.122	121	0.118	118	71-129	3	35	mg/kg	10.19.2020 12:14	
m,p-Xylenes	<0.00402	0.201	0.247	123	0.242	121	70-135	2	35	mg/kg	10.19.2020 12:14	
o-Xylene	<0.00201	0.101	0.119	118	0.114	114	71-133	4	35	mg/kg	10.19.2020 12:14	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		95		70-130	%	10.19.2020 12:14
4-Bromofluorobenzene	86		82		70-130	%	10.19.2020 12:14

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

Work Order No: 675438

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

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Page 1 of 1

Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-988-2200)			
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 St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com rmcafee@ltenv.com

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

Project Name:	Remuda Basin CTR	Turn Around
Project Number:	012918152	Routine ☒
P.O. Number:		Rush:
Sampler's Name:	Robert McAfee	Due Date:

SAMPLE RECEIPT	Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	4.6/4.4	Thermometer ID		
Received Intact:	☒ Yes ☐ No	T-NM-008		
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes ☒ No ☐ N/A	Total Containers:	1	

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6040: 8RCRA: Cu = 7.9 mg/kg

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		10-16-20 1412			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10.16.2020 02.12.00 PM

Work Order #: 675438

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)?	4.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

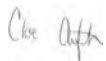
Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 10.16.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.19.2020

Certificate of Analysis Summary 679071



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin C7B

Project Id: 012918152
Contact: Tacoma Morrissey
Project Location:

Date Received in Lab: Wed 11.25.2020 12:01
Report Date: 12.01.2020 13:18
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	679071-001	679071-002				
	Field Id:	FS13A	FS17A				
	Depth:	1.5- ft	1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	11.25.2020 09:30	11.25.2020 10:34				
Chloride by EPA 300	Extracted:	11.25.2020 14:00	11.25.2020 14:00				
	Analyzed:	11.25.2020 19:18	11.25.2020 19:23				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		49.2 9.98	8070 198				
TPH by SW8015 Mod	Extracted:	11.30.2020 17:00	11.30.2020 17:00				
	Analyzed:	12.01.2020 04:08	12.01.2020 04:29				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.1 50.1				
Diesel Range Organics (DRO)		<50.2 50.2	708 50.1				
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	172 50.1				
Total GRO-DRO		<50.20 50.20	708.0 50.10				
Total TPH		<50.20 50.20	880.0 50.10				

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 679071



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin C7B

Project Id: 012918152
 Contact: Tacoma Morrissey
 Project Location:

Date Received in Lab: Wed 11.25.2020 12:01
 Report Date: 12.01.2020 13:18
 Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	679071-001	679071-002				
	Field Id:	FS13A	FS17A				
	Depth:	1.5- ft	1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	11.25.2020 09:30	11.25.2020 10:34				
BTEX by EPA 8021B	Extracted:	11.25.2020 14:19	11.25.2020 14:19				
	Analyzed:	11.26.2020 05:43	11.26.2020 06:06				
	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		<0.00399 0.00399	<0.00398 0.00398				
o-Xylene		<0.00200 0.00200	<0.00199 0.00199				
Total Xylenes		<0.002000 0.002000	<0.001990 0.001990				
Total BTEX		<0.002000 0.002000	<0.001990 0.001990				

BRL - Below Reporting Limit

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



Analytical Report 679071

for

LT Environmental, Inc.

Project Manager: Tacoma Morrissey

Remuda Basin C7B

012918152

12.01.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.01.2020

Project Manager: **Tacoma Morrissey**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **679071**

Remuda Basin C7B

Project Address:

Tacoma Morrissey:

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 Eurofins Xenco, LLC Report Number(s) 679071. 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 Eurofins Xenco, LLC. 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. 679071 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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

Jessica Kramer

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 679071

LT Environmental, Inc., Arvada, CO

Remuda Basin C7B

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS13A	S	11.25.2020 09:30	1.5 ft	679071-001
FS17A	S	11.25.2020 10:34	1 ft	679071-002



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin C7B*

Project ID: 012918152
Work Order Number(s): 679071

Report Date: 12.01.2020
Date Received: 11.25.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 679071

LT Environmental, Inc., Arvada, CO

Remuda Basin C7B

Sample Id: **FS13A**
Lab Sample Id: 679071-001

Matrix: Soil
Date Collected: 11.25.2020 09:30

Date Received: 11.25.2020 12:01
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 14:00

% Moisture:
Basis: Wet Weight

Seq Number: 3143434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.2	9.98	mg/kg	11.30.2020 11:19		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: MAB

Analyst: CAC

Date Prep: 11.30.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3143563

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	12.01.2020 04:08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.01.2020 04:08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.01.2020 04:08	U	1
Total GRO-DRO	PHC628	<50.20	50.20	mg/kg	12.01.2020 04:08	U	1
Total TPH	PHC635	<50.20	50.20	mg/kg	12.01.2020 04:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.01.2020 04:08	
o-Terphenyl	84-15-1	108	%	70-135	12.01.2020 04:08	



Certificate of Analytical Results 679071

LT Environmental, Inc., Arvada, CO

Remuda Basin C7B

Sample Id: **FS13A**
Lab Sample Id: 679071-001

Matrix: Soil
Date Collected: 11.25.2020 09:30

Date Received: 11.25.2020 12:01
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 14:19

% Moisture:
Basis: Wet Weight

Seq Number: 3143421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.26.2020 05:43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.26.2020 05:43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.26.2020 05:43	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.26.2020 05:43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.26.2020 05:43	U	1
Total Xylenes	1330-20-7	<0.002000	0.002000	mg/kg	11.26.2020 05:43	U	1
Total BTEX		<0.002000	0.002000	mg/kg	11.26.2020 05:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	11.26.2020 05:43	
1,4-Difluorobenzene	540-36-3	104	%	70-130	11.26.2020 05:43	



Certificate of Analytical Results 679071

LT Environmental, Inc., Arvada, CO

Remuda Basin C7B

Sample Id: **FS17A** Matrix: Soil Date Received: 11.25.2020 12:01
 Lab Sample Id: 679071-002 Date Collected: 11.25.2020 10:34 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 11.25.2020 14:00 % Moisture:
 Seq Number: 3143434 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8070	198	mg/kg	11.25.2020 19:23		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: MAB
 Analyst: CAC Date Prep: 11.30.2020 17:00 % Moisture:
 Seq Number: 3143563 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	12.01.2020 04:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	708	50.1	mg/kg	12.01.2020 04:29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	172	50.1	mg/kg	12.01.2020 04:29		1
Total GRO-DRO	PHC628	708.0	50.10	mg/kg	12.01.2020 04:29		1
Total TPH	PHC635	880.0	50.10	mg/kg	12.01.2020 04:29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	12.01.2020 04:29	
o-Terphenyl	84-15-1	119	%	70-135	12.01.2020 04:29	



Certificate of Analytical Results 679071

LT Environmental, Inc., Arvada, CO

Remuda Basin C7B

Sample Id: **FS17A**
Lab Sample Id: 679071-002

Matrix: Soil
Date Collected: 11.25.2020 10:34

Date Received: 11.25.2020 12:01
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 14:19

% Moisture:
Basis: Wet Weight

Seq Number: 3143421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.26.2020 06:06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.26.2020 06:06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.26.2020 06:06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.26.2020 06:06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.26.2020 06:06	U	1
Total Xylenes	1330-20-7	<0.001990	0.001990	mg/kg	11.26.2020 06:06	U	1
Total BTEX		<0.001990	0.001990	mg/kg	11.26.2020 06:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	11.26.2020 06:06	
4-Bromofluorobenzene	460-00-4	86	%	70-130	11.26.2020 06:06	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin C7B

Analytical Method: Chloride by EPA 300

Seq Number: 3143434

MB Sample Id: 7715983-1-BLK

Matrix: Solid

LCS Sample Id: 7715983-1-BKS

Prep Method: E300P

Date Prep: 11.25.2020

LCSD Sample Id: 7715983-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	242	97	240	96	90-110	1	20	mg/kg	11.25.2020 17:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3143434

Parent Sample Id: 679038-029

Matrix: Soil

MS Sample Id: 679038-029 S

Prep Method: E300P

Date Prep: 11.25.2020

MSD Sample Id: 679038-029 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	20.8	199	217	99	216	98	90-110	0	20	mg/kg	11.25.2020 17:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3143434

Parent Sample Id: 679040-001

Matrix: Soil

MS Sample Id: 679040-001 S

Prep Method: E300P

Date Prep: 11.25.2020

MSD Sample Id: 679040-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	211	200	395	92	397	93	90-110	1	20	mg/kg	11.25.2020 18:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3143563

MB Sample Id: 7716127-1-BLK

Matrix: Solid

LCS Sample Id: 7716127-1-BKS

Prep Method: SW8015P

Date Prep: 11.30.2020

LCSD Sample Id: 7716127-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1050	105	1010	101	70-135	4	35	mg/kg	12.01.2020 02:28	
Diesel Range Organics (DRO)	<50.0	1000	1150	115	1200	120	70-135	4	35	mg/kg	12.01.2020 02:28	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		113		128		70-135	%	12.01.2020 02:28
o-Terphenyl	110		122		120		70-135	%	12.01.2020 02:28

Analytical Method: TPH by SW8015 Mod

Seq Number: 3143563

Matrix: Solid

MB Sample Id: 7716127-1-BLK

Prep Method: SW8015P

Date Prep: 11.30.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.01.2020 02:08	

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

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

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

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



LT Environmental, Inc.
Remuda Basin C7B

Analytical Method: TPH by SW8015 Mod

Seq Number: 3143563

Parent Sample Id: 679040-003

Matrix: Soil

MS Sample Id: 679040-003 S

Prep Method: SW8015P

Date Prep: 11.30.2020

MSD Sample Id: 679040-003 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)	<49.9	997	1110	111	1070	106	70-135	4	35	mg/kg	12.01.2020 03:29	
Diesel Range Organics (DRO)	<49.9	997	1080	108	991	98	70-135	9	35	mg/kg	12.01.2020 03:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		103		70-135	%	12.01.2020 03:29
o-Terphenyl	100		108		70-135	%	12.01.2020 03:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3143421

MB Sample Id: 7715990-1-BLK

Matrix: Solid

LCS Sample Id: 7715990-1-BKS

Prep Method: SW5035A

Date Prep: 11.25.2020

LCSD Sample Id: 7715990-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.110	110	0.109	109	70-130	1	35	mg/kg	11.25.2020 20:02	
Toluene	<0.00200	0.100	0.103	103	0.103	103	70-130	0	35	mg/kg	11.25.2020 20:02	
Ethylbenzene	<0.00200	0.100	0.0942	94	0.0944	94	71-129	0	35	mg/kg	11.25.2020 20:02	
m,p-Xylenes	<0.00400	0.200	0.191	96	0.193	97	70-135	1	35	mg/kg	11.25.2020 20:02	
o-Xylene	<0.00200	0.100	0.0958	96	0.0948	95	71-133	1	35	mg/kg	11.25.2020 20:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		99		99		70-130	%	11.25.2020 20:02
4-Bromofluorobenzene	90		85		88		70-130	%	11.25.2020 20:02

Analytical Method: BTEX by EPA 8021B

Seq Number: 3143421

Parent Sample Id: 679038-021

Matrix: Soil

MS Sample Id: 679038-021 S

Prep Method: SW5035A

Date Prep: 11.25.2020

MSD Sample Id: 679038-021 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	0.113	114	0.103	103	70-130	9	35	mg/kg	11.25.2020 20:47	
Toluene	<0.00199	0.0994	0.106	107	0.0964	96	70-130	9	35	mg/kg	11.25.2020 20:47	
Ethylbenzene	<0.00199	0.0994	0.0970	98	0.0868	87	71-129	11	35	mg/kg	11.25.2020 20:47	
m,p-Xylenes	<0.00398	0.199	0.197	99	0.175	88	70-135	12	35	mg/kg	11.25.2020 20:47	
o-Xylene	<0.00199	0.0994	0.0979	98	0.0872	87	71-133	12	35	mg/kg	11.25.2020 20:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		70-130	%	11.25.2020 20:47
4-Bromofluorobenzene	88		90		70-130	%	11.25.2020 20:47

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

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

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

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



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334

Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

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

Work Order No: 679071

www.xenco.com

Page of

Project Manager:		Teresa Morrissey		Bill to: (if different)		Kyle Littrell	
Company Name:		LT Environmental, Inc., Permian office		Company Name:		XTO Energy	
Address:		3300 North A St. Bldg 1, Unit 222		Address:		3104 E Greene St.	
City, State ZIP:		Midland, TX 79705		City, State ZIP:		Carlsbad, NM	
Phone:		(432) 704-5178		Email: tmorrissey@ltenv.com tcasey@ltenv.com kjennings@ltenv.com			

Work Order Comments						
Program:	UST/PST	☐ PRP	☐ Brownfields	☐ RC	☐ Superfund	☐
State of Project:		NM				
Reporting:	Level II	☐ Level III	☐ ST/UST	☐ RP	☐ Level IV	☐
Deliverables:	EDD	☐	ADaPT	☐	Other:	

Project Name:	Remuda Basin CTB		Turn Around
Project Number:	92918152		Routine ☒
P.O. Number:			Rush: ☐
Sampler's Name:	Travis Casey		Due Date:

SAMPLE RECEIPT	Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	0.6 / 0.4	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: 2		

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		11-25-2012 01:20			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 11.25.2020 12.01.00 PM

Work Order #: 679071

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

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 11.25.2020

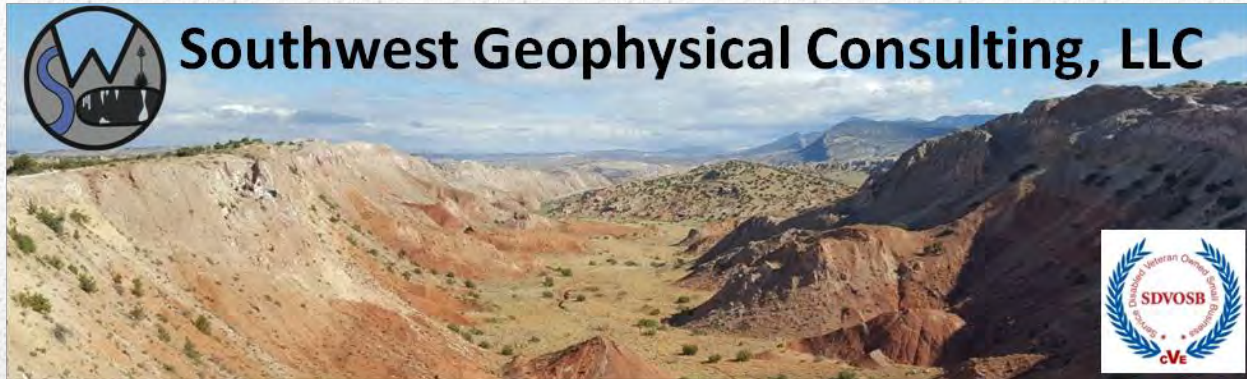
Checklist reviewed by:



Jessica Kramer

Date: 11.30.2020

ATTACHMENT 5: CAVE AND KARST INVENTORY REPORT



Cave and Karst Resource Inventory Report Remuda Basin Central Tank Battery Eddy County, New Mexico

**Prepared for:
LT Environmental, Inc.
3300 North A Street Building 1, Unit 222
Midland, TX 79705**

☐ **Positive – HKOZ remediation process required**

☒ **Negative – MKOZ remediation process may be
approved by the Oil Conservation Division**

February 10, 2019

LTE-003-20200121

Published by:

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5117 Fairfax Dr. NW
Albuquerque, NM 87114
(505) 585-2550
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MMXX

LTE-003-20200121

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1.0 INTRODUCTION

This report was commissioned by LT Environmental, Inc. (hereinafter referred to as "the client") on January 21, 2020 for the purpose of determining what, if any, karst-related surface features are present near the Remuda Basin Central Tank Battery (hereinafter termed "Remuda", **Figure 1**) and to provide guidance on the level of remediation required. This study does not include subsurface features, which would require a geophysical survey. The study area that this report covers is in a **HIGH** karst occurrence zone and entirely located within New Mexico State Land Office managed lands (**Figure 2**).

As indicated in section **1.3 Affected Environment**, the bedrock and overlying soil at the survey site are susceptible to sinkhole development and karst features may be hidden beneath the existing soil stratum. Risk associated with sinkhole formation can be minimized during development with proper foundation design and construction, and the control of site hydrology. The Owner/Developer must recognize, however, that a risk of sinkhole-induced damage to infrastructure does exist. The Owner/Developer must evaluate the risks and attendant costs of performing a geophysical survey prior to development, versus no geophysical survey, and must be willing to accept these risks if it is decided that a surface karst survey is sufficient. Southwest Geophysical Consulting, LLC can provide a geophysical survey. If the decision is made to conduct a geophysical survey, a cost estimate and timeline will be provided upon request.

1.1 Goals of this Study

To provide the client with the location, description, photos, and boundaries of any surface karst-related features within a 200-meter boundary surrounding the pad on the Remuda project site as provided by the client via e-mail on January 21, 2020.

1.2 Summary of Findings

No surface karst features were located within the pedestrian survey area. However, unknown hidden features may still exist beneath the surface. Caution should be exercised during any remediation efforts.



Figure 1: Karst occurrence overview. Red transparent area is a high karst occurrence zone; blue transparent area is a medium karst occurrence zone. Study area is the red outlined area in the lower-right portion of the image. Background image credit: Google Earth. Image date: November 02, 2017. Datum: WGS-84.

1.3 Affected Environment

The Remuda project site is located in evaporite karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Evaporite karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

The Bureau of Land Management (BLM) categorizes all areas within the Carlsbad Field Office (CFO) zone of responsibility as having either low, medium, or high cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to freshwater aquifers. This project occurs within a **HIGH** karst occurrence zone^[1] (HKOZ, **Figure 1**). A high karst occurrence zone is defined as areas in known soluble rock types that contain a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat^[2].

An on-site inspection revealed that there are no surface karst features within the pedestrian survey area. However, unknown buried features may exist; therefore, this action is subject to mitigation measures designed to adequately protect known and potential cave/karst resources.

2.0 LOCATION AND DESCRIPTION OF STUDY AREA

2.1 Description of Site

The Remuda project site is located in Eddy County, New Mexico, 31 kilometers (19 miles) southeast of Carlsbad, New Mexico; 6 kilometers (3.7 miles) south of the junction of NM128 (Jal Highway) with Rawhide Road, and 6 kilometers (3.7 miles) to the east of Nash Draw (**Figure 1** and **Figure 2**). The site is located within section 19 of NM T23S R30E. This area is within the Chihuahuan Desert Thornscrub defined by the Southwestern Regional ReGAP Vegetation map^[5] and the vegetation consists mostly of areas of grass, sparse creosote, and sparse yucca with very good visibility in most locations. See section **2.3 Local Geology** for the geology of the area. The pad and surrounding survey boundary are entirely within a high karst occurrence zone (**Figure 1**) and are located entirely within New Mexico State Land Office managed lands (**Figure 2**).

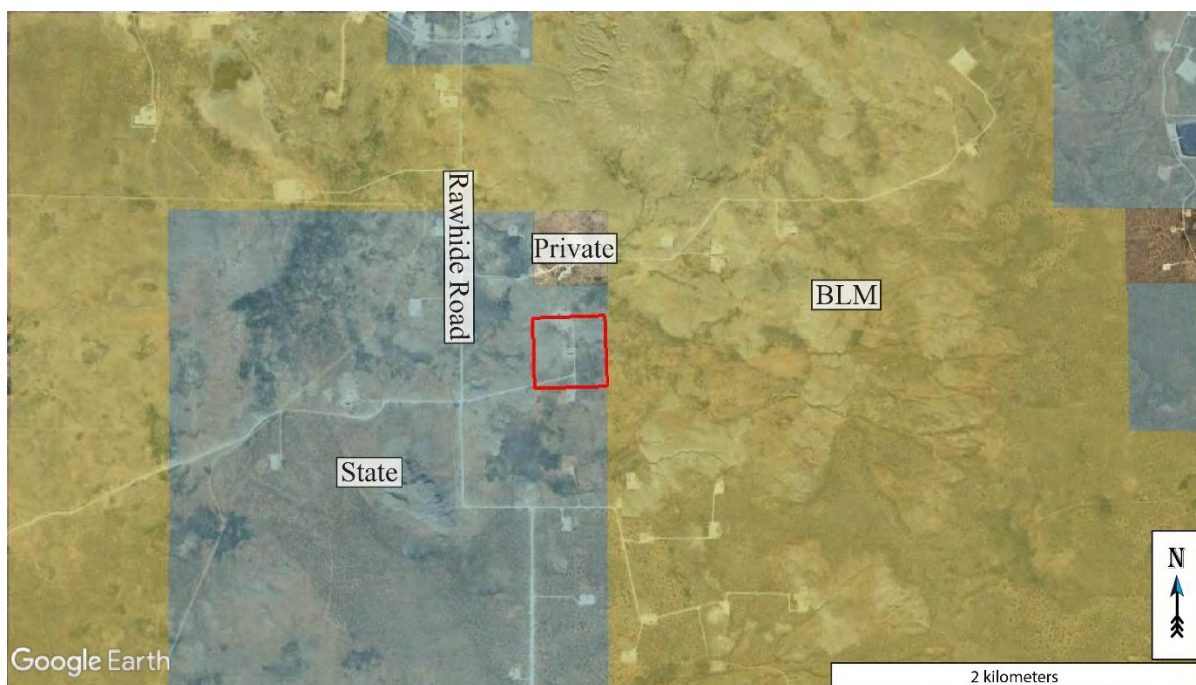


Figure 2: Land ownership overview. Yellow transparent area: BLM-CFO managed land. Blue transparent area: New Mexico State Land Office managed land. No color: Private land. Background image credit: Google Earth. Image date: November 02, 2017. Datum: WGS-84.

2.2 Description of Survey

For this survey 10 lines were walked in a raster pattern at 50-meter (165 feet) intervals in the designated area, providing 90 to 100% coverage for features greater than 50 centimeters (20 inches) in diameter (**Table 1**).

The survey was completed by Garrett Jorgensen on January 30, 2020. The total distance walked was 4.5 kilometers (2.8 miles) and the total area covered was 0.2 square kilometers (39.5 acres).

Table 1: Survey Track Data Files.

File Name	Surveyor	Date	Length (km/miles)	Area (km ² /Ac)
RMDSRV_D1S1.kmz	Jorgensen	01/30/2020	4.51/2.80	0.16/39.5



Figure 3: Survey overview. Light blue wavy lines are the actual survey lines walked. Yellow polygon is the pad site. Red polygon is the 200-meter buffer study area. Background image credit: Google Earth. Image date: November 02, 2017. Datum: WGS-84.

2.3 Local Geology

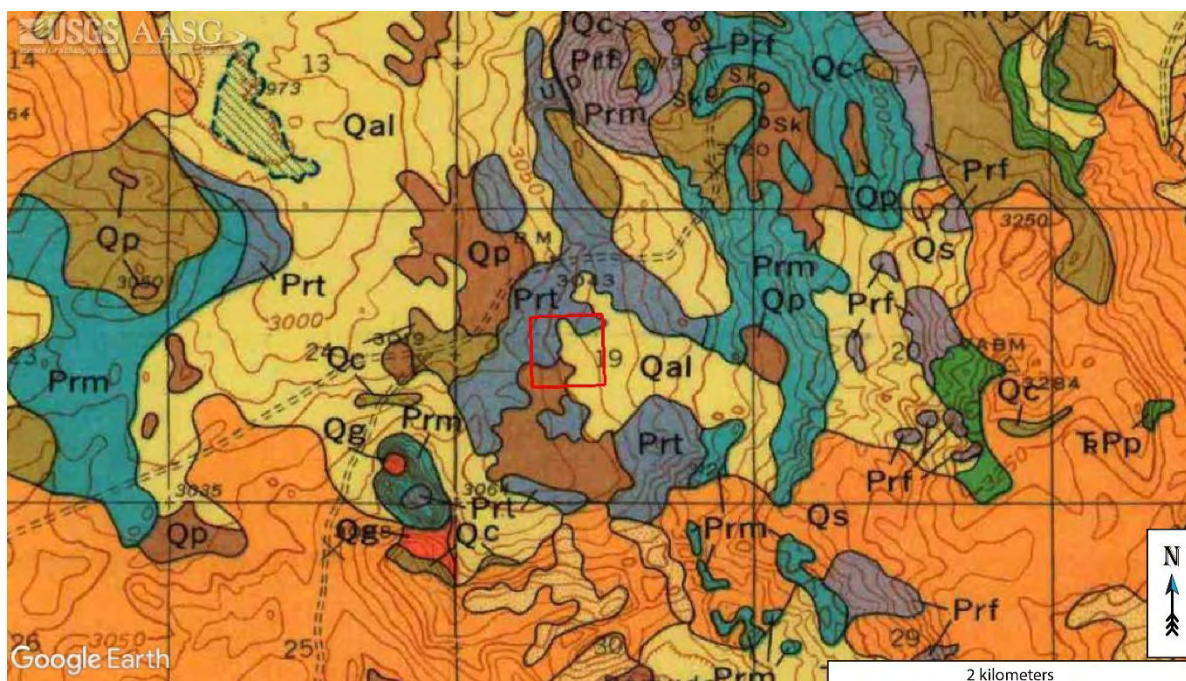


Figure 4: Geology overview. Red polygon highlights the survey area. Geologic Members of the Permian Rustler Formation: Prc - Culebra Dolomite Member, Prt - Tamarisk Member, Prm - Magenta Member, Prf - Forty-Niner Member. TrPp: Dewey Lake Formation (referred to by the name "Pierce Canyon Formation" in the geologic map and associated report. Please note the Pierce Canyon Formation has since been combined with the Dewey Lake Formation and classified as a single unit under the latter name). Qg: Quaternary Gatuna Formation. Qc: Quaternary caliche. Qal: Quaternary alluvium. Qp: Quaternary lacustrine and playa lake deposits. Qs: Quaternary sand. Qsd: Quaternary sand dune deposits. Map credit: Surface geology of the Nash Draw Quadrangle, Eddy County, New Mexico, scale: 1:62,500 (1963), and Google Earth. Image date: November 02, 2017. Datum: WGS-84.

The area surveyed for the Remuda project is located 6 kilometers west of a large, partially closed karst depression known as Nash Draw^[6] at an elevation of 930 meters (3,050 feet), plus or minus 4 meters (12 feet), within an area underlain by the Permian Rustler Formation. The area is mantled by thin gypsiferous and calcareous soils (Qc) and quaternary alluvial sands (Qs and Qsd) between 0 and 5 meters in depth which, in turn, overlie the Quaternary Gatuna Formation (Qg), Dewey Lake Formation (TrPp), and then the Rustler Formation^[6] (**Figure 4**). The Rustler Formation is an evaporite facies and is composed mainly of thin siltstones and sandstones interbedded with claystones, dolomite, and gypsum^[4], and contains both karst-forming strata (the Forty-niner and Tamarisk members) and two shallow aquifers (the Magenta and Culebra Dolomite members). The Rustler overlies the Permian Salado Formation (Psl, not shown), a layer of extremely soluble halite, which can easily be dissolved to create caves, sinkholes, and other karst features^[3]. The Rustler may be subject to collapse if a void has developed beneath it in the Salado Formation^[4]. The two geologic maps that cover the survey area are the Geologic Atlas of Texas - Hobbs Sheet

(1976) at 1:250,000 scale, and the Surface Geology of Nash Draw Quadrangle, Eddy County, New Mexico (1963) at 1:62,500 scale.

2.4 Description of Karst Features

No surface karst features were located within the 200-meter boundary of the pedestrian survey area for the Remuda project.

3.0 RECOMMENDATIONS

No surface karst features were located during this survey. Based on the above findings, allowing use of medium karst occurrence zone spill remediation procedures may be considered by the Oil Conservation Division within the 200-meter survey area. Confirmation to use a lower remediation level should be received from the Oil Conservation Division before proceeding.

Vigilance during remediation is paramount. If voids are encountered during trenching or digging contact the New Mexico State Oil Conservation Division if on State land, and the Bureau of Land Management – Carlsbad Field Office at (575) 234-5972 if on BLM land and request an onsite investigation from a karst expert. A karst consultant can generally be onsite in Eddy County within five hours.

4.0 REFERENCES

1. Rybacki, K., *Karst Potential Map*. CFO Basemap, 2019.
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3. Johnson, K.S., *Evaporite Karst in the United States*. Carbonates and Evaporites, 1997. **12(1)**: p. 2-14.
4. Martinez, J.D., K.S. Johnson, and J.T. Neal, *Sinkholes in Evaporite Rocks*. American Scientist, 1998. **86(1-2)**: p. 38-51.
5. Whitehead, W. and C. Flynn, *Plant Utilization in Southeastern New Mexico: Botany, Ethnobotany, and Archaeology*. 2017, Carlsbad, NM: Bureau of Land Management, Carlsbad Field Office.
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5.0 GLOSSARY OF TERMS

BLM	Bureau of Land Management
CFO	Carlsbad Field Office
cave	A natural opening at the surface, large enough for a person to enter.
GPS	Global Positioning System
NMSLO	New Mexico State Land Office
playa lake	A natural depression on the surface that collects rainwater. Some contain swallets and/or caves, others do not.
pseudokarst	Karst-like terrain that forms through processes other than dissolution.
swallet	A natural opening in the surface, too small for a person, that drains water to an aquifer. Some are "open," meaning a void can be seen below; some are "closed," meaning they are full of sediment.
WGS	World Geodetic System



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Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
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CONDITIONS

Action 37714

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 37714
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Deferral approved. Required to remediate & reclaim after decommissioning or well plug & abandonment, whichever comes first, per 19.15.29.12C (2) & 19.15.29.13D (1).	5/26/2022