

A spill calculation worksheet was not prepared for this spill.



May 30, 2025

New Mexico Oil Conservation Division

1220 South St. Francis Drive
Santa Fe, New Mexico 87505Re

**Re: Closure Request Addendum
Remuda Basin 19 Fed #2 SWD
Incident Number NAB1520554210
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared this *Closure Request Addendum* to provide an update to the depth to groundwater determination activities performed at the Remuda Basin 19 Fed #2 SWD (Site), in response to the denial of the original *Closure Request*, submitted to the New Mexico Oil Conservation Division (NMOCD) on May 11, 2020. In the denial, NMOCD expressed concern that depth to groundwater was not adequately determined. Based on the additional investigation of depth to groundwater, XTO is submitting this *Closure Request Addendum* and requesting no further action for Incident Number NAB1520554210.

BACKGROUND

The release is located in Unit B, Section 19, Township 23 South, Range 30 East, in Eddy County, New Mexico (32.29439°, -103.919558°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM). Please note that the coordinates provided on the portal reflect the location of the Remuda Basin 19 Federal #2 SWD wellhead and not the location of the release.

A fiberglass line developed a hole, resulting in the release of approximately 160 barrels (bbls) of produced water onto the pasture area 900 feet southwest of the Site. No free-standing fluids were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Form C-141 Application (C-141) on June 5, 2015. The release was assigned Incident Number NAB1520554210.

The original *Closure Request* detailed the Site characterization completed to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented in the original *Closure Request*, submitted May 11, 2020.

In addition, a karst survey was completed based on NMOCD requirements at the time of the survey, which indicated no karst features were observed. The survey is included as Attachment 2 in the original *Closure Request*. The results indicated the area did not indicate karst features within the Site area. During remedial actions to address impacts at the Site, subsurface voids and/or unstable ground was

XTO Energy, Inc
Remuda Basin 19 Fed #2 SWD
Closure Request Addendum

not observed, indicating the Site was likely not underlain by unstable geology. It should be noted the release and remedial activities occurred prior to December 1, 2024, the effective date of the NMOCD published *Karst Potential Occurrence Zones Public Notice*. As such, the following Table I Closure Criteria (Closure Criteria) apply:

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

Since the release occurred entirely within the pasture area, a reclamation standard of 600 mg/kg chloride and 100 mg/kg TPH was applied to the top 4 feet of the subsurface that was impacted by the release, per NMAC 19.15.29.13.D (1) for the top 4 feet of areas that will be reclaimed following remediation.

Between November 2019 and April 2020, Ensolum conducted Site assessment, delineation, and excavation activities in response to the release. XTO submitted a *Closure Request* on May 11, 2020, requesting no further action (NFA) following delineation of the release and excavation of all soil exceeding the Closure Criteria and/or the reclamation requirement. All previously completed remedial activities can be found in the original *Closure Request* included in Appendix A. On October 21, 2022, NMOCD denied the Closure Request for Incident Number NAB1520554210 for the following reasons:

Depth to groundwater is not adequately identified. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided. If evidence of depth to groundwater within a ½ mile radius of the site cannot be provided, impacted soils will need to meet Table 1 Closure Criteria for ground water at a depth of 50 feet or less.

DEPTH TO GROUNDWATER DETERMINATION

Depth to groundwater at the Site is between 50 feet to 100 feet below ground surface (bgs) based on a recent gauging of the nearest livestock watering well. The closest permitted groundwater well with recent depth to groundwater data is a United States Geological Survey (USGS) well 321742103552601, located approximately 0.28 miles west of the Site. The most recent recorded depth to groundwater was reported as 66.1 feet bgs on May 6, 1993. Due to the age of the depth to groundwater data, Ensolum conducted a field investigation of the well. On June 11, 2024, the well was gauged with an oil/water interface probe to determine the current depth to groundwater. The USGS well had a depth to groundwater of 66.45 feet bgs and a total depth of 100 feet bgs. All wells used to determine depth to groundwater are depicted on Figure 1. The Well Record and Log is included in Appendix B. Based on the confirmed depth to groundwater between 50 feet to 100 feet bgs, the Table I Closure Criteria identified in the original *Closure Request* are applicable and appropriate for protection of groundwater at this Site. Photographic documentation is included in Appendix C.

CLOSURE REQUEST

Depth to groundwater has been determined to be between 50 feet and 100 feet bgs based on a recent gauging of a livestock watering well; therefore, the Site-specific Closure Criteria presented in the original Closure Request was correctly applied. No other sensitive receptors were identified for this Site. Based

XTO Energy, Inc
Remuda Basin 19 Fed #2 SWD
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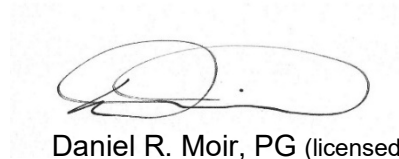
on excavation of impacted soil in compliance with the confirmed Site Closure Criteria and reclamation requirement, XTO respectfully requests closure for Incident Number NAB1520554210.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
Ensolum, LLC



Hadlie Green
Project Geologist



Daniel R. Moir, PG (licensed in WY & TX)
Senior Managing Geologist

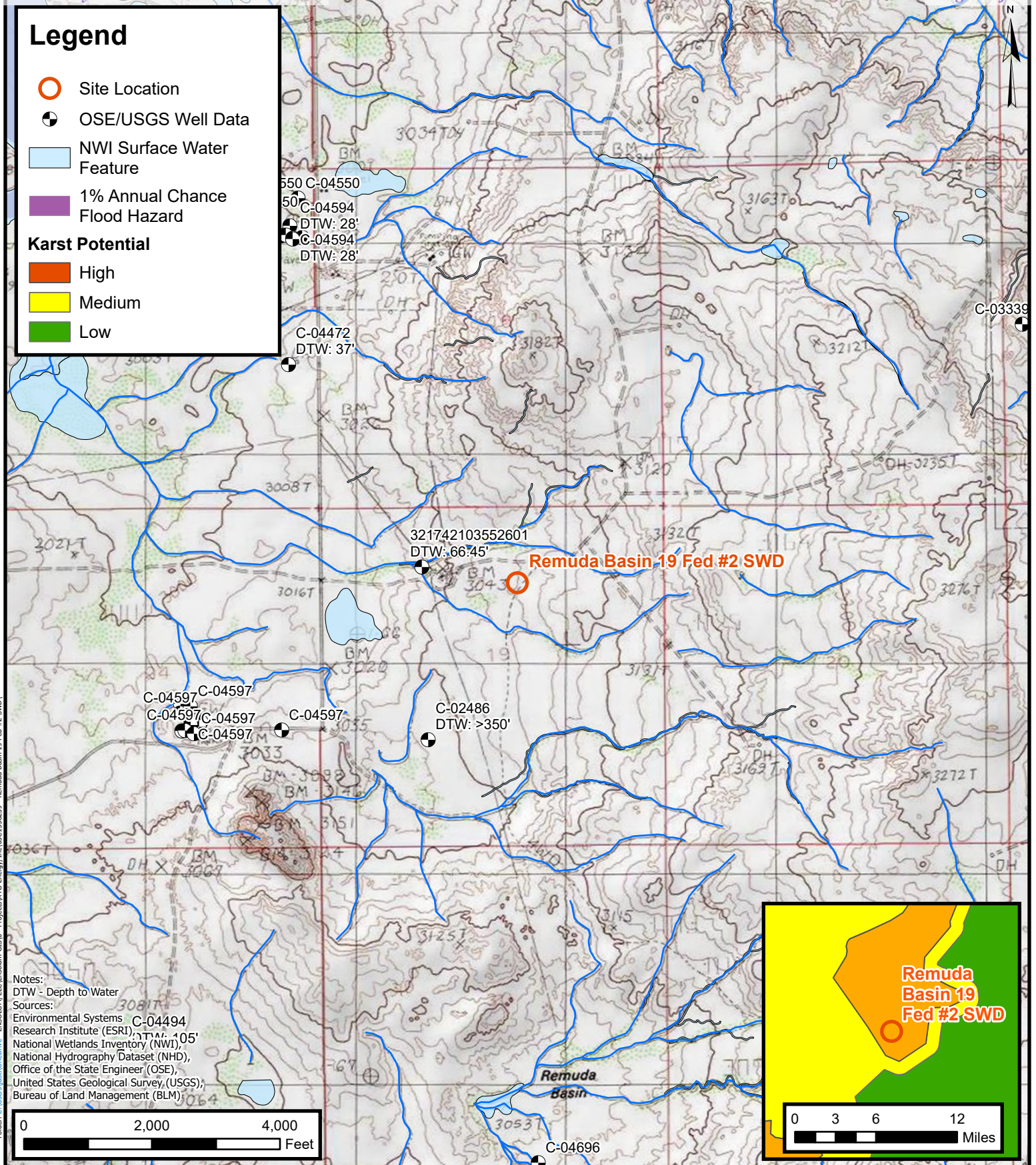
cc: Kaylan Dirkx, XTO
Colton Brown, XTO
BLM

Appendices:

Figure 1	Site Receptor Map
Appendix A	Closure Request Report; Dated May 11, 2020
Appendix B	Referenced Well Records
Appendix C	Photographic Log



FIGURES



Site Receptor Map

XTO Energy, Inc.
Remuda Basin 19 Fed #2 SWD
Incident Number: NAB1520554210
Unit B, Sec 19, T23S, R30E
Eddy County, New Mexico

FIGURE

1



APPENDIX A

Closure Request Report;
Dated May 11, 2020



LT Environmental, Inc.

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

May 11, 2020

NOT APPROVED

10/21/2022

Jocelyn Harimon

Mr. Bradford Billings
New Mexico Oil Conservation Division
1220 South St. Francis Drive, #3
Santa Fe, New Mexico 87505

**RE: Closure Request
XTO Energy, Inc.
Remuda Basin 19 Fed #2 SWD
Remediation Permit Number 2RP-3152
Eddy County, New Mexico**

The OCD has denied the submitted Closure Report C-141 for incident NAB1520554210 REMUDA BASIN 19 FED #2 SWD for the following reason:
Depth to groundwater is not adequately identified. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided. If evidence of depth to ground water within a ½ mile radius of the site cannot be provided, impacted soils will need to meet Table 1 Closure Criteria for ground water at a depth of 50 feet or less

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing site assessment, soil sampling, and excavation activities at the Remuda Basin 19 Fed #2 SWD Battery (Site) in Unit B, Section 19, Township 23 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil following the release of produced water at the Site.

The release is included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the New Mexico Oil Conservation Division (NMOCD) effective November 13, 2018. The purpose of the Compliance Agreement is to ensure reportable releases that occurred prior to August 14, 2018, where XTO is responsible for the corrective action, comply with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) as amended on August 14, 2018. The release is categorized as a Tier IV site in the Compliance Agreement, meaning the release occurred prior to August 14, 2018, the effective date of 19.15.29 NMAC; however, remediation was ongoing.

RELEASE BACKGROUND

A fiberglass line developed a hole, resulting in the release of approximately 160 barrels (bbls) of produced water onto the pasture area 900 feet southwest of the Site. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on June 5, 2015 and was assigned Remediation Permit (RP) Number 2RP-3152 (Attachment 1). The GPS coordinates provided on the initial C-141 were for the well location, not the release point southwest of the well pad. The Final C-141 provides the coordinates for the release location. Based on the site assessment activities and results of the soil sampling events, XTO is requesting no further action for this release.



SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the NMAC. Depth to groundwater at the Site is estimated to be between 50 and 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 321742103552601, located approximately 1,500 feet west of the Site. The water well has a depth to groundwater of approximately 66.1 feet bgs and a total depth of 100 feet. Ground surface elevation at the water well location is 3,040 feet above mean sea level (AMSL), which is approximately 47 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an intermittent stream approximately 600 feet north of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located within a high-potential karst area.

On April 21, 2020, LTE contracted Southwest Geophysical Consulting, LLC (SGC) to determine the location, description, and boundaries of any karst-related features within a 200-meter boundary surrounding the Site. The survey concluded that no surface karst features were located within the survey area and that the Site is located in a medium-potential karst area. The Cave and Karst Resource Inventory Report is included as Attachment 2.

CLOSURE CRITERIA

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

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

Since the release occurred entirely within pasture area, a closure criteria of 600 mg/kg chloride was applied to the top 4 feet of the subsurface that was impacted by the release, per NMAC 19.15.29.13.D (1) for areas that will be reclaimed following remediation.



SITE ASSESSMENT AND EXCAVATION ACTIVITIES

Between November 2019 and April 2020, LTE personnel were at the Site to oversee site assessment and excavation activities.

Potholes were advanced via trackhoe at 14 locations within and around the release extent to determine the lateral and vertical extent impacted soil. Potholes PH01 through PH14 were advanced to depths ranging from 2 feet to 8 feet bgs. Delineation soil samples were collected from each pothole from depths ranging from 1 foot to 8 feet bgs. Soil from the potholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the potholes were logged on lithologic/soil sampling logs, which are included in Attachment 3. The delineation soil sample locations are depicted on Figure 2.

Impacted soil was excavated from the release area as indicated by field screening activities and laboratory analytical results for the delineation soil samples. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. Bedrock was encountered in the excavation at depths ranging from 4 feet to 8.5 feet bgs. Impacted soil was excavated to the depth of the shallow bedrock where refusal was encountered with the trackhoe. Following removal of impacted soil, LTE collected 5-point composite soil samples from the sidewalls and floor of the excavation. The 5-point composite samples were collected by depositing five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 through SW23 were collected from the sidewalls of the excavation from depths ranging from the ground surface to 4 feet bgs. Composite soil samples FS01 through FS63 were collected from the floor of the excavation from depths ranging from 4 feet to 8.5 feet bgs. During excavation activities, a liner from historical remediation activities was encountered at a depth of 4 feet bgs. The liner was exposed in the base of the excavation, no floor samples were collected in this area due to the presence of the liner. Soil samples were collected from the sidewalls of the excavation in the areas surrounding the exposed liner. The excavation extent, historical liner location, and excavation soil sample locations are depicted on Figure 3.

The delineation and excavation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were shipped at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX following United States Environmental Protection Agency (USEPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following USEPA Method 8015M/D; and chloride following USEPA Method 300.0.

Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 4.



The excavation measured approximately 19,000 square feet in area with a depth of 4 feet to 8.5 feet bgs. A total of approximately 3,000 cubic yards of impacted soil were removed from the excavation. The impacted soil was transported and properly disposed of at the R360 Landfill located in Hobbs, New Mexico.

ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples collected from potholes PH02, PH03, PH06 through PH14 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria, and chloride concentrations were below 600 mg/kg in samples collected from the top four feet of the subsurface. Laboratory analytical results indicated that chloride concentrations exceeded the Closure Criteria and/or 600 mg/kg in the top 4 feet of the subsurface in delineation soil samples collected from potholes PH01, PH04, and PH05. Based on laboratory analytical results for the delineation soil samples, excavation of impacted soil was completed.

Laboratory analytical results for excavation sidewall samples SW01 through SW23 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and chloride concentrations were below 600 mg/kg. Laboratory analytical results for the final excavation floor samples FS01 through FS05, FS06A through FS10A, FS11, FS12A through FS15A, FS16, FS17A through FS19A, FS20, FS21A, and FS22 through FS63 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and chloride concentrations were below 600 mg/kg in samples collected from the top four feet of the subsurface.

Floor samples FS06 through FS10, FS12 through FS15, FS17 through FS19, and FS21 were collected from the soil directly above bedrock and initially exceeded the Closure Criteria for chloride. Additional soil was removed from these areas, and subsequent floor samples FS06A through FS10A, FS12A through FS15A, FS17A through FS19A, and FS21A were collected from bedrock and were compliant with the Closure Criteria.

Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 5.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the historical release of produced water. Delineation soil sampling was completed in and around the release extent to define the lateral and vertical extent of impacted soil. Based on the laboratory analytical results for the delineation soil samples, impacted soil was excavated. Laboratory analytical results for excavation soil samples collected from the final excavation extent, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, chloride concentrations were below 600 mg/kg in excavation soil samples collected

Billings, B
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in the pasture from the top four feet of the subsurface. Based on the excavation and delineation soil sample analytical results, no further remediation was required.

Initial response efforts, natural attenuation, and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Number 2RP-3152. XTO will backfill the excavation with material purchased locally and recontour the Site to match pre-existing site conditions. An updated NMOCD Form C-141 is included in Attachment 1.

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

Sincerely,

LT ENVIRONMENTAL, INC.

Korey Kennedy
Project Environmental Scientist

Ashley L. Ager, P.G.
Senior Geologist

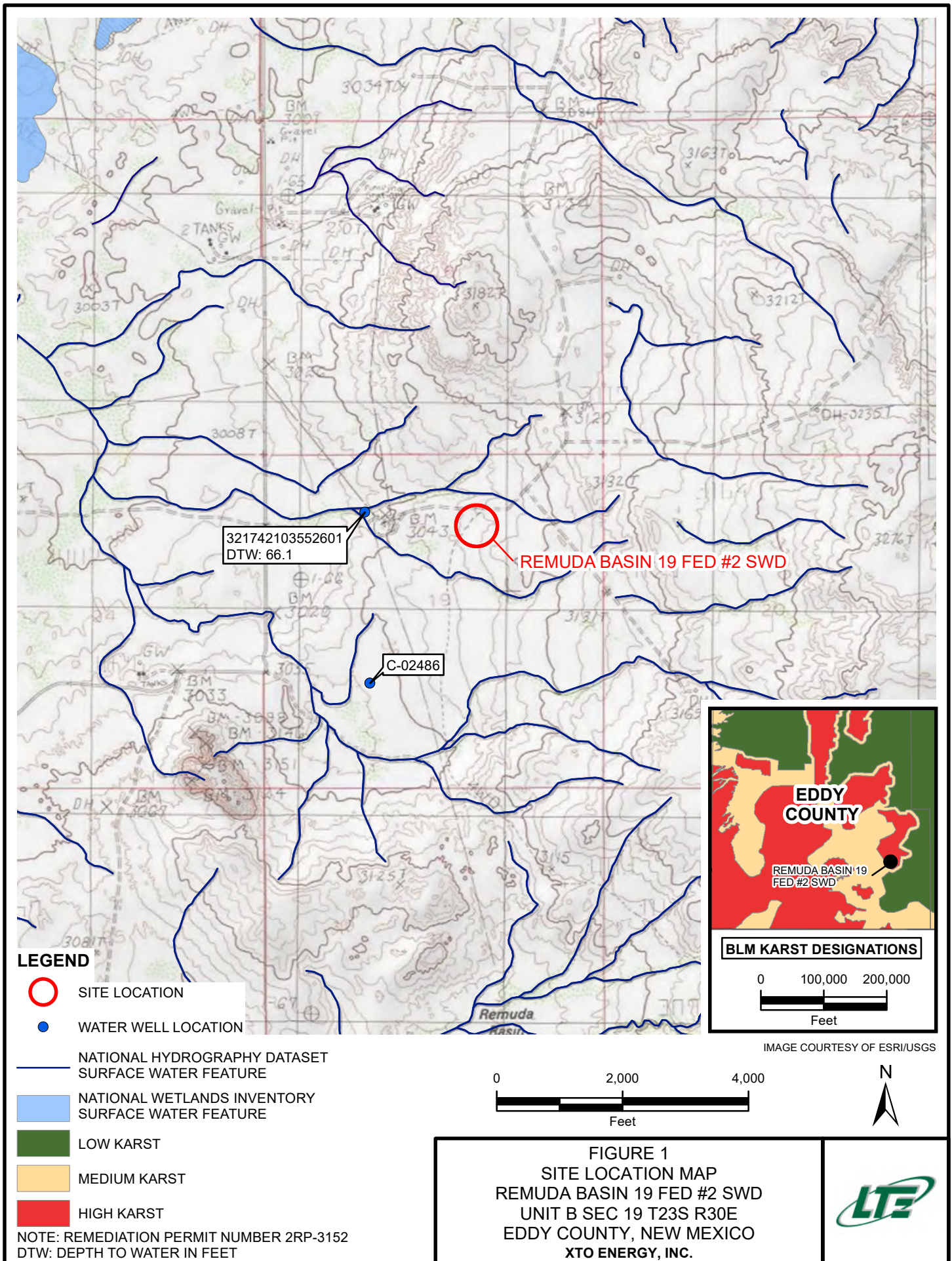
cc: Kyle Littrell, XTO
Mike Bratcher, NMOCD
Bureau of Land Management

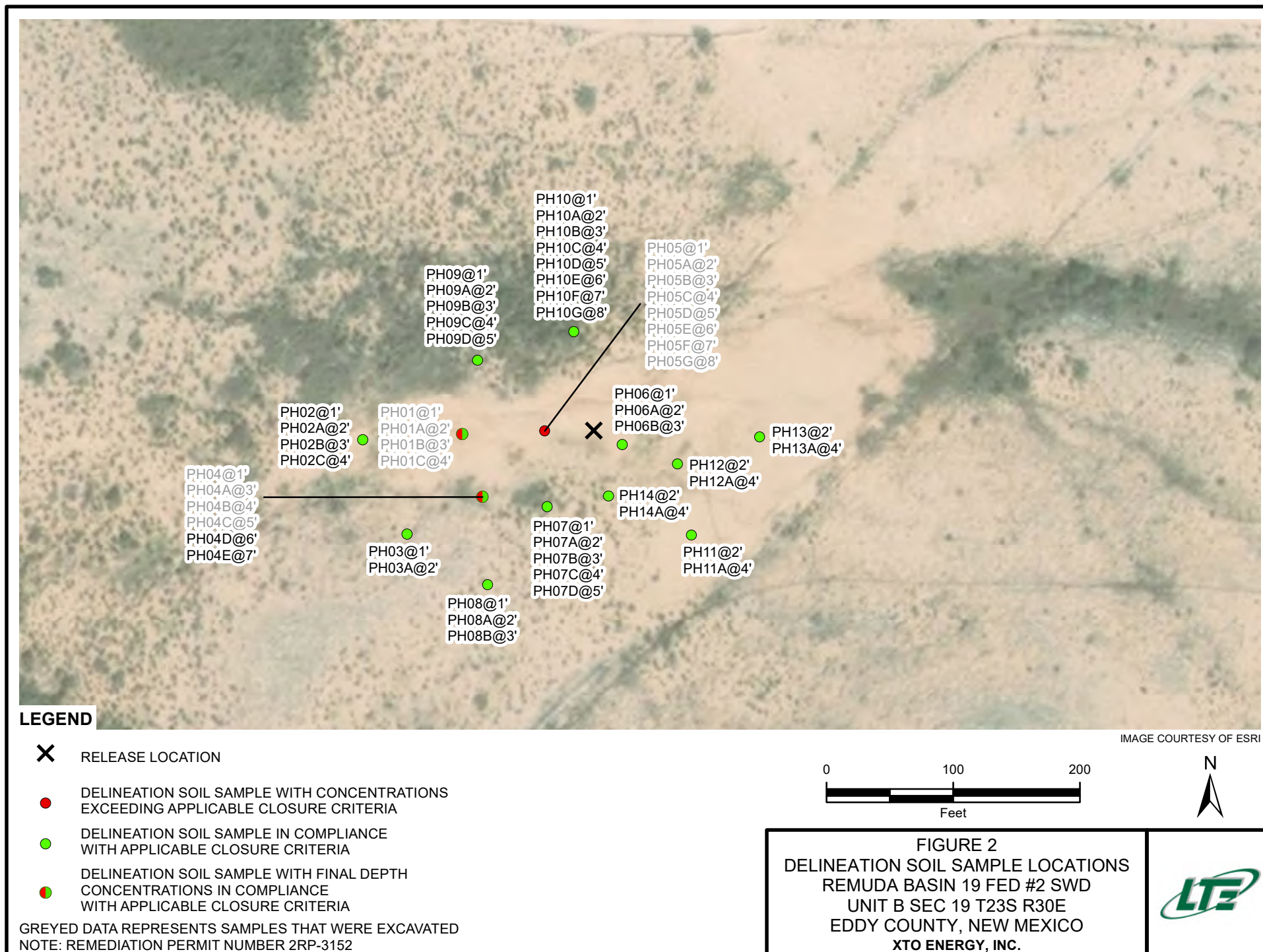
Attachments:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations
Figure 3 Excavation Soil Sample Locations
Table 1 Soil Analytical Results
Attachment 1 Initial/Final NMOCD Form C-141 (2RP-3152)
Attachment 2 Cave and Karst Resource Inventory Report
Attachment 3 Lithologic / Soil Sample Logs
Attachment 4 Photographic Log
Attachment 5 Laboratory Analytical Reports

FIGURES









TABLES



TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
PH01	1	11/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	16,900
PH01A	2	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	16,800
PH01B	3	11/05/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	8,470
PH01C	4	11/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	746
PH02	1	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	67.3
PH02A	2	11/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	380
PH02B	3	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	283
PH02C	4	11/05/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	146
PH03	1	11/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	17.0
PH03A	2	11/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	8.21
PH04	1	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	3,720
PH04A	3	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	8,070
PH04B	4	11/05/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	8,190
PH04C	5	11/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	10,600
PH04D	6	11/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	9,740
PH04E	7	11/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	7,510
PH05	1	11/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	2,570
PH05A	2	11/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	3,650
PH05B	3	11/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	6,090
PH05C	4	11/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	2,660
PH05D	5	11/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	10,100
PH05E	6	11/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	14,000
PH05F	7	11/05/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	16,200
PH05G	8	11/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	10,700

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
PH06	1	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	392
PH06A	2	11/06/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	563
PH06B	3	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	336
PH07	1	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	6.81
PH07A	2	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	21.2
PH07B	3	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	5.94
PH07C	4	11/06/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	<5.04
PH07D	5	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	12.9
PH08	1	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<4.97
PH08A	2	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	<4.99
PH08B	3	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	11.1
PH09	1	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	8.40
PH09A	2	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	11.1
PH09B	3	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	5.81
PH09C	4	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	33.7
PH09D	5	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	163
PH10	1	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	5.19
PH10A	2	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	10.3
PH10B	3	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	<5.04
PH10C	4	11/06/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<4.98
PH10D	5	11/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00
PH10E	6	11/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	8.83
PH10F	7	11/06/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	14.3
PH10G	8	11/06/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	45.2

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
PH11	2	04/22/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	243
PH11A	4	04/22/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	266
PH12	2	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	54.0
PH12A	4	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	28.8
PH13	2	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	72.2
PH13A	4	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	<9.94
PH14	2	04/23/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	<9.96
PH14A	4	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	233
FS01	5	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	8,250
FS02	5	04/16/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	6,790
FS03	8	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	8,280
FS04	8	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	7,360
FS05	8	04/16/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	8,410
FS06	8	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	12,300
FS06A	8.5	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	375
FS07	8	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	11,600
FS07A	8.5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	915
FS08	8	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	13,600
FS08A	8.5	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	1,670
FS09	8	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	12,600
FS09A	8.5	04/23/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	3,030
FS10	6	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	21,600
FS10A	6.5	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	1,960
FS11	6	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	9,940
FS12	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	20,000
FS12A	4.5	04/23/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.3	<50.3	<50.3	<50.3	<50.3	3,230

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
FS13	6	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	20,100
FS13A	6.5	04/23/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	1,520
FS14	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	14,900
FS14A	4.5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	1,340
FS15	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	15,000
FS15A	4.5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	1,170
FS16	5	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	5,630
FS17	4	04/16/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	14,500
FS17A	4.5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	3,090
FS18	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	21,200
FS18A	4.5	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	3,630
FS19	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	11,000
FS19A	4.5	04/23/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	2,670
FS20	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	8,560
FS21	4	04/16/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	16,100
FS21A	4.5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	2,720
FS22	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	6,220
FS23	4	04/16/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	233
FS24	4	04/16/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	3,690
FS25	4	04/22/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	348
FS26	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	2,820
FS27	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	592
FS28	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	2,730
FS29	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	1,120

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
FS30	4	04/22/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	3,650
FS31	4	04/22/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	1,240
FS32	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	1,360
FS33	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	177
FS34	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	127
FS35	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	5,430
FS36	6	04/22/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.3	<50.3	<50.3	<50.3	<50.3	681
FS37	4	04/22/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	4,760
FS38	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	9,440
FS39	6	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	1,840
FS40	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	282
FS41	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	4,160
FS42	6	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	542
FS43	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	723
FS44	4	04/22/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	5,160
FS45	6	04/22/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	3,410
FS46	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	369
FS47	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	3,760
FS48	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	6,150
FS49	4	04/22/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	197
FS50	4	04/22/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	6,890
FS51	4	04/22/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	2,840
FS52	4	04/22/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	5,790
FS53	4	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	3,670
FS54	4	04/23/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	3,660

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
FS55	5	04/23/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	1,020
FS56	4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	497
FS57	4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	877
FS58	4	04/29/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	886
FS59	4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	278
FS60	4	04/29/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	366
FS61	4	04/29/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	23.5
FS62	4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	23.2
FS63	4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	649
SW01	0 - 4	04/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	416
SW02	0 - 4	04/20/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	145
SW03	0 - 4	04/20/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	58.2
SW04	0 - 4	04/20/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	39.3
SW05	0 - 4	04/20/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	13.3
SW06	0 - 4	04/20/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	<9.94
SW07	0 - 4	04/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	56.1
SW08	0 - 4	04/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	141
SW09	0 - 4	04/21/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	416
SW10	0 - 4	04/21/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	57.2
SW11	0 - 4	04/21/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	496
SW12	0 - 4	04/21/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	64.7
SW13	0 - 4	04/21/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	282
SW14	0 - 4	04/22/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	<50.0
SW15	0 - 4	04/29/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	47.0

TABLE 1
SOIL ANALYTICAL RESULTS

REMUDA BASIN 19 FED #2 SWD
REMEDIATION PERMIT NUMBER 2RP-3152
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	10,000
SW16	0 - 4	04/29/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	142
SW17	0 - 4	04/29/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	146
SW18	0 - 4	04/29/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	19.7
SW19	0 - 4	04/29/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	217
SW20	0 - 4	04/29/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	186
SW21	0 - 4	04/29/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	45.2
SW22	0 - 4	04/29/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	319
SW23	0 - 4	04/29/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	252

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

MRO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

NE - not established

TPH - total petroleum hydrocarbons

Bold - indicates result exceeds the applicable regulatory standard

< - indicates result is below laboratory reporting limits

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

Greyed data represents samples that were excavated

ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141



District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

NAB1520554210 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company	XTO Energy	5380	Contact	John Robinson
Address	500 W. Illinois, Suite 100 Midland, TX 79701		Telephone No.	575-394-2089
Facility Name	Remuda Basin 19 Fed #2 SWD		Facility Type	Injection
Surface Owner	BLM	Mineral Owner	BLM	Lease No. 30-015-28901

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	19	23S	30E	510	N	1580	E	Eddy

Latitude 32.2963142 Longitude -103.9174271

NATURE OF RELEASE

Type of Release	Produced Water	Volume of Release	160 bbls PW	Volume Recovered	0
Source of Release	Fiberglass Line	Date and Hour of Occurrence	Date and Hour of Discovery		
Was Immediate Notice Given?	☐ Yes ☒ No ☐ Not Required	If YES, To Whom?			
By Whom?	Date and Hour		If YES, Volume Impacting the Watercourse.		
Was a Watercourse Reached?	☐ Yes ☒ No				

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 20 2015

RECEIVED

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Fiberglass line developed hole. A hydrovac was brought out to dig around the area of the line and replace the line.

Describe Area Affected and Cleanup Action Taken.*

Spill occurred in pasture area about 900 feet southwest of well. The spill ran approximately 300 yards into the pasture area. Diversified Field Services will handle the cleanup for this location.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

OIL CONSERVATION DIVISION

Signature: <i>John Robinson</i>	Approved by District Supervisor: <i>[Signature]</i>
Printed Name: John Robinson	Approval Date: 7/24/15 Expiration Date: N/A
Title: Maintenance Foreman	Conditions of Approval:
E-mail Address: john_robinson@xtoenergy.com	Attached ☐
Date: 6-15 Phone: 575-441-5199	Remediation per O.C.D. Rules & Guidelines

SUBMIT REMEDIATION PROPOSAL NO
LATER THAN: 8/27/15

2RP-3152

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

<u>Incident ID</u>	
<u>District RP</u>	2RP-3152
<u>Facility ID</u>	
<u>Application ID</u>	

Release Notification

Responsible Party

Responsible Party	XTO Energy	OGRID	5380
Contact Name	Kyle Littrell	Contact Telephone	432-221-7331
Contact email	Kyle_Littrell@xtoenergy.com	Incident # <i>(assigned by OCD)</i>	2RP-3152
Contact mailing address	522 W. Mermod, Carlsbad, NM 88220		

Location of Release Source

Latitude 32.29439 Longitude -103.919558
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Remuda Basin 19 Fed #2 SWD	Site Type	Well Location
Date Release Discovered:	Not available	API# (if applicable)	30-015-28901

Unit Letter	Section	Township	Range	County
B	19	23S	30E	EDDY

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls) 0.0	Volume Recovered (bbls) 0.0
☒ Produced Water	Volume Released (bbls) 160	Volume Recovered (bbls) 0.0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: A fiberglass line developed a hole. The spill occurred in the pasture area 900 feet southwest of the well.

Incident ID	
District RP	2RP-3152
Facility ID	
Application ID	

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? YES, - An unauthorized release of fluid over 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Not available	

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>	Title: <u>SH&E Supervisor</u>
Signature: <u></u>	Date: <u>5-11-2020</u>
email: <u>Kyle Littrell@xtoenergy.com</u>	Telephone: _____
<u>OCD Only</u> Received by: _____ Date: _____	

Incident ID	
District RP	2RP-3152
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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

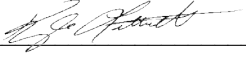
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, 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

Page 4

Incident ID	
District RP	2RP-3152
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Supervisor
Signature:  Date: 5-11-2020
email: Kyle_Littrell@xtoenergy.com Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP-3152
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Supervisor
Signature:  Date: 5-11-2020
email: Kyle_Littrell@xtoenergy.com Telephone: _____

OCD Only

Received by: _____ Date: _____

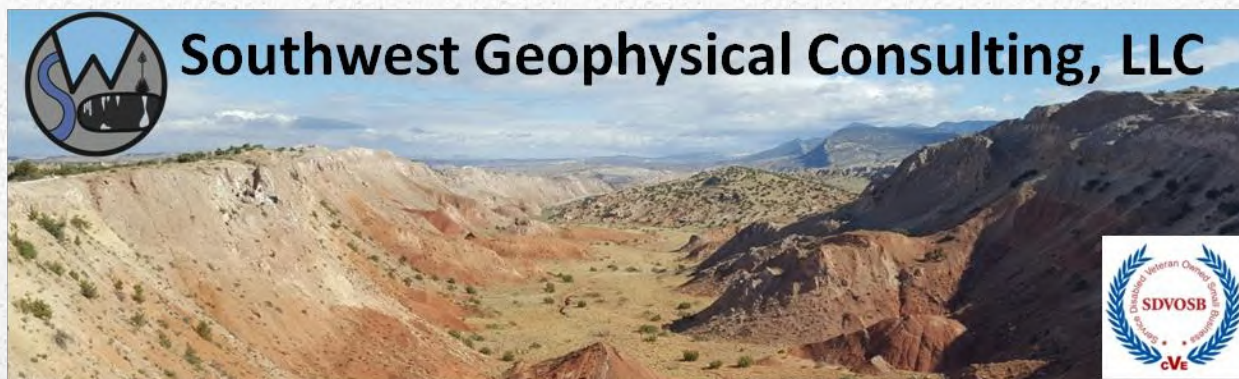
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT 2: CAVE AND KARST RESOURCE INVENTORY REPORT





Cave and Karst Resource Inventory Report Remuda Basin 19 Federal 2 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**

May 07, 2020

LTE-014-20200421

Published by:

Southwest Geophysical Consulting, LLC
5117 Fairfax Dr. NW
Albuquerque, NM 87114
(505) 585-2550
www.swgeophys.com

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Prepared for:

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3300 North A Street Building 1, Unit 222
Midland, TX 79705

Point of Contact:

Korey Kennedy
(970) 285-9985
kkennedy@ltenv.com

MMXX

LTE-014-20200421

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1.0 INTRODUCTION

This report was commissioned by LT Environmental, Inc. (hereinafter referred to as "the client") on April 21, 2020 for the purpose of determining what, if any, karst-related surface features are present near the Remuda Basin 19 Federal 2 pad (hereinafter termed "RB19F2", **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 located within Bureau of Land Management – Carlsbad Field Office, New Mexico State Land Office, and privately 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 remediation by careful excavation of the spill site and the control of site hydrology. The Owner/Developer must recognize that a risk of sinkhole-induced damage to infrastructure remains even after site remediation. The Owner/Developer must evaluate the risks and attendant costs of performing a geophysical survey prior to remediation, 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 boundary exceeding 200-meters downflow of the spill on the RB192F project site as provided by the client via e-mail on April 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; no color is a low karst occurrence zone. Study area is the red outlined area in the middle-right portion of the image. Background image credit: Google Earth. Image date: November 02, 2017. Datum: WGS-84.

1.3 Affected Environment

The RB19F2 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. The New Mexico State Land office also recognizes these categories. 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].

2.0 LOCATION AND DESCRIPTION OF STUDY AREA

2.1 Description of Site

The RB192F project site is located in Eddy County, New Mexico, 17 kilometers (10.6 miles) east of Loving, New Mexico; 5.7 kilometers (3.5 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 spill site is located within section 19 of NM T23S R30E and approximately 200 meters southwest of the Remuda Basin 19 Federal 2 well pad. 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 fair 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**). 65% of the survey area is within BLM-CFO managed lands, 20% is within BLM-CFO New Mexico State Land Office managed lands, and 15% is within privately 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.

2.3 Local Geology

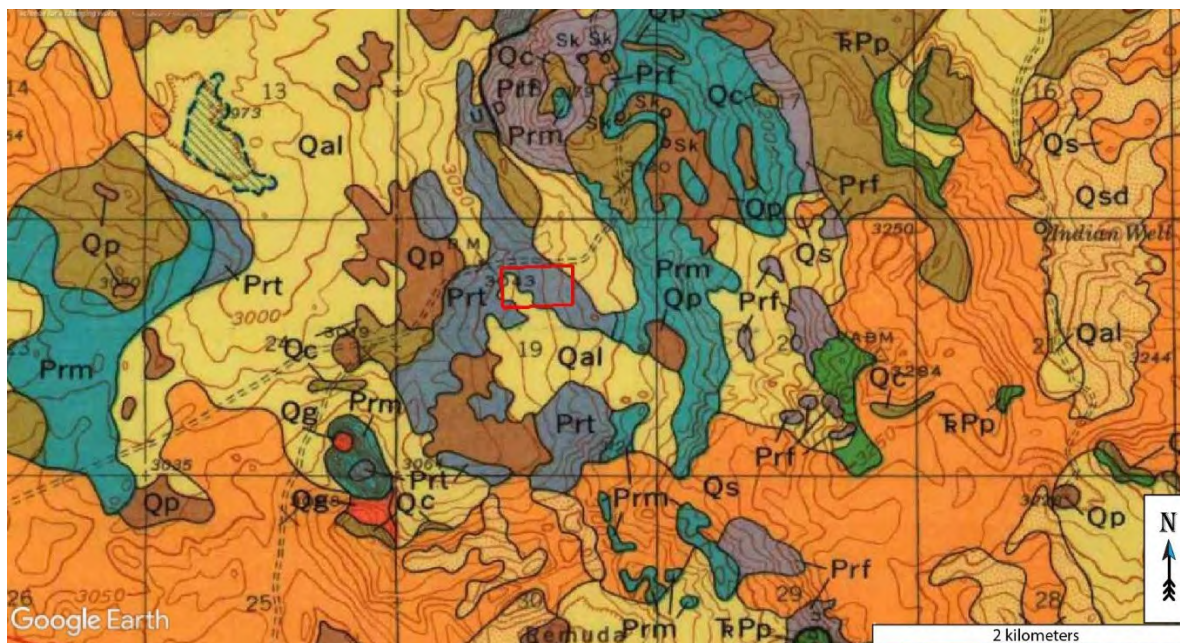


Figure 3: Geology overview. Red polygon highlights the survey area. Geologic Members of the Permian Rustler Formation: Prc - Culebra Dolomite Member, Prt - Tamarisk Member, Prm - Magenta Member, Prf - Forty-niner Member. TrPp: Dewey Lake Formation (referred to by the name "Pierce Canyon Formation" in 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 RB19F2 project site is located 6 kilometers west of a large, partially closed karst depression known as Nash Draw^[6] at an elevation of 935 meters (3,068 feet), plus or minus 5 meters (16 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 3**). 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]. Two easily accessible 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.

2.3 Description of Survey

For this survey 6 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 boundary was designed to encompass the entire spill area and an area at least 200 meters down “flow” from the spill site.

The survey was completed by Dave Decker and Garrett Jorgensen on April 28, 2020. The total distance walked was 4.03 kilometers (2.5 miles) and the total area covered was 0.11 square kilometers (27.8 acres).

Table 1: Survey Track Data Files.

File Name	Surveyor	Date	Length (km/miles)	Area (km ² /Ac)
RB19F2SRV_D1S1A.kmz	Decker	04/28/2020	1.97/1.22	0.11/27.8
RB19F2SRV_D1S1B.kmz	Jorgensen	04/28/2020	2.06/1.28	

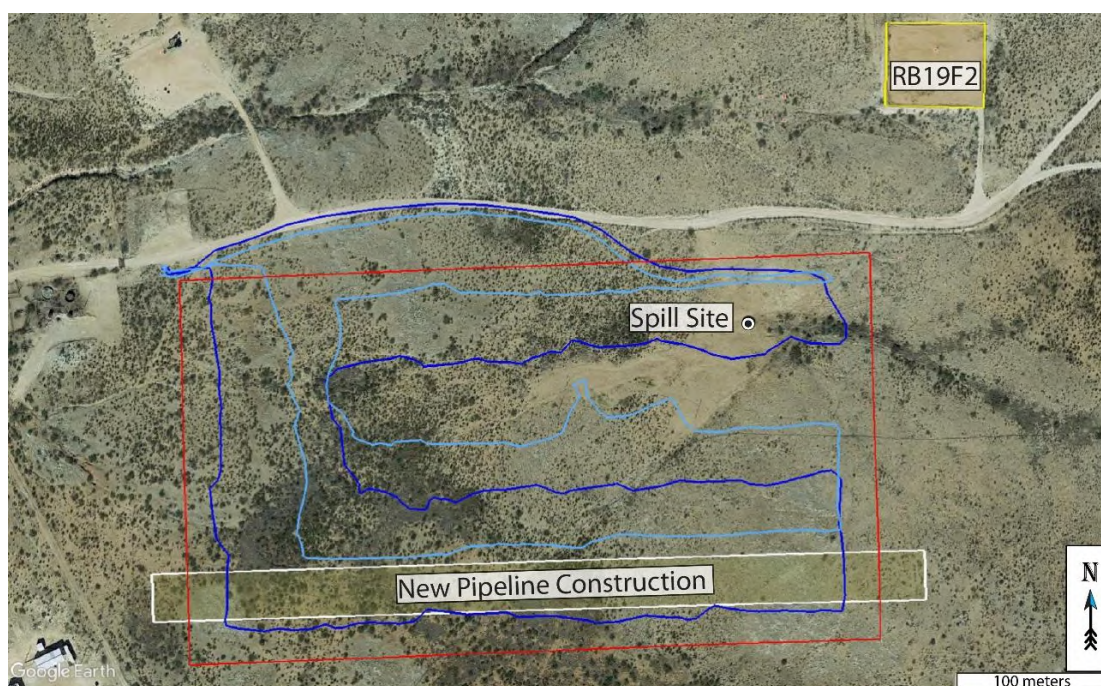


Figure 4: Survey overview. Blue wavy lines are the actual survey lines walked (light blue is the survey track walked by Dave Decker; dark blue is the survey track walked by Garrett Jorgensen). Red polygon is the study area. Black and white circle is the point of release for the spill. Yellow polygon is the remuda Basin 19 Federal 2 well pad. Background image credit: Google Earth. Image date: November 02, 2017. Datum: WGS-84.

2.4 Description of Karst Features

No surface karst features were located within the boundary of the pedestrian survey area for the Remuda Basin 19 Federal 2 project site.

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 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.
2. Scholle, P.A., *Geologic Map of New Mexico*. 2003. (1:500,000).
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.
6. Vine, J.D., *Surface Geology of Nash Draw Quadrangle Eddy County New Mexico*, 1963.

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



ATTACHMENT 3: LITHOLOGIC/ SOIL SAMPLING LOGS



 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH07	Date: 11.5.19					
		Project Name: Remuda Basin 19 #2 SWD	RP Number: 2RP-3152					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: SL	Method: Trackhoe					
Lat/Long:		Field Screening: PID Chloride	Hole Diameter:					
Total Depth: 4'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			1-2
1030	D	15725	0.0	N	PH07	1	SP-SC	Sandy clay, Brown, No odor, no stain, m-f, poorly graded, trace silt, low plasticity, low cohesiveness
1045	D	14437	0.0	N	PH01A	2		
1100	D	9621	0.0	N	PH01B	3	CLH	3-4 calcareous with sandy clay, tan, off white, no odor, no stain, m-f, poorly graded, low plasticity, low cohesiveness, trace silt
1115	D	1484	0.2	N	PH01C	4		
					5			TD @ 4, Refusal
					6			
					7			
					8			
					9			
					10			
					11			
					12			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220						Identifier: <u>P402</u> Date: <u>11-5-19</u>		
						Project Name: <u>Remuda Basin 19 #2 SWD</u> RP Number: <u>2RP-3152</u>		
LITHOLOGIC / SOIL SAMPLING LOG						Logged By: <u>SL</u> Method: <u>Trachoe</u>		
Lat/Long:			Field Screening: <u>PID</u> <u>Chloride</u>			Hole Diameter: <u>—</u> Total Depth: <u>41</u>		
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
1140	D	1.2 179	0.0	N	P402	1	SP-SM	1-2 Sand, brown, m-f, poorly graded, no odor, no stain, trace silt
1155	D	297	0.0	N	P402A	2		
1210	D	386	0.0	N	P402B	3	CLHE	3-4 Caliche with sand, off white, tan, no odor, no stain, m-f, poorly graded, brown
1225	D	179	0.1	N	P402C	4		
					5			TD @ 4' - refusal
					6			
					7			
					8			
					9			
					10			
					11			
					12			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH03	Date: 11-5-19					
		Project Name: Remuda Basin #2 SWD	RP Number: 2RP-3152					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: SL	Method: Trackhoe					
Lat/Long:		Field Screening: ☒ PHD ☒ Chloride	Hole Diameter: 1					
Total Depth: 21								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
					1	1	SP-SW	1-1
7245	D <179	0.0	N	PH03	1			Sand with caliche gravel, no stain, no odor, tan, light brown m-f, tan/offwhite caliche trace silt
1300	D <179	0.0	N	PH03A	2	2	CLHE	2 - caliche, tan, offwhite, no stain, no odor
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

Refusal @ 2' - TD

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH04	Date: 11.5.19					
		Project Name: Remuda Basin 19 #2 SWD	RP Number: ZRP-3152					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: <i>SL</i>	Method: <i>Trackhoe</i>					
Lat/Long:		Field Screening: PID Chloride	Hole Diameter:					
Total Depth: <i>7'</i>								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
1345	D	3864	0.6	N	PH04	1	1	SP-SM
					2			1-3 Sand, Brown, light brown, m-f, poorly graded, no stain no odor, true silt
1400	D	5958	0.4	N	PH04A	3	3	
1425	D	13278	0.3	N	PH04B	4	4	CL
1435	D	8215	0.1	N	PH04C	5	5	
1450	D	8893	0.3	N	PH04D	6	6	
1505	D	9621	0.1	N	PH04E	7	7	
					8			TO @ 7', Refusal
					9			
					10			
					11			
					12			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220					Identifier: PH05		Date: 11.5.19		
					Project Name: Remuda Basin 19 #2 SWD		RP Number: ZRP-3152		
LITHOLOGIC / SOIL SAMPLING LOG									
Lat/Long:				Field Screening: <u>PID</u> <u>Chloride</u>		Logged By: SL		Method: truckhoe	
						Hole Diameter: —		Total Depth: 8'	
Comments:									
	Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
						0			
1545	D	2134	1.0	N	PH05	1	1	SP-SM	1-5 Sandy Brown, m-f, no odor, no stain, poorly graded, trace silt
1600	D	2632	1.6	N	PH05A	2	2		
1610	D	3864	1.5	N	PH05B	3	3		
1620	D	6468	1.2	N	PH05C	4	4		
1635	D	10416	0.9	N	PH05D	5	5		
1650	D	11284	0.9	N	PH05E	6	6	SP	6-8 Sandy clay, light Brown, no odor, no stain, low plasticity, low cohesiveness, m-f, poorly graded
1700	D	12236	1.0	N	PH05F	7	7		
1710	D	9621	1.7	N	PH05G	8	8		
						9			TD @ 8', Refusal
						10			
						11			
						12			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH06	Date: 11-5-19					
		Project Name: Remold Basin 14 #2 SWD	RP Number: 2RP-3152					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: <i>SL</i>	Method: <i>Truckee</i>					
Lat/Long:		Field Screening: PID Chloride	Hole Diameter:					
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
930	D	342	0.6	N	PH06	1	SP-Sm	1-3 Sand, Brown, no stain, no odor, m-f, trace caliche, poorly graded, trace silt
940	D	437	0.4	N	PH06A	2		
950	D	289	6.2	N	PH06B	3		
								TD @ 3' - Refusal
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH07		Date: 11-5-19		
				Project Name: Reynolds Basin 19 #21WD		RP Number: 2RP-3152		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: SL		Method: Trackhole		
Lat/Long:		Field Screening: PID Chloride		Hole Diameter:		Total Depth: 5'		
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
1170	D	2179	0.0	N	PH07	1		1-4
1150	D	2179	0.0	N	PH07A	2	SP sm	sand, Brown, no odor, w stain, m-f, poorly graded, trace silt
1240	D	2179	0.0	N	PH07B	3		
1250	D	2179	0.0	N	PH07C	4		- 3-4 caliche gravel
1300	D	2179	0.0	N	PH07D	5	CHHE	5- caliche with sand, tan, off white, no stain, no odor, Brown, m-f, poorly graded
					6			TD @ 5' - Refusal
					7			
					8			
					9			
					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH08		Date: 11-5-19			
Project Name: Remuda Basin 19#2 SWD		RP Number: 2RP-352		Logged By: SL		Method: Trackhoe			
Lat/Long:		Field Screening: RTD Chloride		Hole Diameter:		Total Depth: 3'			
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0				
1310	D	<179	0.2	N	PH08	1	1	SP-SM	1-3
1320	D	<179	0.1	N	PH08A	2	2		Sand with caliche gravel, no stain, no odor tan/offwhite, m-f, poorly graded sand, light brown trace silt
1330	D	<179	0.5	N	PH08B	3	3		2- caliche, off white tan, no stain, no odor
								TY @ 3' - Refusal	
					4				
					5				
					6				
					7				
					8				
					9				
					10				
					11				
					12				



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

Identifier:

PH09

Date:

11.5.19

Project Name:

Removal Basin 19 #2 SWD

RP Number:

2RP-3152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: SL

Method: Trackhoe

Lat/Long:

Field Screening:

PID

Chloride

Hole Diameter:

Total Depth:

5'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
1350	D	<179	0.1	N	PH09	1	SP-SM	1-5 Sand, Brown, light brown, no odor, no stain, m-f, poorly graded, trace silt, trace caliche
1400	D	<179	0.0	N	PH09A	2		
1410	D	<179	0.0	N	PH09B	3		
1420	D	<179	0.0	N	PH09C	4		
1430	D	<179	0.0	N	PH09D	5		-5- increase in caliche, some
					6			TD @ 5'- Refusal
					7			
					8			
					9			
					10			
					11			
					12			



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

Identifier:

PH10

Date:

11.5.19

Project Name:

Remuda Basin 19 BZ SWD

RP Number:

2RP-3152

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: SL

Method: Trackhoe

Lat/Long:

Field Screening:

PID

Chloride

Hole Diameter:

Total Depth:

8'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
14.50	D <179	0.2	N	PH10	1	1	SP-SM	1-8
15.00	D <179	0.0	N	PH10A	2	2		Sand, light Brown, Brown, no stain, no odor, poorly graded, M-F, trace silt, trace caliche
15.10	D <179	0.0	N	PH10B	3	3		-3 - caliche gravel increase
15.20	D <179	0.1	N	PH10C	4	4		
15.30	D <179	0.2	N	PH10D	5	5		
15.40	D <179	0.0	N	PH10E	6	6		
15.50	D <179	0.0	N	PH10F	7	7		
16.00	D <179	0.3	N	PH10G	8	8		
					9			TO @ 8'
					10			
					11			
					12			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name:		Date:				
		PHI		4.22.20				
		Site Name: Remuda Basin 19 SWD						
		RP or Incident Number: 2RP-3152						
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Logged By: SL				
		Chloride, PID		Method: Trackhoe				
				Hole Diameter: -				
				Total Depth: 4				
Comments: TD @ 4'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						1		
D	320	0.0	N	PHI	2	2	SP Sm	0-4 Sand, Brown, no odor, no stain, poorly graded, m-f, trace silt, trace clay, trace caliche
						3		
D	320	0.0	N	PHI A	4	4		
						5		TD @ 4'
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name: PH12		Date: 4.23.20				
		Site Name: Rehuda Basin 19 SWD						
		RP or Incident Number: 2RP-3152						
		LTE Job Number:						
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening: Chloride, PID		Logged By: SL				
				Method: Trackhoe				
				Hole Diameter: 2				
				Total Depth: 4'				
Comments: TD C 4'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	<186	0.0	N	PH12	2	0	SP SM	0-4 Sand, Brown, no odor, no stain, m-f, poorly graded, trace silt, trace caliche, trace clay
						1		
						2		
						3		
D	<186	0.0	N	PH12A	4	4		
						5		TD C 4'
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP		BH or PH Name: PH13		Date: 4.23.20				
		Site Name: Remuda Basin 19 SWD						
		RP or Incident Number: 2RA-3152						
		LTE Job Number:						
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening: Chloride, PID		Logged By: SL				
				Method: Trackhoe				
				Hole Diameter: -				
				Total Depth: 4'				
Comments: TD @ 4'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						1		
D	<186	0.0	N	PH13	2	2	Gypsum	0-4 Gypsum, powdered, - crs-f, white, tan, no odor, no stain
						3		
D	<186	0.0	N	PH13A	4	4		
						5		TD @ 4'
						6		
						7		
						8		
						9		
						10		
						11		
						12		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 A proud member of WSP						BH or PH Name: <i>PH14</i>		Date: <i>4.23.20</i>			
						Site Name: <i>Remuda Basin 19 SWD</i>					
						RP or Incident Number: <i>2RP-3152</i>					
						LTE Job Number:					
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: <i>SL</i>		Method: <i>Trackhoe</i>	
Lat/Long:				Field Screening: Chloride, PID				Hole Diameter: <i>1</i>		Total Depth: <i>4'</i>	
Comments: <i>TD @ 4'</i>											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks			
						0		<i>0-2</i> Sand, Brown, no odor, no stain, m-f, poorly graded, trace silt, trace caliche/gypsum, trace clay			
						1	<i>Sp Sm</i>				
<i>D</i>	<i><186</i>	<i>0.0</i>	<i>N</i>	<i>PH14</i>	<i>2</i>	<i>2</i>		<i>2-4</i> Gypsum, powdered, crs-f, white, tan, no odor, no stain			
						3	<i>Gypsum</i>				
<i>D</i>	<i><186</i>	<i>0.0</i>	<i>N</i>	<i>PH4A</i>	<i>4</i>	<i>4</i>		<i>TD @ 4'</i>			
						5					
						6					
						7					
						8					
						9					
						10					
						11					
						12					

ATTACHMENT 4: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Photograph 1: View of exposed liner.



Photograph 2: Eastern view during excavation activities.



Photograph 3: Western view during excavation activities.



Photograph 4: Eastern view during excavation activities.

REMUDA BASIN 19 FED #2 SWD
32.294751, -103.918710
Photographs Taken: April 15, 2020 through April 29, 2020

PHOTOGRAPHIC LOG



Photograph 5: Southern view during excavation activities.



Photograph 6: Southern view during excavation activities.

ATTACHMENT 5: LABORATORY ANALYTICAL REPORTS





Analytical Report 642228

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 #2 SWD

05.06.2020

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)



05.06.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **642228**

Remuda Basin 19 #2 SWD

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) 642228. 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. 642228 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

A Small Business and Minority Company

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



Sample Cross Reference 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	11.05.2019 10:30	1 ft	642228-001
PH01A	S	11.05.2019 10:45	2 ft	642228-002
PH01B	S	11.05.2019 11:00	3 ft	642228-003
PH01C	S	11.05.2019 11:15	4 ft	642228-004
PH02	S	11.05.2019 11:40	1 ft	642228-005
PH02A	S	11.05.2019 11:55	2 ft	642228-006
PH02B	S	11.05.2019 12:10	3 ft	642228-007
PH02C	S	11.05.2019 12:25	4 ft	642228-008
PH03	S	11.05.2019 12:45	1 ft	642228-009
PH03A	S	11.05.2019 13:00	2 ft	642228-010
PH04	S	11.05.2019 13:45	1 ft	642228-011
PH04B	S	11.05.2019 14:25	4 ft	642228-013
PH04C	S	11.05.2019 14:35	5 ft	642228-014
PH04D	S	11.05.2019 14:50	6 ft	642228-015
PH04E	S	11.05.2019 15:05	7 ft	642228-016
PH05	S	11.05.2019 15:45	1 ft	642228-017
PH05A	S	11.05.2019 16:00	2 ft	642228-018
PH05B	S	11.05.2019 16:10	3 ft	642228-019
PH05C	S	11.05.2019 16:20	4 ft	642228-020
PH05D	S	11.05.2019 16:35	5 ft	642228-021
PH05E	S	11.05.2019 16:50	6 ft	642228-022
PH05F	S	11.05.2019 17:00	7 ft	642228-023
PH05G	S	11.05.2019 17:10	8 ft	642228-024
PH04A	S	11.05.2019 15:05	3 ft	642228-025
PH04F	S	11.05.2019 14:10	3 ft	Not Analyzed

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Remuda Basin 19 #2 SWD**Project ID:
Work Order Number(s): 642228Report Date: 05.06.2020
Date Received: 11.06.2019**Sample receipt non conformances and comments:**

V1.001 Revision (client email) Renamed sample 025 to PH04A @ 3ft JK 05/06/20

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3106855 TPH by SW8015 Mod

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

Samples affected are: 642228-004.

Batch: LBA-3106858 BTEX by EPA 8021B

Lab Sample ID 642228-009 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene 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: 642228-009, -010, -011, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025.

The Laboratory Control Sample for Toluene, Benzene, Ethylbenzene 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.

Batch: LBA-3107088 BTEX by EPA 8021B

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

Lab Sample ID 642228-001 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 and Matrix Spike Duplicate. Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 642228-001, -002, -003, -004, -005, -006, -007, -008.

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



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01**
Lab Sample Id: 642228-001

Matrix: Soil
Date Collected: 11.05.2019 10:30

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	16900	99.6	mg/kg	11.07.2019 21:50		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 13:42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 13:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 13:42	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 13:42	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 13:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-135	11.07.2019 13:42	
o-Terphenyl	84-15-1	79	%	70-135	11.07.2019 13:42	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01**
Lab Sample Id: 642228-001

Matrix: Soil
Date Collected: 11.05.2019 10:30

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.11.2019 18:01	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.11.2019 18:01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	11.11.2019 18:01		
4-Bromofluorobenzene	460-00-4	97	%	70-130	11.11.2019 18:01		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01A**
Lab Sample Id: 642228-002

Matrix: Soil
Date Collected: 11.05.2019 10:45

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	16800	99.2	mg/kg	11.07.2019 21:56		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.8	49.8	mg/kg	11.07.2019 14:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.07.2019 14:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.07.2019 14:45	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.07.2019 14:45	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.07.2019 14:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-135	11.07.2019 14:45	
o-Terphenyl	84-15-1	80	%	70-135	11.07.2019 14:45	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01A**
Lab Sample Id: 642228-002

Matrix: Soil
Date Collected: 11.05.2019 10:45

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

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	11.11.2019 18:21	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.11.2019 18:21	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.11.2019 18:21	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.11.2019 18:21	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.11.2019 18:21	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.11.2019 18:21	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.11.2019 18:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.11.2019 18:21	
1,4-Difluorobenzene	540-36-3	114	%	70-130	11.11.2019 18:21	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01B**
Lab Sample Id: 642228-003

Matrix: Soil
Date Collected: 11.05.2019 11:00

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	8470	100	mg/kg	11.07.2019 22:02		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 15:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 15:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 15:06	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 15:06	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 15:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	71	%	70-135	11.07.2019 15:06	
o-Terphenyl	84-15-1	73	%	70-135	11.07.2019 15:06	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01B**
Lab Sample Id: 642228-003

Matrix: Soil
Date Collected: 11.05.2019 11:00

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.11.2019 18:41	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.11.2019 18:41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	70-130	11.11.2019 18:41		
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.11.2019 18:41		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01C**
Lab Sample Id: 642228-004

Matrix: Soil
Date Collected: 11.05.2019 11:15

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	746	50.1	mg/kg	11.07.2019 22:09		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 15:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 15:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 15:26	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 15:26	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 15:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-135	11.07.2019 15:26	
o-Terphenyl	84-15-1	69	%	70-135	11.07.2019 15:26	**



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH01C**
Lab Sample Id: 642228-004

Matrix: Soil
Date Collected: 11.05.2019 11:15

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

Seq Number: 3107088

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.11.2019 19:01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.11.2019 19:01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.11.2019 19:01		
1,4-Difluorobenzene	540-36-3	111	%	70-130	11.11.2019 19:01		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02**
Lab Sample Id: 642228-005

Matrix: Soil
Date Collected: 11.05.2019 11:40

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	67.3	4.98	mg/kg	11.07.2019 21:30		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 15:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 15:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 15:47	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 15:47	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 15:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.07.2019 15:47	
o-Terphenyl	84-15-1	90	%	70-135	11.07.2019 15:47	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02**
Lab Sample Id: 642228-005

Matrix: Soil
Date Collected: 11.05.2019 11:40

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

Seq Number: 3107088

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.11.2019 19:21	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.11.2019 19:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	11.11.2019 19:21	
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.11.2019 19:21	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02A**
Lab Sample Id: 642228-006

Matrix: Soil
Date Collected: 11.05.2019 11:55

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	380	5.04	mg/kg	11.07.2019 22:59		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 16:08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 16:08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 16:08	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 16:08	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 16:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	11.07.2019 16:08	
o-Terphenyl	84-15-1	84	%	70-135	11.07.2019 16:08	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02A**
Lab Sample Id: 642228-006

Matrix: Soil
Date Collected: 11.05.2019 11:55

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.11.2019 19:42	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.11.2019 19:42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.11.2019 19:42		
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.11.2019 19:42		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02B**
Lab Sample Id: 642228-007

Matrix: Soil
Date Collected: 11.05.2019 12:10

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	283	50.0	mg/kg	11.07.2019 22:28		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 16:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 16:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 16:29	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 16:29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 16:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	73	%	70-135	11.07.2019 16:29	
o-Terphenyl	84-15-1	76	%	70-135	11.07.2019 16:29	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02B**
Lab Sample Id: 642228-007

Matrix: Soil
Date Collected: 11.05.2019 12:10

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

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	11.11.2019 20:02	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.11.2019 20:02	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.11.2019 20:02	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.11.2019 20:02	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.11.2019 20:02	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.11.2019 20:02	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.11.2019 20:02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.11.2019 20:02		
1,4-Difluorobenzene	540-36-3	102	%	70-130	11.11.2019 20:02		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02C**
Lab Sample Id: 642228-008

Matrix: Soil
Date Collected: 11.05.2019 12:25

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	146	50.4	mg/kg	11.07.2019 22:34		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 16:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 16:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 16:50	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 16:50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 16:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	73	%	70-135	11.07.2019 16:50	
o-Terphenyl	84-15-1	75	%	70-135	11.07.2019 16:50	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH02C**
Lab Sample Id: 642228-008

Matrix: Soil
Date Collected: 11.05.2019 12:25

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107088

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:15

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.11.2019 20:22	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.11.2019 20:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	11.11.2019 20:22	
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.11.2019 20:22	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH03**
Lab Sample Id: 642228-009

Matrix: Soil
Date Collected: 11.05.2019 12:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	17.0	5.04	mg/kg	11.08.2019 09:26		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 17:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 17:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 17:11	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 17:11	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 17:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-135	11.07.2019 17:11	
o-Terphenyl	84-15-1	71	%	70-135	11.07.2019 17:11	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH03**
Lab Sample Id: 642228-009

Matrix: Soil
Date Collected: 11.05.2019 12:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.08.2019 00:56	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.08.2019 00:56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	11.08.2019 00:56		
1,4-Difluorobenzene	540-36-3	94	%	70-130	11.08.2019 00:56		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH03A**
Lab Sample Id: 642228-010

Matrix: Soil
Date Collected: 11.05.2019 13:00

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	8.21	5.04	mg/kg	11.08.2019 09:32		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.8	49.8	mg/kg	11.07.2019 17:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.07.2019 17:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.07.2019 17:31	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.07.2019 17:31	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.07.2019 17:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-135	11.07.2019 17:31	
o-Terphenyl	84-15-1	70	%	70-135	11.07.2019 17:31	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH03A**
Lab Sample Id: 642228-010

Matrix: Soil
Date Collected: 11.05.2019 13:00

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 01:16	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.08.2019 01:16	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.08.2019 01:16	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.08.2019 01:16	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.08.2019 01:16	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.08.2019 01:16	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.08.2019 01:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	11.08.2019 01:16		
4-Bromofluorobenzene	460-00-4	113	%	70-130	11.08.2019 01:16		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04**
Lab Sample Id: 642228-011

Matrix: Soil
Date Collected: 11.05.2019 13:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	3720	25.3	mg/kg	11.07.2019 22:53		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 18:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 18:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 18:13	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 18:13	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 18:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-135	11.07.2019 18:13	
o-Terphenyl	84-15-1	79	%	70-135	11.07.2019 18:13	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04**
Lab Sample Id: 642228-011

Matrix: Soil
Date Collected: 11.05.2019 13:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 01:36	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.08.2019 01:36	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.08.2019 01:36	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.08.2019 01:36	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.08.2019 01:36	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.08.2019 01:36	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.08.2019 01:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	11.08.2019 01:36		
1,4-Difluorobenzene	540-36-3	92	%	70-130	11.08.2019 01:36		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04B**
Lab Sample Id: 642228-013

Matrix: Soil
Date Collected: 11.05.2019 14:25

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	8190	50.0	mg/kg	11.07.2019 23:18		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 18:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 18:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 18:34	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 18:34	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 18:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	76	%	70-135	11.07.2019 18:34	
o-Terphenyl	84-15-1	80	%	70-135	11.07.2019 18:34	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04B**
Lab Sample Id: 642228-013

Matrix: Soil
Date Collected: 11.05.2019 14:25

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.08.2019 01:57	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.08.2019 01:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.08.2019 01:57	
1,4-Difluorobenzene	540-36-3	93	%	70-130	11.08.2019 01:57	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04C**
Lab Sample Id: 642228-014

Matrix: Soil
Date Collected: 11.05.2019 14:35

Date Received: 11.06.2019 08:10
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	10600	49.7	mg/kg	11.07.2019 23:25		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 18:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 18:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 18:55	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 18:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 18:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	74	%	70-135	11.07.2019 18:55	
o-Terphenyl	84-15-1	79	%	70-135	11.07.2019 18:55	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04C**
Lab Sample Id: 642228-014

Matrix: Soil
Date Collected: 11.05.2019 14:35

Date Received: 11.06.2019 08:10
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 02:17	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.08.2019 02:17	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.08.2019 02:17	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.08.2019 02:17	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.08.2019 02:17	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.08.2019 02:17	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.08.2019 02:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	102	%	70-130	11.08.2019 02:17	
1,4-Difluorobenzene	540-36-3	94	%	70-130	11.08.2019 02:17	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04D**
Lab Sample Id: 642228-015

Matrix: Soil
Date Collected: 11.05.2019 14:50

Date Received: 11.06.2019 08:10
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	9740	49.9	mg/kg	11.07.2019 23:44		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 19:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 19:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 19:16	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 19:16	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 19:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	11.07.2019 19:16	
o-Terphenyl	84-15-1	85	%	70-135	11.07.2019 19:16	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04D**
Lab Sample Id: 642228-015

Matrix: Soil
Date Collected: 11.05.2019 14:50

Date Received: 11.06.2019 08:10
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 02:37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.08.2019 02:37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.08.2019 02:37	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.08.2019 02:37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.08.2019 02:37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.08.2019 02:37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.08.2019 02:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	11.08.2019 02:37	
1,4-Difluorobenzene	540-36-3	101	%	70-130	11.08.2019 02:37	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04E**
Lab Sample Id: 642228-016

Matrix: Soil
Date Collected: 11.05.2019 15:05

Date Received: 11.06.2019 08:10
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106828

Date Prep: 11.07.2019 14:35

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	7510	49.8	mg/kg	11.07.2019 23:50		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 19:36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 19:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 19:36	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 19:36	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 19:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	73	%	70-135	11.07.2019 19:36	
o-Terphenyl	84-15-1	76	%	70-135	11.07.2019 19:36	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04E**
Lab Sample Id: 642228-016

Matrix: Soil
Date Collected: 11.05.2019 15:05

Date Received: 11.06.2019 08:10
Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.08.2019 02:57	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.08.2019 02:57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.08.2019 02:57		
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 02:57		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05**
Lab Sample Id: 642228-017

Matrix: Soil
Date Collected: 11.05.2019 15:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	2570	25.1	mg/kg	11.08.2019 17:23		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 19:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 19:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 19:57	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 19:57	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 19:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	74	%	70-135	11.07.2019 19:57	
o-Terphenyl	84-15-1	81	%	70-135	11.07.2019 19:57	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05**
Lab Sample Id: 642228-017

Matrix: Soil
Date Collected: 11.05.2019 15:45

Date Received: 11.06.2019 08:10
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 03:17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.08.2019 03:17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.08.2019 03:17	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.08.2019 03:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.08.2019 03:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.08.2019 03:17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.08.2019 03:17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.08.2019 03:17		
1,4-Difluorobenzene	540-36-3	102	%	70-130	11.08.2019 03:17		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05A**
Lab Sample Id: 642228-018

Matrix: Soil
Date Collected: 11.05.2019 16:00

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	3650	25.0	mg/kg	11.08.2019 17:29		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<50.0	50.0	mg/kg	11.07.2019 20:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 20:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 20:18	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 20:18	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 20:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-135	11.07.2019 20:18	
o-Terphenyl	84-15-1	82	%	70-135	11.07.2019 20:18	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05A**
Lab Sample Id: 642228-018

Matrix: Soil
Date Collected: 11.05.2019 16:00

Date Received: 11.06.2019 08:10
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 03:37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.08.2019 03:37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.08.2019 03:37	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.08.2019 03:37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.08.2019 03:37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.08.2019 03:37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.08.2019 03:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	70-130	11.08.2019 03:37	
1,4-Difluorobenzene	540-36-3	97	%	70-130	11.08.2019 03:37	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05B**
Lab Sample Id: 642228-019

Matrix: Soil
Date Collected: 11.05.2019 16:10

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	6090	50.5	mg/kg	11.08.2019 17:36		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 20:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 20:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 20:38	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 20:38	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 20:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	73	%	70-135	11.07.2019 20:38	
o-Terphenyl	84-15-1	74	%	70-135	11.07.2019 20:38	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05B**
Lab Sample Id: 642228-019

Matrix: Soil
Date Collected: 11.05.2019 16:10

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 03:57	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.08.2019 03:57	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.08.2019 03:57	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.08.2019 03:57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.08.2019 03:57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.08.2019 03:57	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.08.2019 03:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 03:57	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.08.2019 03:57	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05C**
Lab Sample Id: 642228-020

Matrix: Soil
Date Collected: 11.05.2019 16:20

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	2660	25.2	mg/kg	11.08.2019 17:43		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.8	49.8	mg/kg	11.07.2019 20:59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.07.2019 20:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.07.2019 20:59	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.07.2019 20:59	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.07.2019 20:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.07.2019 20:59	
o-Terphenyl	84-15-1	92	%	70-135	11.07.2019 20:59	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05C**
Lab Sample Id: 642228-020

Matrix: Soil
Date Collected: 11.05.2019 16:20

Date Received: 11.06.2019 08:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 05:16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.08.2019 05:16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.08.2019 05:16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.08.2019 05:16	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.08.2019 05:16	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.08.2019 05:16	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.08.2019 05:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.08.2019 05:16		
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.08.2019 05:16		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05D**
Lab Sample Id: 642228-021

Matrix: Soil
Date Collected: 11.05.2019 16:35

Date Received: 11.06.2019 08:10
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	10100	101	mg/kg	11.08.2019 18:03		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106855

Date Prep: 11.07.2019 11:00

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	<49.9	49.9	mg/kg	11.07.2019 21:20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 21:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 21:20	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 21:20	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 21:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.07.2019 21:20	
o-Terphenyl	84-15-1	92	%	70-135	11.07.2019 21:20	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05D**
Lab Sample Id: 642228-021

Matrix: Soil
Date Collected: 11.05.2019 16:35

Date Received: 11.06.2019 08:10
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 05:36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.08.2019 05:36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.08.2019 05:36	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.08.2019 05:36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.08.2019 05:36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.08.2019 05:36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.08.2019 05:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.08.2019 05:36		
1,4-Difluorobenzene	540-36-3	98	%	70-130	11.08.2019 05:36		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05E**
Lab Sample Id: 642228-022

Matrix: Soil
Date Collected: 11.05.2019 16:50

Date Received: 11.06.2019 08:10
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	14000	100	mg/kg	11.08.2019 18:09		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106843

Date Prep: 11.07.2019 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	<50.0	50.0	mg/kg	11.07.2019 18:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 18:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 18:15	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 18:15	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 18:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.07.2019 18:15	
o-Terphenyl	84-15-1	91	%	70-135	11.07.2019 18:15	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05E**
Lab Sample Id: 642228-022

Matrix: Soil
Date Collected: 11.05.2019 16:50

Date Received: 11.06.2019 08:10
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 05:56	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.08.2019 05:56	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.08.2019 05:56	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.08.2019 05:56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.08.2019 05:56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.08.2019 05:56	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.08.2019 05:56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 05:56		
1,4-Difluorobenzene	540-36-3	98	%	70-130	11.08.2019 05:56		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05F**
Lab Sample Id: 642228-023

Matrix: Soil
Date Collected: 11.05.2019 17:00

Date Received: 11.06.2019 08:10
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	16200	248	mg/kg	11.08.2019 18:16		50

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106843

Date Prep: 11.07.2019 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	<49.8	49.8	mg/kg	11.07.2019 19:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.07.2019 19:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.07.2019 19:11	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.07.2019 19:11	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.07.2019 19:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.07.2019 19:11	
o-Terphenyl	84-15-1	93	%	70-135	11.07.2019 19:11	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05F**
Lab Sample Id: 642228-023

Matrix: Soil
Date Collected: 11.05.2019 17:00

Date Received: 11.06.2019 08:10
Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.07.2019 16:00

Basis: Wet Weight

Seq Number: 3106858

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.08.2019 06:16	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.08.2019 06:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 06:16		
1,4-Difluorobenzene	540-36-3	98	%	70-130	11.08.2019 06:16		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05G**
Lab Sample Id: 642228-024

Matrix: Soil
Date Collected: 11.05.2019 17:10

Date Received: 11.06.2019 08:10
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	10700	99.4	mg/kg	11.08.2019 18:23		20

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106843

Date Prep: 11.07.2019 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	<50.0	50.0	mg/kg	11.07.2019 19:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.07.2019 19:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.07.2019 19:29	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.07.2019 19:29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.07.2019 19:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.07.2019 19:29	
o-Terphenyl	84-15-1	91	%	70-135	11.07.2019 19:29	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH05G**
Lab Sample Id: 642228-024

Matrix: Soil
Date Collected: 11.05.2019 17:10

Date Received: 11.06.2019 08:10
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 06:36	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.08.2019 06:36	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.08.2019 06:36	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.08.2019 06:36	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.08.2019 06:36	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.08.2019 06:36	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.08.2019 06:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 06:36		
1,4-Difluorobenzene	540-36-3	100	%	70-130	11.08.2019 06:36		



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04A**
Lab Sample Id: 642228-025

Matrix: Soil
Date Collected: 11.05.2019 15:05

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106958

Date Prep: 11.08.2019 10:50

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	8070	50.0	mg/kg	11.08.2019 18:29		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106843

Date Prep: 11.07.2019 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	<49.9	49.9	mg/kg	11.07.2019 19:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.07.2019 19:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.07.2019 19:48	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.07.2019 19:48	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.07.2019 19:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.07.2019 19:48	
o-Terphenyl	84-15-1	90	%	70-135	11.07.2019 19:48	



Certificate of Analytical Results 642228

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH04A**
Lab Sample Id: 642228-025

Matrix: Soil
Date Collected: 11.05.2019 15:05

Date Received: 11.06.2019 08:10
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3106858

Prep Method: SW5030B

% Moisture:

Date Prep: 11.07.2019 16:00

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	11.08.2019 06:56	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.08.2019 06:56	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.08.2019 06:56	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.08.2019 06:56	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.08.2019 06:56	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.08.2019 06:56	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.08.2019 06:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95	%	70-130	11.08.2019 06:56	
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.08.2019 06:56	



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. **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 19 #2 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3106828

MB Sample Id: 7689848-1-BLK

Matrix: Solid

LCS Sample Id: 7689848-1-BKS

Prep Method: E300P

Date Prep: 11.07.2019

LCSD Sample Id: 7689848-1-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	267	107	264	106	90-110	1	20	mg/kg	11.07.2019 21:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3106958

MB Sample Id: 7689895-1-BLK

Matrix: Solid

LCS Sample Id: 7689895-1-BKS

Prep Method: E300P

Date Prep: 11.08.2019

LCSD Sample Id: 7689895-1-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	262	105	262	105	90-110	0	20	mg/kg	11.08.2019 16:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3106828

Parent Sample Id: 642228-005

Matrix: Soil

MS Sample Id: 642228-005 S

Prep Method: E300P

Date Prep: 11.07.2019

MSD Sample Id: 642228-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	67.3	249	329	105	325	103	90-110	1	20	mg/kg	11.07.2019 21:37	

Analytical Method: Chloride by EPA 300

Seq Number: 3106828

Parent Sample Id: 642228-006

Matrix: Soil

MS Sample Id: 642228-006 S

Prep Method: E300P

Date Prep: 11.07.2019

MSD Sample Id: 642228-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	380	252	624	97	621	96	90-110	0	20	mg/kg	11.07.2019 23:06	

Analytical Method: Chloride by EPA 300

Seq Number: 3106958

Parent Sample Id: 642398-006

Matrix: Soil

MS Sample Id: 642398-006 S

Prep Method: E300P

Date Prep: 11.08.2019

MSD Sample Id: 642398-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.3	252	287	104	284	103	90-110	1	20	mg/kg	11.08.2019 17:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3106958

Parent Sample Id: 642398-007

Matrix: Soil

MS Sample Id: 642398-007 S

Prep Method: E300P

Date Prep: 11.08.2019

MSD Sample Id: 642398-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.8	250	283	107	283	107	90-110	0	20	mg/kg	11.08.2019 18:42	

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



LT Environmental, Inc.
Remuda Basin 19 #2 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106855

MB Sample Id: 7689841-1-BLK

Matrix: Solid

LCS Sample Id: 7689841-1-BKS

Prep Method: SW8015P

Date Prep: 11.07.2019

LCSD Sample Id: 7689841-1-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	880	88	838	84	70-135	5	20	mg/kg	11.07.2019 12:59	
Diesel Range Organics (DRO)	<15.0	1000	958	96	869	87	70-135	10	20	mg/kg	11.07.2019 12:59	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag		LCSD %Rec	LCSD Flag		Limits	Units	Analysis Date	
1-Chlorooctane	72		95			89			70-135	%	11.07.2019 12:59	
o-Terphenyl	77		99			90			70-135	%	11.07.2019 12:59	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106843

MB Sample Id: 7689843-1-BLK

Matrix: Solid

LCS Sample Id: 7689843-1-BKS

Prep Method: SW8015P

Date Prep: 11.07.2019

LCSD Sample Id: 7689843-1-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	952	95	959	96	70-135	1	20	mg/kg	11.07.2019 17:37	
Diesel Range Organics (DRO)	<15.0	1000	929	93	925	93	70-135	0	20	mg/kg	11.07.2019 17:37	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag		LCSD %Rec	LCSD Flag		Limits	Units	Analysis Date	
1-Chlorooctane	88		110			120			70-135	%	11.07.2019 17:37	
o-Terphenyl	88		95			96			70-135	%	11.07.2019 17:37	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106855

Matrix: Solid

MB Sample Id: 7689841-1-BLK

Prep Method: SW8015P

Date Prep: 11.07.2019

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.07.2019 12:37	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106843

Matrix: Solid

MB Sample Id: 7689843-1-BLK

Prep Method: SW8015P

Date Prep: 11.07.2019

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.07.2019 17:18	

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



LT Environmental, Inc.
Remuda Basin 19 #2 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106855

Parent Sample Id: 642228-001

Matrix: Soil

MS Sample Id: 642228-001 S

Prep Method: SW8015P

Date Prep: 11.07.2019

MSD Sample Id: 642228-001 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	808	81	844	85	70-135	4	20	mg/kg	11.07.2019 14:03	
Diesel Range Organics (DRO)	<15.0	999	830	83	897	90	70-135	8	20	mg/kg	11.07.2019 14:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	74		90		70-135	%	11.07.2019 14:03
o-Terphenyl	74		77		70-135	%	11.07.2019 14:03

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106843

Parent Sample Id: 642228-022

Matrix: Soil

MS Sample Id: 642228-022 S

Prep Method: SW8015P

Date Prep: 11.07.2019

MSD Sample Id: 642228-022 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	1030	103	1030	103	70-135	0	20	mg/kg	11.07.2019 18:34	
Diesel Range Organics (DRO)	<15.0	997	1020	102	1020	102	70-135	0	20	mg/kg	11.07.2019 18:34	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		119		70-135	%	11.07.2019 18:34
o-Terphenyl	102		99		70-135	%	11.07.2019 18:34

Analytical Method: BTEX by EPA 8021B

Seq Number: 3106858

MB Sample Id: 7689854-1-BLK

Matrix: Solid

LCS Sample Id: 7689854-1-BKS

Prep Method: SW5030B

Date Prep: 11.07.2019

LCSD Sample Id: 7689854-1-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	0.0895	90	0.0789	79	70-130	13	35	mg/kg	11.07.2019 22:56	
Toluene	<0.00200	0.100	0.0874	87	0.0840	84	70-130	4	35	mg/kg	11.07.2019 22:56	
Ethylbenzene	<0.00200	0.100	0.0898	90	0.0900	90	70-130	0	35	mg/kg	11.07.2019 22:56	
m,p-Xylenes	<0.00400	0.200	0.183	92	0.185	93	70-130	1	35	mg/kg	11.07.2019 22:56	
o-Xylene	<0.00200	0.100	0.0928	93	0.0959	96	70-130	3	35	mg/kg	11.07.2019 22:56	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	94		98		94		70-130	%	11.07.2019 22:56
4-Bromofluorobenzene	98		99		110		70-130	%	11.07.2019 22:56

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 19 #2 SWD

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107088

Matrix: Solid

Prep Method: SW5030B

Date Prep: 11.07.2019

MB Sample Id: 7689855-1-BLK

LCS Sample Id: 7689855-1-BKS

LCSD Sample Id: 7689855-1-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	11.11.2019 16:01	
Toluene	<0.00200	0.100	0.104	104	0.102	102	70-130	2	35	mg/kg	11.11.2019 16:01	
Ethylbenzene	<0.00200	0.100	0.105	105	0.103	103	70-130	2	35	mg/kg	11.11.2019 16:01	
m,p-Xylenes	<0.00400	0.200	0.214	107	0.210	105	70-130	2	35	mg/kg	11.11.2019 16:01	
o-Xylene	<0.00200	0.100	0.105	105	0.104	104	70-130	1	35	mg/kg	11.11.2019 16:01	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		111		114		70-130	%	11.11.2019 16:01
4-Bromofluorobenzene	93		97		104		70-130	%	11.11.2019 16:01

Analytical Method: BTEX by EPA 8021B

Seq Number: 3106858

Matrix: Soil

Prep Method: SW5030B

Date Prep: 11.07.2019

Parent Sample Id: 642228-009

MS Sample Id: 642228-009 S

MSD Sample Id: 642228-009 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	0.0602	61	0.0463	46	70-130	26	35	mg/kg	11.07.2019 23:37	X
Toluene	<0.00199	0.0994	0.0649	65	0.0692	69	70-130	6	35	mg/kg	11.07.2019 23:37	X
Ethylbenzene	<0.00199	0.0994	0.0683	69	0.0839	83	70-130	20	35	mg/kg	11.07.2019 23:37	X
m,p-Xylenes	<0.00398	0.199	0.140	70	0.172	85	70-130	21	35	mg/kg	11.07.2019 23:37	
o-Xylene	<0.00199	0.0994	0.0728	73	0.0860	85	70-130	17	35	mg/kg	11.07.2019 23:37	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		87		70-130	%	11.07.2019 23:37
4-Bromofluorobenzene	117		124		70-130	%	11.07.2019 23:37

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107088

Matrix: Soil

Prep Method: SW5030B

Date Prep: 11.07.2019

Parent Sample Id: 642228-001

MS Sample Id: 642228-001 S

MSD Sample Id: 642228-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.102	101	0.0878	88	70-130	15	35	mg/kg	11.11.2019 16:41	
Toluene	<0.00202	0.101	0.0730	72	0.0608	61	70-130	18	35	mg/kg	11.11.2019 16:41	X
Ethylbenzene	<0.00202	0.101	0.0627	62	0.0495	50	70-130	24	35	mg/kg	11.11.2019 16:41	X
m,p-Xylenes	<0.00403	0.202	0.126	62	0.0999	50	70-130	23	35	mg/kg	11.11.2019 16:41	X
o-Xylene	<0.00202	0.101	0.0659	65	0.0547	55	70-130	19	35	mg/kg	11.11.2019 16:41	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	116		115		70-130	%	11.11.2019 16:41
4-Bromofluorobenzene	108		108		70-130	%	11.11.2019 16:41

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



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
Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000
Hobbs, NM (575) 382-7550

Work Order No: 049228

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Chain of Custody

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slog@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]

SAMPLE RECEIPT		Temp Blank:		Yes	No	Wet Ice:		Yes	No
Temperature (°C):		Thermometer ID							
Received Intact:	Yes ☒ No ☐	T-200007							
Cooler Custody Seals:	Yes ☒ No ☐	Correction Factor:		-0.2					
Sample Custody Seals:	Yes ☐ No ☒	Total Containers:		24					

Number of Containers

PA 8015)

EPA 0=8021)

le (EPA 300.0)

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

[illegible][illegible]

ce: 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 to Xenco. 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
		11/6/19 08:10			

Sealed Document Due: 7/19/21



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-5334
Midland, TX (432-704-5440) El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 291-3927
Hobbs, NM (575-392-7550)

Work Order No: 00155500

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Chain of Custody

Project Manager:		Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:		LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:		3300 North A Street	Address:	3104 East Green Street
City, State ZIP:		Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:		(432) 236-3849	Email:	slc@ltenv.com, dmoir@ltenv.com

Work Order Comments Program: UST/ST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐ State of Project: Reporting Level II ☐ Level III ☐ ST/UST ☐ RP ☐ Level IV ☐ Deliverables: EDD ☐ ADaPT ☐ Other:				
---	--	--	--	--

Project Name:	Panda Basin 19 #2 SWD	Turn Around	ANALYSIS REQUEST	Work Order Notes
Project Number:	2RP-3152	Routine		
P.O. Number:		Rush:		
Sampler's Name:	Spencer Lo	Due Date:		
SAMPLE RECEIPT				
Temperature (°C):	Temp Blank:	Yes No Wet Ice: Yes No		
Received Intact:	Yes No	Thermometer ID		
Cooler Custody Seals:	Yes No N/A	Correction Factor:		
Sample Custody Seals:	Yes No N/A	Total Containers:		
Number of Containers				
EPA 8015)				
EPA 0=8021)				
de (EPA 300.0)				
TAT starts the day received by the lab, if received by 4:30pm				

[illegible]

Circle Method(s) and Metals(s) to be analyzed	TCLP / SPLP 6010:	8RCRA	Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U	1631 / 245.1 / 7470 / 7471 : Hg												
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

Service. Xenoco 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 Service. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenoco, 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
		11/6/19 08:10			



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:

10412228

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slc@lternv.com, dmoir@lternv.com

Project Name:	Revised Basin 19 #2 SWD	Turn Around	
Project Number:	280-3152	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Temperature (°C):		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Received Intact:	Yes	No	Thermometer ID				
Cooler Custody Seals:	Yes	No	Correction Factor:				
Sample Custody Seals:	Yes	No	Total Containers:				

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)			

Inter-Office Shipment

IOS Number : **51589**

Date/Time: 11.06.2019

Created by: Elizabeth Mcclellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-001	S	PH01	11.05.2019 10:30	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-001	S	PH01	11.05.2019 10:30	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-001	S	PH01	11.05.2019 10:30	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-002	S	PH01A	11.05.2019 10:45	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-002	S	PH01A	11.05.2019 10:45	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-002	S	PH01A	11.05.2019 10:45	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-003	S	PH01B	11.05.2019 11:00	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-003	S	PH01B	11.05.2019 11:00	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-003	S	PH01B	11.05.2019 11:00	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-004	S	PH01C	11.05.2019 11:15	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-004	S	PH01C	11.05.2019 11:15	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-004	S	PH01C	11.05.2019 11:15	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-005	S	PH02	11.05.2019 11:40	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-005	S	PH02	11.05.2019 11:40	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-005	S	PH02	11.05.2019 11:40	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-006	S	PH02A	11.05.2019 11:55	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-006	S	PH02A	11.05.2019 11:55	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-006	S	PH02A	11.05.2019 11:55	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-007	S	PH02B	11.05.2019 12:10	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-007	S	PH02B	11.05.2019 12:10	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-007	S	PH02B	11.05.2019 12:10	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-008	S	PH02C	11.05.2019 12:25	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-008	S	PH02C	11.05.2019 12:25	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-008	S	PH02C	11.05.2019 12:25	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-009	S	PH03	11.05.2019 12:45	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	

Inter-Office Shipment

IOS Number : **51589**

Date/Time: 11.06.2019

Created by: Elizabeth Mcclellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-009	S	PH03	11.05.2019 12:45	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-009	S	PH03	11.05.2019 12:45	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-010	S	PH03A	11.05.2019 13:00	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-010	S	PH03A	11.05.2019 13:00	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-010	S	PH03A	11.05.2019 13:00	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-011	S	PH04	11.05.2019 13:45	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-011	S	PH04	11.05.2019 13:45	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-011	S	PH04	11.05.2019 13:45	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-012	S	PH04A	11.05.2019 14:10	SW8015MOD_NM	TPH by SW8015 Mod	HOLD	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-012	S	PH04A	11.05.2019 14:10	E300_CL	Chloride by EPA 300	HOLD	05.03.2020	JKR	CL	
642228-012	S	PH04A	11.05.2019 14:10	E300_CL	Chloride by EPA 300	HOLD	05.03.2020	JKR	CL	
642228-012	S	PH04A	11.05.2019 14:10	SW8015MOD_NM	TPH by SW8015 Mod	HOLD	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-012	S	PH04A	11.05.2019 14:10	SW8021B	BTEX by EPA 8021B	HOLD	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-012	S	PH04A	11.05.2019 14:10	SW8021B	BTEX by EPA 8021B	HOLD	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-013	S	PH04B	11.05.2019 14:25	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-013	S	PH04B	11.05.2019 14:25	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-013	S	PH04B	11.05.2019 14:25	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-014	S	PH04C	11.05.2019 14:35	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-014	S	PH04C	11.05.2019 14:35	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-014	S	PH04C	11.05.2019 14:35	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-015	S	PH04D	11.05.2019 14:50	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-015	S	PH04D	11.05.2019 14:50	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-015	S	PH04D	11.05.2019 14:50	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-016	S	PH04E	11.05.2019 15:05	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-016	S	PH04E	11.05.2019 15:05	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	

Inter Office Shipment or Sample Comments:

Inter-Office Shipment

IOS Number : **51589**

Date/Time: 11.06.2019

Created by: Elizabeth McClellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-016	S	PH04E	11.05.2019 15:05	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-017	S	PH05	11.05.2019 15:45	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-017	S	PH05	11.05.2019 15:45	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-017	S	PH05	11.05.2019 15:45	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-018	S	PH05A	11.05.2019 16:00	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-018	S	PH05A	11.05.2019 16:00	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-018	S	PH05A	11.05.2019 16:00	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-019	S	PH05B	11.05.2019 16:10	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-019	S	PH05B	11.05.2019 16:10	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-019	S	PH05B	11.05.2019 16:10	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-020	S	PH05C	11.05.2019 16:20	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-020	S	PH05C	11.05.2019 16:20	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-020	S	PH05C	11.05.2019 16:20	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-021	S	PH05D	11.05.2019 16:35	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-021	S	PH05D	11.05.2019 16:35	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-021	S	PH05D	11.05.2019 16:35	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-022	S	PH05E	11.05.2019 16:50	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-022	S	PH05E	11.05.2019 16:50	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-022	S	PH05E	11.05.2019 16:50	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-023	S	PH05F	11.05.2019 17:00	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-023	S	PH05F	11.05.2019 17:00	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-023	S	PH05F	11.05.2019 17:00	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-024	S	PH05G	11.05.2019 17:10	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-024	S	PH05G	11.05.2019 17:10	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-024	S	PH05G	11.05.2019 17:10	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	

Inter Office Shipment or Sample Comments:

Relinquished By:

Received By:

Released to Imaging: 6/11/2025 10:39:31 AM

Inter-Office Shipment

IOS Number : **51589**

Date/Time: 11.06.2019

Lab# From: **Carlsbad**

Lab# To: **Midland**

Created by: Elizabeth Mcclellan

Delivery Priority:

Air Bill No.:

Please send report to: Jessica Kramer

Address: 1089 N Canal Street

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-025	S	PH04F	11.05.2019 15:05	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-025	S	PH04F	11.05.2019 15:05	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-025	S	PH04F	11.05.2019 15:05	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	

Inter Office Shipment or Sample Comments:

Date Relinquished:

Date Received:

Cooler Temperature:

Inter-Office Shipment

IOS Number : **51690**

Date/Time: 11.06.2019

Created by: Elizabeth McClellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-012	S	PH04A	11.05.2019 14:10	SW8015MOD_NM	TPH by SW8015 Mod	HOLD	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-012	S	PH04A	11.05.2019 14:10	SW8021B	BTEX by EPA 8021B	HOLD	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-012	S	PH04A	11.05.2019 14:10	E300_CL	Chloride by EPA 300	HOLD	05.03.2020	JKR	CL	
642228-025	S	PH04F	11.05.2019 15:05	E300_CL	Chloride by EPA 300	11.12.2019	05.03.2020	JKR	CL	
642228-025	S	PH04F	11.05.2019 15:05	SW8015MOD_NM	TPH by SW8015 Mod	11.12.2019	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-025	S	PH04F	11.05.2019 15:05	SW8021B	BTEX by EPA 8021B	11.12.2019	11.19.2019	JKR	BZ BZME EBZ XYLENE	

Inter Office Shipment or Sample Comments:

Relinquished By:



Elizabeth McClellan

Date Relinquished: 11.06.2019

Received By: _____

Date Received: _____

Cooler Temperature: _____

Inter-Office Shipment

IOS Number : **51694**

Date/Time: 11.06.2019

Created by: Elizabeth McClellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

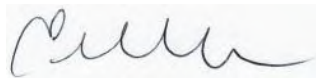
Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642228-012	S	PH04A	11.05.2019 14:10	SW8015MOD_NM	TPH by SW8015 Mod	HOLD	11.19.2019	JKR	GRO-DRO PHCC10C28	
642228-012	S	PH04A	11.05.2019 14:10	SW8021B	BTEX by EPA 8021B	HOLD	11.19.2019	JKR	BZ BZME EBZ XYLENE	
642228-012	S	PH04A	11.05.2019 14:10	E300_CL	Chloride by EPA 300	HOLD	05.03.2020	JKR	CL	

Inter Office Shipment or Sample Comments:

Relinquished By:



Elizabeth McClellan

Date Relinquished: 11.06.2019

Received By: _____

Date Received: _____

Cooler Temperature: _____



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 51589

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sent By: Elizabeth McClellan

Date Sent: 11/06/2019 12:28 PM

Received By: Brianna Teel

Date Received: 11/07/2019 11:20 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.6
#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: 11/07/2019

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 11.06.2019 08.10.00 AM

Work Order #: 642228

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)?	1.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	Yes
	Sample 012 container received empty. PH04A @ 3ft added to work order
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes
#18 Water VOC samples have zero headspace?	N/A
	Subbed to Midland

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

Analyst:

PH Device/Lot#:

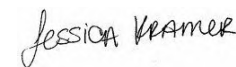
Checklist completed by:



Elizabeth McClellan

Date: 11.06.2019

Checklist reviewed by:



Jessica Kramer

Date: 11.06.2019

Analytical Report 642441

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 #2 SWD

12-NOV-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 (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)



12-NOV-19

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

Reference: XENCO Report No(s): **642441**
Remuda Basin 19 #2 SWD
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) 642441. 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. 642441 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 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH06	S	11-06-19 09:30	1 ft	642441-001
PH06A	S	11-06-19 09:40	2 ft	642441-002
PH06B	S	11-06-19 09:50	3 ft	642441-003
PH07	S	11-06-19 11:40	1 ft	642441-004
PH07A	S	11-06-19 11:50	2 ft	642441-005
PH07B	S	11-06-19 12:40	3 ft	642441-006
PH07C	S	11-06-19 12:50	4 ft	642441-007
PH07D	S	11-06-19 13:00	5 ft	642441-008
PH08	S	11-06-19 13:10	1 ft	642441-009
PH08A	S	11-06-19 13:20	2 ft	642441-010
PH08B	S	11-06-19 13:30	3 ft	642441-011
PH09	S	11-06-19 13:50	1 ft	642441-012
PH09A	S	11-06-19 14:00	2 ft	642441-013
PH09B	S	11-06-19 14:10	3 ft	642441-014
PH09C	S	11-06-19 14:20	4 ft	642441-015
PH09D	S	11-06-19 14:30	5 ft	642441-016
PH10	S	11-06-19 14:50	1 ft	642441-017
PH10A	S	11-06-19 15:00	2 ft	642441-018
PH10B	S	11-06-19 15:10	3 ft	642441-019
PH10C	S	11-06-19 15:20	4 ft	642441-020
PH10D	S	11-06-19 15:30	5 ft	642441-021
PH10E	S	11-06-19 15:40	6 ft	642441-022
PH10F	S	11-06-19 15:50	7 ft	642441-023
PH10G	S	11-06-19 16:00	8 ft	642441-024



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Remuda Basin 19 #2 SWD

Project ID:
Work Order Number(s): 642441

Report Date: 12-NOV-19
Date Received: 11/07/2019

Sample receipt non conformance and comments:

None

Sample receipt non conformance and comments per sample:

None

Analytical non conformance and comments:

Batch: LBA-3107000 BTEX by EPA 8021B

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

Batch: LBA-3107085 BTEX by EPA 8021B

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

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

Samples affected are: 642582-001 S.



Certificate of Analysis Summary 642441

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 #2 SWD

Project Id:

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu Nov-07-19 08:20 am

Report Date: 12-NOV-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	642441-001	642441-002	642441-003	642441-004	642441-005	642441-006
	<i>Field Id:</i>	PH06	PH06A	PH06B	PH07	PH07A	PH07B
	<i>Depth:</i>	1- ft	2- ft	3- ft	1- ft	2- ft	3- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-06-19 09:30	Nov-06-19 09:40	Nov-06-19 09:50	Nov-06-19 11:40	Nov-06-19 11:50	Nov-06-19 12:40
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00
	<i>Analyzed:</i>	Nov-09-19 00:14	Nov-09-19 00:34	Nov-09-19 00:54	Nov-09-19 01:14	Nov-09-19 01:34	Nov-09-19 01:55
	<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	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Toluene		<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Ethylbenzene		<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
m,p-Xylenes		<0.00396 0.00396	<0.00398 0.00398	<0.00399 0.00399	<0.00400 0.00400	<0.00397 0.00397	<0.00397 0.00397
o-Xylene		<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total Xylenes		<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total BTEX		<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Chloride by EPA 300 SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 12:05	Nov-08-19 12:05	Nov-08-19 12:05	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30
	<i>Analyzed:</i>	Nov-09-19 03:08	Nov-09-19 03:14	Nov-09-19 03:21	Nov-08-19 16:55	Nov-08-19 17:11	Nov-08-19 17:16
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		392 25.0	563 25.0	336 5.00	6.81 5.05	21.2 5.02	5.94 4.96
TPH by SW8015 Mod SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00
	<i>Analyzed:</i>	Nov-08-19 21:43	Nov-08-19 22:39	Nov-08-19 22:57	Nov-08-19 23:16	Nov-08-19 23:35	Nov-08-19 23:54
	<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)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Total TPH		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0

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Jessica Kramer
Project Assistant

Certificate of Analysis Summary 642441



LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 #2 SWD

Project Id:

Date Received in Lab: Thu Nov-07-19 08:20 am

Contact: Dan Moir

Report Date: 12-NOV-19

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	642441-007	642441-008	642441-009	642441-010	642441-011	642441-012
	<i>Field Id:</i>	PH07C	PH07D	PH08	PH08A	PH08B	PH09
	<i>Depth:</i>	4- ft	5- ft	1- ft	2- ft	3- ft	1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-06-19 12:50	Nov-06-19 13:00	Nov-06-19 13:10	Nov-06-19 13:20	Nov-06-19 13:30	Nov-06-19 13:50
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00
	<i>Analyzed:</i>	Nov-09-19 02:15	Nov-09-19 02:35	Nov-09-19 02:55	Nov-09-19 03:15	Nov-09-19 04:33	Nov-09-19 04:53
	<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	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00398 0.00398	<0.00403 0.00403	<0.00401 0.00401	<0.00404 0.00404	<0.00400 0.00400	<0.00403 0.00403
o-Xylene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300 SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30
	<i>Analyzed:</i>	Nov-08-19 17:21	Nov-08-19 17:26	Nov-08-19 20:07	Nov-08-19 20:12	Nov-08-19 20:17	Nov-08-19 17:57
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.04 5.04	12.9 5.00	<4.97 4.97	<4.99 4.99	11.1 5.03	8.40 4.95
TPH by SW8015 Mod SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00
	<i>Analyzed:</i>	Nov-09-19 00:13	Nov-09-19 00:32	Nov-09-19 00:50	Nov-09-19 01:09	Nov-09-19 01:47	Nov-09-19 02:06
	<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)		<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Diesel Range Organics (DRO)		<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Total GRO-DRO		<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Total TPH		<49.8 49.8	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 642441

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 #2 SWD

Project Id:

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu Nov-07-19 08:20 am

Report Date: 12-NOV-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	642441-013	642441-014	642441-015	642441-016	642441-017	642441-018
	<i>Field Id:</i>	PH09A	PH09B	PH09C	PH09D	PH10	PH10A
	<i>Depth:</i>	2- ft	3- ft	4- ft	5- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-06-19 14:00	Nov-06-19 14:10	Nov-06-19 14:20	Nov-06-19 14:30	Nov-06-19 14:50	Nov-06-19 15:00
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:00
	<i>Analyzed:</i>	Nov-09-19 05:14	Nov-09-19 05:34	Nov-09-19 05:54	Nov-09-19 06:14	Nov-09-19 06:34	Nov-09-19 06:54
	<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	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Toluene		<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
m,p-Xylenes		<0.00399 0.00399	<0.00403 0.00403	<0.00404 0.00404	<0.00400 0.00400	<0.00397 0.00397	<0.00396 0.00396
o-Xylene		<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total BTEX		<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Chloride by EPA 300 SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30
	<i>Analyzed:</i>	Nov-08-19 18:02	Nov-08-19 18:07	Nov-08-19 18:23	Nov-08-19 18:28	Nov-08-19 18:43	Nov-08-19 18:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		11.1 5.04	5.81 5.00	33.7 5.03	163 49.7	5.19 4.99	10.3 4.95
TPH by SW8015 Mod SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 14:00
	<i>Analyzed:</i>	Nov-09-19 02:25	Nov-09-19 02:44	Nov-09-19 03:03	Nov-09-19 03:21	Nov-09-19 03:40	Nov-09-19 03:59
	<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)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<49.9 49.9
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<49.9 49.9
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<49.9 49.9
Total TPH		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<49.9 49.9

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Jessica Kramer
Project Assistant



Certificate of Analysis Summary 642441

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 #2 SWD

Project Id:

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu Nov-07-19 08:20 am

Report Date: 12-NOV-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	642441-019	642441-020	642441-021	642441-022	642441-023	642441-024
	<i>Field Id:</i>	PH10B	PH10C	PH10D	PH10E	PH10F	PH10G
	<i>Depth:</i>	3- ft	4- ft	5- ft	6- ft	7- ft	8- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Nov-06-19 15:10	Nov-06-19 15:20	Nov-06-19 15:30	Nov-06-19 15:40	Nov-06-19 15:50	Nov-06-19 16:00
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 16:00	Nov-08-19 16:00	Nov-08-19 16:30	Nov-08-19 16:30	Nov-08-19 16:30	Nov-08-19 16:30
	<i>Analyzed:</i>	Nov-09-19 07:14	Nov-09-19 07:35	Nov-11-19 21:06	Nov-11-19 21:26	Nov-11-19 21:46	Nov-11-19 22:06
	<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	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
m,p-Xylenes		<0.00399 0.00399	<0.00398 0.00398	<0.00401 0.00401	<0.00397 0.00397	<0.00404 0.00404	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199
Chloride by EPA 300 SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-08-19 14:30	Nov-11-19 10:00
	<i>Analyzed:</i>	Nov-08-19 18:54	Nov-08-19 18:59	Nov-08-19 19:04	Nov-08-19 19:09	Nov-08-19 19:14	Nov-11-19 10:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.04 5.04	<4.98 4.98	<5.00 5.00	8.83 5.03	14.3 4.99	45.2 5.02
TPH by SW8015 Mod SUB: T104704400-19-19	<i>Extracted:</i>	Nov-08-19 14:00	Nov-08-19 14:00	Nov-08-19 11:00	Nov-08-19 11:00	Nov-08-19 11:00	Nov-08-19 11:00
	<i>Analyzed:</i>	Nov-09-19 04:18	Nov-09-19 04:37	Nov-08-19 15:27	Nov-08-19 15:46	Nov-08-19 16:05	Nov-08-19 16:24
	<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)		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0
Diesel Range Organics (DRO)		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0
Total GRO-DRO		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0
Total TPH		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0

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Jessica Kramer
Project Assistant



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06**
Lab Sample Id: 642441-001

Matrix: Soil
Date Collected: 11.06.19 09.30

Date Received: 11.07.19 08.20
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106962

Date Prep: 11.08.19 12.05

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	392	25.0	mg/kg	11.09.19 03.08		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.08.19 21.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 21.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 21.43	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 21.43	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 21.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	11.08.19 21.43	
o-Terphenyl	84-15-1	102	%	70-135	11.08.19 21.43	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06**
 Lab Sample Id: 642441-001

Matrix: Soil
 Date Collected: 11.06.19 09.30

Date Received: 11.07.19 08.20
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.09.19 00.14	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.09.19 00.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	11.09.19 00.14		
1,4-Difluorobenzene	540-36-3	104	%	70-130	11.09.19 00.14		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06A**
Lab Sample Id: 642441-002

Matrix: Soil
Date Collected: 11.06.19 09.40

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106962

Date Prep: 11.08.19 12.05

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	563	25.0	mg/kg	11.09.19 03.14		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.08.19 22.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 22.39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 22.39	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 22.39	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 22.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	11.08.19 22.39	
o-Terphenyl	84-15-1	90	%	70-135	11.08.19 22.39	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06A**
 Lab Sample Id: 642441-002

Matrix: Soil
 Date Collected: 11.06.19 09.40

Date Received: 11.07.19 08.20
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

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	11.09.19 00.34	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.09.19 00.34	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.09.19 00.34	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.09.19 00.34	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.09.19 00.34	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.09.19 00.34	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.09.19 00.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.09.19 00.34		
4-Bromofluorobenzene	460-00-4	112	%	70-130	11.09.19 00.34		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06B**
Lab Sample Id: 642441-003

Matrix: Soil
Date Collected: 11.06.19 09.50

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106962

Date Prep: 11.08.19 12.05

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	336	5.00	mg/kg	11.09.19 03.21		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.08.19 22.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 22.57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 22.57	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 22.57	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 22.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.08.19 22.57	
o-Terphenyl	84-15-1	93	%	70-135	11.08.19 22.57	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH06B**
 Lab Sample Id: 642441-003

Matrix: Soil
 Date Collected: 11.06.19 09.50

Date Received: 11.07.19 08.20
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

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	11.09.19 00.54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 00.54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 00.54	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.09.19 00.54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 00.54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 00.54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 00.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	11.09.19 00.54		
4-Bromofluorobenzene	460-00-4	109	%	70-130	11.09.19 00.54		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07**
Lab Sample Id: 642441-004

Matrix: Soil
Date Collected: 11.06.19 11.40

Date Received: 11.07.19 08.20
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	6.81	5.05	mg/kg	11.08.19 16.55		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.08.19 23.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.08.19 23.16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.08.19 23.16	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.08.19 23.16	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.08.19 23.16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.08.19 23.16	
o-Terphenyl	84-15-1	93	%	70-135	11.08.19 23.16	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07**
 Lab Sample Id: 642441-004

Matrix: Soil
 Date Collected: 11.06.19 11.40

Date Received: 11.07.19 08.20
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.09.19 01.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 01.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.09.19 01.14		
1,4-Difluorobenzene	540-36-3	105	%	70-130	11.09.19 01.14		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07A**
Lab Sample Id: 642441-005

Matrix: Soil
Date Collected: 11.06.19 11.50

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	21.2	5.02	mg/kg	11.08.19 17.11		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.08.19 23.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.08.19 23.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.08.19 23.35	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.08.19 23.35	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.08.19 23.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.08.19 23.35	
o-Terphenyl	84-15-1	92	%	70-135	11.08.19 23.35	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07A**
Lab Sample Id: 642441-005

Matrix: Soil
Date Collected: 11.06.19 11.50

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.09.19 01.34	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.09.19 01.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	11.09.19 01.34		
1,4-Difluorobenzene	540-36-3	106	%	70-130	11.09.19 01.34		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07B**
Lab Sample Id: 642441-006

Matrix: Soil
Date Collected: 11.06.19 12.40

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	5.94	4.96	mg/kg	11.08.19 17.16		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.08.19 23.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 23.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 23.54	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 23.54	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 23.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.08.19 23.54	
o-Terphenyl	84-15-1	90	%	70-135	11.08.19 23.54	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07B**
 Lab Sample Id: 642441-006

Matrix: Soil
 Date Collected: 11.06.19 12.40

Date Received: 11.07.19 08.20
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.09.19 01.55	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.09.19 01.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	11.09.19 01.55		
4-Bromofluorobenzene	460-00-4	111	%	70-130	11.09.19 01.55		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07C**
Lab Sample Id: 642441-007

Matrix: Soil
Date Collected: 11.06.19 12.50

Date Received: 11.07.19 08.20
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<5.04	5.04	mg/kg	11.08.19 17.21	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.8	49.8	mg/kg	11.09.19 00.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.09.19 00.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.09.19 00.13	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.09.19 00.13	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.09.19 00.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	11.09.19 00.13	
o-Terphenyl	84-15-1	94	%	70-135	11.09.19 00.13	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07C**
Lab Sample Id: 642441-007

Matrix: Soil
Date Collected: 11.06.19 12.50

Date Received: 11.07.19 08.20
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

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	11.09.19 02.15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.09.19 02.15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.09.19 02.15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.09.19 02.15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.09.19 02.15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.09.19 02.15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.09.19 02.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	11.09.19 02.15		
1,4-Difluorobenzene	540-36-3	112	%	70-130	11.09.19 02.15		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07D**
Lab Sample Id: 642441-008

Matrix: Soil
Date Collected: 11.06.19 13.00

Date Received: 11.07.19 08.20
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	12.9	5.00	mg/kg	11.08.19 17.26		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 00.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 00.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 00.32	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 00.32	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 00.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.09.19 00.32	
o-Terphenyl	84-15-1	92	%	70-135	11.09.19 00.32	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH07D**
 Lab Sample Id: 642441-008

Matrix: Soil
 Date Collected: 11.06.19 13.00

Date Received: 11.07.19 08.20
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.09.19 02.35	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.09.19 02.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.09.19 02.35		
4-Bromofluorobenzene	460-00-4	111	%	70-130	11.09.19 02.35		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08**
Lab Sample Id: 642441-009

Matrix: Soil
Date Collected: 11.06.19 13.10

Date Received: 11.07.19 08.20
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<4.97	4.97	mg/kg	11.08.19 20.07	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.09.19 00.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.09.19 00.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.09.19 00.50	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.09.19 00.50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.09.19 00.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	11.09.19 00.50	
o-Terphenyl	84-15-1	88	%	70-135	11.09.19 00.50	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08**
 Lab Sample Id: 642441-009

Matrix: Soil
 Date Collected: 11.06.19 13.10

Date Received: 11.07.19 08.20
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

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	11.09.19 02.55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 02.55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 02.55	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.09.19 02.55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 02.55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 02.55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 02.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	11.09.19 02.55		
1,4-Difluorobenzene	540-36-3	106	%	70-130	11.09.19 02.55		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08A**
Lab Sample Id: 642441-010

Matrix: Soil
Date Collected: 11.06.19 13.20

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<4.99	4.99	mg/kg	11.08.19 20.12	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.8	49.8	mg/kg	11.09.19 01.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.09.19 01.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.09.19 01.09	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.09.19 01.09	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.09.19 01.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.09.19 01.09	
o-Terphenyl	84-15-1	86	%	70-135	11.09.19 01.09	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08A**
Lab Sample Id: 642441-010

Matrix: Soil
Date Collected: 11.06.19 13.20

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.09.19 03.15	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.09.19 03.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.09.19 03.15		
1,4-Difluorobenzene	540-36-3	107	%	70-130	11.09.19 03.15		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08B**
Lab Sample Id: 642441-011

Matrix: Soil
Date Collected: 11.06.19 13.30

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	11.1	5.03	mg/kg	11.08.19 20.17		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 01.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 01.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 01.47	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 01.47	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 01.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.09.19 01.47	
o-Terphenyl	84-15-1	91	%	70-135	11.09.19 01.47	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH08B**
 Lab Sample Id: 642441-011

Matrix: Soil
 Date Collected: 11.06.19 13.30

Date Received: 11.07.19 08.20
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

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	11.09.19 04.33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 04.33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 04.33	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.09.19 04.33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 04.33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 04.33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 04.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	11.09.19 04.33		
4-Bromofluorobenzene	460-00-4	102	%	70-130	11.09.19 04.33		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09**
Lab Sample Id: 642441-012

Matrix: Soil
Date Collected: 11.06.19 13.50

Date Received: 11.07.19 08.20
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	8.40	4.95	mg/kg	11.08.19 17.57		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 02.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 02.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 02.06	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 02.06	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 02.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	11.09.19 02.06	
o-Terphenyl	84-15-1	93	%	70-135	11.09.19 02.06	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09**
 Lab Sample Id: 642441-012

Matrix: Soil
 Date Collected: 11.06.19 13.50

Date Received: 11.07.19 08.20
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.09.19 04.53	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.09.19 04.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	11.09.19 04.53		
1,4-Difluorobenzene	540-36-3	106	%	70-130	11.09.19 04.53		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09A**
Lab Sample Id: 642441-013

Matrix: Soil
Date Collected: 11.06.19 14.00

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	11.1	5.04	mg/kg	11.08.19 18.02		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.09.19 02.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.09.19 02.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.09.19 02.25	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.09.19 02.25	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.09.19 02.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	11.09.19 02.25	
o-Terphenyl	84-15-1	88	%	70-135	11.09.19 02.25	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09A**
Lab Sample Id: 642441-013

Matrix: Soil
Date Collected: 11.06.19 14.00

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Date Prep: 11.08.19 16.00

Prep Method: SW5030B

% Moisture:

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	11.09.19 05.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 05.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 05.14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.09.19 05.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 05.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 05.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 05.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.09.19 05.14		
1,4-Difluorobenzene	540-36-3	112	%	70-130	11.09.19 05.14		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09B**
Lab Sample Id: 642441-014

Matrix: Soil
Date Collected: 11.06.19 14.10

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	5.81	5.00	mg/kg	11.08.19 18.07		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.09.19 02.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.09.19 02.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.09.19 02.44	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.09.19 02.44	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.09.19 02.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	11.09.19 02.44	
o-Terphenyl	84-15-1	86	%	70-135	11.09.19 02.44	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09B**
Lab Sample Id: 642441-014

Matrix: Soil
Date Collected: 11.06.19 14.10

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.00

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.09.19 05.34	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.09.19 05.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	11.09.19 05.34		
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.09.19 05.34		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09C**
Lab Sample Id: 642441-015

Matrix: Soil
Date Collected: 11.06.19 14.20

Date Received: 11.07.19 08.20
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	33.7	5.03	mg/kg	11.08.19 18.23		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 03.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 03.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 03.03	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 03.03	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 03.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	11.09.19 03.03	
o-Terphenyl	84-15-1	96	%	70-135	11.09.19 03.03	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09C**
 Lab Sample Id: 642441-015

Matrix: Soil
 Date Collected: 11.06.19 14.20

Date Received: 11.07.19 08.20
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.09.19 05.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.09.19 05.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	11.09.19 05.54		
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.09.19 05.54		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09D**
Lab Sample Id: 642441-016

Matrix: Soil
Date Collected: 11.06.19 14.30

Date Received: 11.07.19 08.20
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	163	49.7	mg/kg	11.08.19 18.28		10

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.09.19 03.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.09.19 03.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.09.19 03.21	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.09.19 03.21	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.09.19 03.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.09.19 03.21	
o-Terphenyl	84-15-1	89	%	70-135	11.09.19 03.21	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH09D**
Lab Sample Id: 642441-016

Matrix: Soil
Date Collected: 11.06.19 14.30

Date Received: 11.07.19 08.20
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.09.19 06.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 06.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.09.19 06.14		
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.09.19 06.14		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10**
Lab Sample Id: 642441-017

Matrix: Soil
Date Collected: 11.06.19 14.50

Date Received: 11.07.19 08.20
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	5.19	4.99	mg/kg	11.08.19 18.43		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 03.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 03.40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 03.40	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 03.40	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 03.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.09.19 03.40	
o-Terphenyl	84-15-1	88	%	70-135	11.09.19 03.40	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10**
 Lab Sample Id: 642441-017

Matrix: Soil
 Date Collected: 11.06.19 14.50

Date Received: 11.07.19 08.20
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.09.19 06.34	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.09.19 06.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	11.09.19 06.34		
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.09.19 06.34		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10A**
Lab Sample Id: 642441-018

Matrix: Soil
Date Collected: 11.06.19 15.00

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	10.3	4.95	mg/kg	11.08.19 18.48		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.9	49.9	mg/kg	11.09.19 03.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.09.19 03.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.09.19 03.59	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.09.19 03.59	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.09.19 03.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.09.19 03.59	
o-Terphenyl	84-15-1	89	%	70-135	11.09.19 03.59	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10A**
Lab Sample Id: 642441-018

Matrix: Soil
Date Collected: 11.06.19 15.00

Date Received: 11.07.19 08.20
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.09.19 06.54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.09.19 06.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	11.09.19 06.54		
4-Bromofluorobenzene	460-00-4	107	%	70-130	11.09.19 06.54		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10B**
Lab Sample Id: 642441-019

Matrix: Soil
Date Collected: 11.06.19 15.10

Date Received: 11.07.19 08.20
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<5.04	5.04	mg/kg	11.08.19 18.54	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<49.8	49.8	mg/kg	11.09.19 04.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.09.19 04.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.09.19 04.18	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.09.19 04.18	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.09.19 04.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.09.19 04.18	
o-Terphenyl	84-15-1	87	%	70-135	11.09.19 04.18	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10B**
 Lab Sample Id: 642441-019

Matrix: Soil
 Date Collected: 11.06.19 15.10

Date Received: 11.07.19 08.20
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107000

Date Prep: 11.08.19 16.00

Prep Method: SW5030B

% Moisture:

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	11.09.19 07.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.09.19 07.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.09.19 07.14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.09.19 07.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.09.19 07.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.09.19 07.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.09.19 07.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	11.09.19 07.14		
1,4-Difluorobenzene	540-36-3	108	%	70-130	11.09.19 07.14		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10C**
Lab Sample Id: 642441-020

Matrix: Soil
Date Collected: 11.06.19 15.20

Date Received: 11.07.19 08.20
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<4.98	4.98	mg/kg	11.08.19 18.59	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106963

Date Prep: 11.08.19 14.00

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	<50.0	50.0	mg/kg	11.09.19 04.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.09.19 04.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.09.19 04.37	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.09.19 04.37	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.09.19 04.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.09.19 04.37	
o-Terphenyl	84-15-1	90	%	70-135	11.09.19 04.37	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10C**
 Lab Sample Id: 642441-020

Matrix: Soil
 Date Collected: 11.06.19 15.20

Date Received: 11.07.19 08.20
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.08.19 16.00

Basis: Wet Weight

Seq Number: 3107000

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.09.19 07.35	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.09.19 07.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	11.09.19 07.35		
1,4-Difluorobenzene	540-36-3	109	%	70-130	11.09.19 07.35		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10D**
Lab Sample Id: 642441-021

Matrix: Soil
Date Collected: 11.06.19 15.30

Date Received: 11.07.19 08.20
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	<5.00	5.00	mg/kg	11.08.19 19.04	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106961

Date Prep: 11.08.19 11.00

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	<50.0	50.0	mg/kg	11.08.19 15.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 15.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 15.27	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 15.27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 15.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	11.08.19 15.27	
o-Terphenyl	84-15-1	97	%	70-135	11.08.19 15.27	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10D**
 Lab Sample Id: 642441-021

Matrix: Soil
 Date Collected: 11.06.19 15.30

Date Received: 11.07.19 08.20
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107085

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.30

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	11.11.19 21.06	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.11.19 21.06	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.11.19 21.06	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.11.19 21.06	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.11.19 21.06	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.11.19 21.06	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.11.19 21.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.11.19 21.06		
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.11.19 21.06		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10E**
Lab Sample Id: 642441-022

Matrix: Soil
Date Collected: 11.06.19 15.40

Date Received: 11.07.19 08.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	8.83	5.03	mg/kg	11.08.19 19.09		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106961

Date Prep: 11.08.19 11.00

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	<49.9	49.9	mg/kg	11.08.19 15.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.08.19 15.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.08.19 15.46	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	11.08.19 15.46	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.08.19 15.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	11.08.19 15.46	
o-Terphenyl	84-15-1	89	%	70-135	11.08.19 15.46	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10E**
Lab Sample Id: 642441-022

Matrix: Soil
Date Collected: 11.06.19 15.40

Date Received: 11.07.19 08.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107085

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.30

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.11.19 21.26	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.11.19 21.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	11.11.19 21.26		
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.11.19 21.26		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10F**
Lab Sample Id: 642441-023

Matrix: Soil
Date Collected: 11.06.19 15.50

Date Received: 11.07.19 08.20
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3106965

Date Prep: 11.08.19 14.30

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	14.3	4.99	mg/kg	11.08.19 19.14		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106961

Date Prep: 11.08.19 11.00

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	<49.8	49.8	mg/kg	11.08.19 16.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.08.19 16.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.08.19 16.05	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	11.08.19 16.05	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.08.19 16.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	11.08.19 16.05	
o-Terphenyl	84-15-1	93	%	70-135	11.08.19 16.05	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10F**
 Lab Sample Id: 642441-023

Matrix: Soil
 Date Collected: 11.06.19 15.50

Date Received: 11.07.19 08.20
 Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107085

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.30

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.11.19 21.46	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.11.19 21.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.11.19 21.46		
1,4-Difluorobenzene	540-36-3	107	%	70-130	11.11.19 21.46		



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10G**
Lab Sample Id: 642441-024

Matrix: Soil
Date Collected: 11.06.19 16.00

Date Received: 11.07.19 08.20
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3107080

Date Prep: 11.11.19 10.00

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	45.2	5.02	mg/kg	11.11.19 10.52		1

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3106961

Date Prep: 11.08.19 11.00

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	<50.0	50.0	mg/kg	11.08.19 16.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.08.19 16.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.08.19 16.24	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	11.08.19 16.24	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.08.19 16.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	11.08.19 16.24	
o-Terphenyl	84-15-1	91	%	70-135	11.08.19 16.24	



Certificate of Analytical Results 642441

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 #2 SWD

Sample Id: **PH10G**
Lab Sample Id: 642441-024

Matrix: Soil
Date Collected: 11.06.19 16.00

Date Received: 11.07.19 08.20
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Tech: KTL

Analyst: KTL

Seq Number: 3107085

Prep Method: SW5030B

% Moisture:

Date Prep: 11.08.19 16.30

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	11.11.19 22.06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.11.19 22.06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.11.19 22.06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.11.19 22.06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.11.19 22.06	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.11.19 22.06	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.11.19 22.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.11.19 22.06		
1,4-Difluorobenzene	540-36-3	107	%	70-130	11.11.19 22.06		



Flagging Criteria

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

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

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
Remuda Basin 19 #2 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3106962

MB Sample Id: 7689901-1-BLK

Matrix: Solid

LCS Sample Id: 7689901-1-BKS

Prep Method: E300P

Date Prep: 11.08.19

LCSD Sample Id: 7689901-1-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	254	102	254	102	90-110	0	20	mg/kg	11.09.19 00:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3106965

MB Sample Id: 7689910-1-BLK

Matrix: Solid

LCS Sample Id: 7689910-1-BKS

Prep Method: E300P

Date Prep: 11.08.19

LCSD Sample Id: 7689910-1-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	247	99	90-110	0	20	mg/kg	11.08.19 16:45	

Analytical Method: Chloride by EPA 300

Seq Number: 3107080

MB Sample Id: 7690014-1-BLK

Matrix: Solid

LCS Sample Id: 7690014-1-BKS

Prep Method: E300P

Date Prep: 11.11.19

LCSD Sample Id: 7690014-1-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	261	104	261	104	90-110	0	20	mg/kg	11.11.19 10:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3106962

Parent Sample Id: 642589-017

Matrix: Soil

MS Sample Id: 642589-017 S

Prep Method: E300P

Date Prep: 11.08.19

MSD Sample Id: 642589-017 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.3	250	297	107	295	106	90-110	1	20	mg/kg	11.09.19 02:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3106962

Parent Sample Id: 642593-003

Matrix: Soil

MS Sample Id: 642593-003 S

Prep Method: E300P

Date Prep: 11.08.19

MSD Sample Id: 642593-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.69	248	278	109	269	105	90-110	3	20	mg/kg	11.09.19 00:28	

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.
Remuda Basin 19 #2 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3106965

Parent Sample Id: 642441-004

Matrix: Soil

MS Sample Id: 642441-004 S

Prep Method: E300P

Date Prep: 11.08.19

MSD Sample Id: 642441-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.81	253	261	100	258	99	90-110	1	20	mg/kg	11.08.19 17:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3106965

Parent Sample Id: 642441-014

Matrix: Soil

MS Sample Id: 642441-014 S

Prep Method: E300P

Date Prep: 11.08.19

MSD Sample Id: 642441-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5.81	250	273	107	277	108	90-110	1	20	mg/kg	11.08.19 18:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3107080

Parent Sample Id: 642448-001

Matrix: Soil

MS Sample Id: 642448-001 S

Prep Method: E300P

Date Prep: 11.11.19

MSD Sample Id: 642448-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	110	248	366	103	365	103	90-110	0	20	mg/kg	11.11.19 10:38	

Analytical Method: Chloride by EPA 300

Seq Number: 3107080

Parent Sample Id: 642448-002

Matrix: Soil

MS Sample Id: 642448-002 S

Prep Method: E300P

Date Prep: 11.11.19

MSD Sample Id: 642448-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	121	250	380	104	379	103	90-110	0	20	mg/kg	11.11.19 12:11	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106961

MB Sample Id: 7689935-1-BLK

Matrix: Solid

LCS Sample Id: 7689935-1-BKS

Prep Method: SW8015P

Date Prep: 11.08.19

LCSD Sample Id: 7689935-1-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	970	97	972	97	70-135	0	20	mg/kg	11.08.19 13:15	
Diesel Range Organics (DRO)	<15.0	1000	946	95	945	95	70-135	0	20	mg/kg	11.08.19 13:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		114		116		70-135	%	11.08.19 13:15
o-Terphenyl	90		98		103		70-135	%	11.08.19 13:15

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



LT Environmental, Inc.
Remuda Basin 19 #2 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106963

MB Sample Id: 7689936-1-BLK

Matrix: Solid

LCS Sample Id: 7689936-1-BKS

Prep Method: SW8015P

Date Prep: 11.08.19

LCSD Sample Id: 7689936-1-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	983	98	969	97	70-135	1	20	mg/kg	11.08.19 21:06	
Diesel Range Organics (DRO)	<15.0	1000	964	96	944	94	70-135	2	20	mg/kg	11.08.19 21:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	89		120		121		70-135	%	11.08.19 21:06
o-Terphenyl	89		105		101		70-135	%	11.08.19 21:06

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106961

Matrix: Solid

MB Sample Id: 7689935-1-BLK

Prep Method: SW8015P

Date Prep: 11.08.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.08.19 12:56	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106963

Matrix: Solid

MB Sample Id: 7689936-1-BLK

Prep Method: SW8015P

Date Prep: 11.08.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.08.19 20:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106961

Matrix: Soil

Parent Sample Id: 642582-001

MS Sample Id: 642582-001 S

Prep Method: SW8015P

Date Prep: 11.08.19

MSD Sample Id: 642582-001 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	998	1030	103	1030	103	70-135	0	20	mg/kg	11.08.19 14:11	
Diesel Range Organics (DRO)	103	998	1130	103	1120	102	70-135	1	20	mg/kg	11.08.19 14:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		126		70-135	%	11.08.19 14:11
o-Terphenyl	111		112		70-135	%	11.08.19 14:11

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 19 #2 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106963

Parent Sample Id: 642441-001

Matrix: Soil

MS Sample Id: 642441-001 S

Prep Method: SW8015P

Date Prep: 11.08.19

MSD Sample Id: 642441-001 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	997	1140	114	1150	115	70-135	1	20	mg/kg	11.08.19 22:02	
Diesel Range Organics (DRO)	<15.0	997	1150	115	1150	115	70-135	0	20	mg/kg	11.08.19 22:02	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		125		70-135	%	11.08.19 22:02
o-Terphenyl	110		113		70-135	%	11.08.19 22:02

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107000

MB Sample Id: 7689962-1-BLK

Matrix: Solid

LCS Sample Id: 7689962-1-BKS

Prep Method: SW5030B

Date Prep: 11.08.19

LCSD Sample Id: 7689962-1-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	0.111	111	0.117	117	70-130	5	35	mg/kg	11.08.19 22:14	
Toluene	<0.00200	0.100	0.101	101	0.102	102	70-130	1	35	mg/kg	11.08.19 22:14	
Ethylbenzene	<0.00200	0.100	0.103	103	0.100	100	70-130	3	35	mg/kg	11.08.19 22:14	
m,p-Xylenes	<0.00400	0.200	0.210	105	0.202	101	70-130	4	35	mg/kg	11.08.19 22:14	
o-Xylene	<0.00200	0.100	0.105	105	0.101	101	70-130	4	35	mg/kg	11.08.19 22:14	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		112		115		70-130	%	11.08.19 22:14
4-Bromofluorobenzene	90		105		96		70-130	%	11.08.19 22:14

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107085

MB Sample Id: 7689963-1-BLK

Matrix: Solid

LCS Sample Id: 7689963-1-BKS

Prep Method: SW5030B

Date Prep: 11.08.19

LCSD Sample Id: 7689963-1-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	0.0908	91	0.104	104	70-130	14	35	mg/kg	11.11.19 13:25	
Toluene	<0.00200	0.100	0.0953	95	0.111	111	70-130	15	35	mg/kg	11.11.19 13:25	
Ethylbenzene	<0.00200	0.100	0.0974	97	0.119	119	70-130	20	35	mg/kg	11.11.19 13:25	
m,p-Xylenes	<0.00400	0.200	0.173	87	0.212	106	70-130	20	35	mg/kg	11.11.19 13:25	
o-Xylene	<0.00200	0.100	0.0963	96	0.119	119	70-130	21	35	mg/kg	11.11.19 13:25	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		89		98		70-130	%	11.11.19 13:25
4-Bromofluorobenzene	88		90		109		70-130	%	11.11.19 13:25

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 19 #2 SWD

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107000

Parent Sample Id: 642441-001

Matrix: Soil

MS Sample Id: 642441-001 S

Prep Method: SW5030B

Date Prep: 11.08.19

MSD Sample Id: 642441-001 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	0.0842	83	0.0843	84	70-130	0	35	mg/kg	11.08.19 22:54	
Toluene	<0.00201	0.101	0.0735	73	0.0811	81	70-130	10	35	mg/kg	11.08.19 22:54	
Ethylbenzene	<0.00201	0.101	0.0716	71	0.0855	86	70-130	18	35	mg/kg	11.08.19 22:54	
m,p-Xylenes	<0.00402	0.201	0.144	72	0.175	88	70-130	19	35	mg/kg	11.08.19 22:54	
o-Xylene	<0.00201	0.101	0.0721	71	0.0880	88	70-130	20	35	mg/kg	11.08.19 22:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	118		111		70-130	%	11.08.19 22:54
4-Bromofluorobenzene	98		110		70-130	%	11.08.19 22:54

Analytical Method: BTEX by EPA 8021B

Seq Number: 3107085

Parent Sample Id: 642582-001

Matrix: Soil

MS Sample Id: 642582-001 S

Prep Method: SW5030B

Date Prep: 11.08.19

MSD Sample Id: 642582-001 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	0.0560	56	0.0834	84	70-130	39	35	mg/kg	11.11.19 14:06	XF
Toluene	<0.00199	0.0994	0.0678	68	0.0723	73	70-130	6	35	mg/kg	11.11.19 14:06	X
Ethylbenzene	<0.00199	0.0994	0.0638	64	0.0679	69	70-130	6	35	mg/kg	11.11.19 14:06	X
m,p-Xylenes	<0.00398	0.199	0.101	51	0.123	62	70-130	20	35	mg/kg	11.11.19 14:06	X
o-Xylene	<0.00199	0.0994	0.0610	61	0.0708	72	70-130	15	35	mg/kg	11.11.19 14:06	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		97		70-130	%	11.11.19 14:06
4-Bromofluorobenzene	58	**	108		70-130	%	11.11.19 14:06

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



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 508-3334
 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)

Chain of Custody

Work Order No: 164244

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slc@ltenv.com, dmoir@ltenv.com
Project Name:	Remediation Basin 14#2 SW	Turn Around	
Project Number:	2RP-3152	Routine	Y
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT				ANALYSIS REQUEST										Work Order Notes		
Temperature (°C):	Temp Blank:	Wet Ice:	Thermometer ID											TAT starts the day received by the lab, if received by 4:30pm	Sample Comments	
23.5	Yes	No	T-NM-007													
Received In tact:	Yes	No	Correction Factor:													
Cooler Custody Seals:	Yes	No	Total Containers:													
Sample Custody Seals:	Yes	No														
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)								
PH06	5	11-6-19	930	1	1	X	X	X								
PH06A			940	2												
PH06B			950	3												
PH07			1140	1												
PH07A			1150	2												
PH07B			1240	3												
PH07C			1250	4												
PH07D			1300	5												
PH08			1310	1												
PH08A			1320	2												

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

ce: 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 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
[Signature]	[Signature]	11/7/19 08:30			



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

Chain of Custody

Work Order No: 1442441

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slc@ltenv.com, dmoir@ltenv.com

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

Project Name:	Remediation #12 SWD	Turn Around	☒
Project Number:	28P-3152	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Well Ice:	Yes	No
Temperature (°C):		Thermometer ID				
Received Inact:	Yes	No		Correction Factor:		
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	TPH (E)	BTEX (E)	Chloride																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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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		

Notice: 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>[Signature]</i>	<i>[Signature]</i>	11/7/19 08:30			



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: 1442441

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slc@ltenv.com, dmoir@ltenv.com

Program: UST/PST ☐ PRR ☐ Brownfields ☐ RRC ☐ Superfund ☐ State of Project:	
Reporting Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐	Deliverables: EDD ☐ ADAPT ☐ Other: ☐

Project Name:	Femula Basin 19 #2 SWD	Turn Around	☒
Project Number:	288-3152	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	ANALYSIS REQUEST										Work Order Notes
					Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)							
PH10B	S	11-6-19	1530	5	1	✓	✓	✓							
PH10E			1540	6											
PH10F			1550	7											
PH10G			1600	8											

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Pb 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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	11/7/19 08:30			



Inter-Office Shipment

Page 1 of 4

IOS Number **51756**

Date/Time: 11/07/19 12:11

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.: 776930439263

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642441-001	S	PH06	11/06/19 09:30	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-001	S	PH06	11/06/19 09:30	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-001	S	PH06	11/06/19 09:30	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-002	S	PH06A	11/06/19 09:40	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-002	S	PH06A	11/06/19 09:40	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-002	S	PH06A	11/06/19 09:40	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-003	S	PH06B	11/06/19 09:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-003	S	PH06B	11/06/19 09:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-003	S	PH06B	11/06/19 09:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-004	S	PH07	11/06/19 11:40	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-004	S	PH07	11/06/19 11:40	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-004	S	PH07	11/06/19 11:40	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-005	S	PH07A	11/06/19 11:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-005	S	PH07A	11/06/19 11:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-005	S	PH07A	11/06/19 11:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-006	S	PH07B	11/06/19 12:40	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-006	S	PH07B	11/06/19 12:40	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-006	S	PH07B	11/06/19 12:40	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-007	S	PH07C	11/06/19 12:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-007	S	PH07C	11/06/19 12:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-007	S	PH07C	11/06/19 12:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-008	S	PH07D	11/06/19 13:00	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-008	S	PH07D	11/06/19 13:00	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-008	S	PH07D	11/06/19 13:00	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-009	S	PH08	11/06/19 13:10	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	



Inter-Office Shipment

Page 2 of 4

IOS Number **51756**

Date/Time: 11/07/19 12:11

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.: 776930439263

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642441-009	S	PH08	11/06/19 13:10	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-009	S	PH08	11/06/19 13:10	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-010	S	PH08A	11/06/19 13:20	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-010	S	PH08A	11/06/19 13:20	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-010	S	PH08A	11/06/19 13:20	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-011	S	PH08B	11/06/19 13:30	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-011	S	PH08B	11/06/19 13:30	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-011	S	PH08B	11/06/19 13:30	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-012	S	PH09	11/06/19 13:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-012	S	PH09	11/06/19 13:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-012	S	PH09	11/06/19 13:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-013	S	PH09A	11/06/19 14:00	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-013	S	PH09A	11/06/19 14:00	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-013	S	PH09A	11/06/19 14:00	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-014	S	PH09B	11/06/19 14:10	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-014	S	PH09B	11/06/19 14:10	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-014	S	PH09B	11/06/19 14:10	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-015	S	PH09C	11/06/19 14:20	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-015	S	PH09C	11/06/19 14:20	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-015	S	PH09C	11/06/19 14:20	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-016	S	PH09D	11/06/19 14:30	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-016	S	PH09D	11/06/19 14:30	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-016	S	PH09D	11/06/19 14:30	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-017	S	PH10	11/06/19 14:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-017	S	PH10	11/06/19 14:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	

Inter Office Shipment or Sample Comments:



Inter-Office Shipment

Page 3 of 4

IOS Number **51756**

Date/Time: 11/07/19 12:11

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.: 776930439263

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
642441-017	S	PH10	11/06/19 14:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-018	S	PH10A	11/06/19 15:00	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-018	S	PH10A	11/06/19 15:00	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-018	S	PH10A	11/06/19 15:00	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-019	S	PH10B	11/06/19 15:10	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-019	S	PH10B	11/06/19 15:10	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-019	S	PH10B	11/06/19 15:10	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-020	S	PH10C	11/06/19 15:20	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-020	S	PH10C	11/06/19 15:20	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-020	S	PH10C	11/06/19 15:20	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-021	S	PH10D	11/06/19 15:30	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-021	S	PH10D	11/06/19 15:30	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-021	S	PH10D	11/06/19 15:30	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-022	S	PH10E	11/06/19 15:40	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-022	S	PH10E	11/06/19 15:40	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-022	S	PH10E	11/06/19 15:40	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-023	S	PH10F	11/06/19 15:50	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-023	S	PH10F	11/06/19 15:50	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-023	S	PH10F	11/06/19 15:50	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	
642441-024	S	PH10G	11/06/19 16:00	E300_CL	Chloride by EPA 300	11/13/19	05/04/20	JKR	CL	
642441-024	S	PH10G	11/06/19 16:00	SW8021B	BTEX by EPA 8021B	11/13/19	11/20/19	JKR	BZ BZME EBZ XYLENES	
642441-024	S	PH10G	11/06/19 16:00	SW8015MOD_NM	TPH by SW8015 Mod	11/13/19	11/20/19	JKR	GRO-DRO PHCC10C28 PF	

Inter Office Shipment or Sample Comments:

Relinquished By:

Elizabeth McClellan

Date Relinquished:

Received By:

Brianna Teel

Date Received:

11/08/2019 11:04



Inter-Office Shipment

IOS Number 51756

Date/Time: 11/07/19 12:11

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.: 776930439263

E-Mail: jessica.kramer@xenco.com

Inter Office Shipment or Sample Comments:

11/07/2019

Cooler Temperature: 2.3



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 51756

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sent By: Elizabeth McClellan

Date Sent: 11/07/2019 12:11 PM

Received By: Brianna Teel

Date Received: 11/08/2019 11:04 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: 11/08/2019



Client: LT Environmental, Inc.

Date/ Time Received: 11/07/2019 08:20:00 AM

Work Order #: 642441

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)?	2.5	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	Yes	
#5 Custody Seals intact on sample bottles?	Yes	
#6 *Custody Seals Signed and dated?	Yes	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	Yes	Subbed to Midland.
#18 Water VOC samples have zero headspace?	N/A	

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Elizabeth McClellan

Date: 11/07/2019

Checklist reviewed by:

Jessica Kramer

Date: 11/08/2019

Analytical Report 642447

for
LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 #2 SWD

12-NOV-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 (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)



Analytical Report 659115

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

04.20.2020

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)



04.20.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659115**

Remuda Basin 19 SWD

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) 659115. 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. 659115 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

A Small Business and Minority Company

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

**Sample Cross Reference 659115****LT Environmental, Inc., Arvada, CO**

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	04.16.2020 12:30	5 ft	659115-001
FS02	S	04.16.2020 12:40	5 ft	659115-002
FS03	S	04.16.2020 12:45	8 ft	659115-003
FS04	S	04.16.2020 12:50	8 ft	659115-004
FS05	S	04.16.2020 13:00	8 ft	659115-005
FS06	S	04.16.2020 13:05	8 ft	659115-006
FS07	S	04.16.2020 13:10	8 ft	659115-007
FS08	S	04.16.2020 13:15	8 ft	659115-008
FS09	S	04.16.2020 13:20	8 ft	659115-009
FS10	S	04.16.2020 13:25	6 ft	659115-010
FS11	S	04.16.2020 13:35	6 ft	659115-011
FS12	S	04.16.2020 13:40	4 ft	659115-012
FS13	S	04.16.2020 13:45	6 ft	659115-013
FS14	S	04.16.2020 13:55	4 ft	659115-014
FS15	S	04.16.2020 14:00	4 ft	659115-015
FS16	S	04.16.2020 14:05	5 ft	659115-016
FS17	S	04.16.2020 14:10	4 ft	659115-017
FS18	S	04.16.2020 14:15	4 ft	659115-018
FS19	S	04.16.2020 14:20	4 ft	659115-019
FS20	S	04.16.2020 14:25	4 ft	659115-020
FS21	S	04.16.2020 14:30	4 ft	659115-021
FS22	S	04.16.2020 14:35	4 ft	659115-022
FS23	S	04.16.2020 14:40	4 ft	659115-023
FS24	S	04.16.2020 14:45	4 ft	659115-024



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin 19 SWD*

Project ID: 012918106
Work Order Number(s): 659115

Report Date: 04.20.2020
Date Received: 04.16.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3123298 BTEX by EPA 8021B

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

Batch: LBA-3123367 BTEX by EPA 8021B

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



Certificate of Analysis Summary 659115

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.16.2020 16:37

Report Date: 04.20.2020 07:48

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659115-001	659115-002	659115-003	659115-004	659115-005	659115-006
	<i>Field Id:</i>	FS01	FS02	FS03	FS04	FS05	FS06
	<i>Depth:</i>	5- ft	5- ft	8- ft	8- ft	8- ft	8- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.16.2020 12:30	04.16.2020 12:40	04.16.2020 12:45	04.16.2020 12:50	04.16.2020 13:00	04.16.2020 13:05
BTEX by EPA 8021B	<i>Extracted:</i>	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44
	<i>Analyzed:</i>	04.16.2020 23:57	04.17.2020 00:17	04.17.2020 00:37	04.17.2020 00:58	04.17.2020 01:18	04.17.2020 01:39
	<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	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
m,p-Xylenes		<0.00402 0.00402	<0.00395 0.00395	<0.00402 0.00402	<0.00402 0.00402	<0.00398 0.00398	<0.00404 0.00404
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00
	<i>Analyzed:</i>	04.16.2020 18:46	04.16.2020 18:52	04.16.2020 18:57	04.16.2020 19:14	04.16.2020 19:19	04.16.2020 19:25
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		8250 494	6790 497	8280 495	7360 497	8410 499	12300 497
TPH by SW8015 Mod	<i>Extracted:</i>	04.16.2020 17:50	04.16.2020 17:50	04.16.2020 17:50	04.16.2020 17:50	04.17.2020 13:00	04.17.2020 13:00
	<i>Analyzed:</i>	04.17.2020 14:54	04.17.2020 15:15	04.17.2020 15:35	04.17.2020 15:55	04.17.2020 15:15	04.17.2020 15:35
	<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)		<49.8 49.8	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.8 49.8	<50.2 50.2
Diesel Range Organics (DRO)		<49.8 49.8	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.8 49.8	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.8 49.8	<50.2 50.2
Total GRO-DRO		<49.8 49.8	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.8 49.8	<50.2 50.2
Total TPH		<49.8 49.8	<49.8 49.8	<49.9 49.9	<50.1 50.1	<49.8 49.8	<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 Manager



Certificate of Analysis Summary 659115

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.16.2020 16:37

Report Date: 04.20.2020 07:48

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659115-007	659115-008	659115-009	659115-010	659115-011	659115-012
	<i>Field Id:</i>	FS07	FS08	FS09	FS10	FS11	FS12
	<i>Depth:</i>	8- ft	8- ft	8- ft	6- ft	6- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.16.2020 13:10	04.16.2020 13:15	04.16.2020 13:20	04.16.2020 13:25	04.16.2020 13:35	04.16.2020 13:40
BTEX by EPA 8021B	<i>Extracted:</i>	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44
	<i>Analyzed:</i>	04.17.2020 01:59	04.17.2020 02:19	04.17.2020 02:40	04.17.2020 03:41	04.17.2020 04:02	04.17.2020 04:22
	<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	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00403 0.00403	<0.00402 0.00402	<0.00404 0.00404	<0.00403 0.00403
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00
	<i>Analyzed:</i>	04.16.2020 19:30	04.16.2020 19:36	04.16.2020 19:52	04.16.2020 19:57	04.16.2020 20:14	04.16.2020 20:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		11600 498	13600 499	12600 496	21600 501	9940 502	20000 496
TPH by SW8015 Mod	<i>Extracted:</i>	04.17.2020 13:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00
	<i>Analyzed:</i>	04.17.2020 15:55	04.17.2020 04:04	04.17.2020 05:05	04.17.2020 05:25	04.17.2020 05:45	04.17.2020 06:05
	<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)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2	<50.3 50.3	<50.3 50.3
Diesel Range Organics (DRO)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2	<50.3 50.3	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2	<50.3 50.3	<50.3 50.3
Total GRO-DRO		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2	<50.3 50.3	<50.3 50.3
Total TPH		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2	<50.3 50.3	<50.3 50.3

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 659115

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.16.2020 16:37

Report Date: 04.20.2020 07:48

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659115-013	659115-014	659115-015	659115-016	659115-017	659115-018
	<i>Field Id:</i>	FS13	FS14	FS15	FS16	FS17	FS18
	<i>Depth:</i>	6- ft	4- ft	4- ft	5- ft	4- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.16.2020 13:45	04.16.2020 13:55	04.16.2020 14:00	04.16.2020 14:05	04.16.2020 14:10	04.16.2020 14:15
BTEX by EPA 8021B	<i>Extracted:</i>	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44	04.16.2020 17:44
	<i>Analyzed:</i>	04.17.2020 04:42	04.17.2020 05:03	04.17.2020 05:23	04.17.2020 05:44	04.17.2020 06:04	04.17.2020 06:24
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
m,p-Xylenes		<0.00403 0.00403	<0.00403 0.00403	<0.00404 0.00404	<0.00402 0.00402	<0.00402 0.00402	<0.00404 0.00404
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:00	04.16.2020 17:21
	<i>Analyzed:</i>	04.16.2020 20:25	04.16.2020 20:30	04.16.2020 20:36	04.16.2020 20:41	04.16.2020 20:47	04.16.2020 21:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		20100 499	14900 498	15000 496	5630 499	14500 498	21200 498
TPH by SW8015 Mod	<i>Extracted:</i>	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00
	<i>Analyzed:</i>	04.17.2020 06:25	04.17.2020 06:45	04.17.2020 07:06	04.17.2020 07:26	04.17.2020 07:46	04.17.2020 08:27
	<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)		<50.2 50.2	<50.1 50.1	<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.2 50.2
Diesel Range Organics (DRO)		<50.2 50.2	<50.1 50.1	<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.1 50.1	<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.2 50.2
Total GRO-DRO		<50.2 50.2	<50.1 50.1	<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.2 50.2
Total TPH		<50.2 50.2	<50.1 50.1	<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.2 50.2

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 659115

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.16.2020 16:37

Report Date: 04.20.2020 07:48

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659115-019	659115-020	659115-021	659115-022	659115-023	659115-024
	Field Id:	FS19	FS20	FS21	FS22	FS23	FS24
	Depth:	4- ft	4- ft	4- ft	4- ft	4- ft	4- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.16.2020 14:20	04.16.2020 14:25	04.16.2020 14:30	04.16.2020 14:35	04.16.2020 14:40	04.16.2020 14:45
BTEX by EPA 8021B	Extracted:	04.16.2020 17:44	04.16.2020 17:57	04.16.2020 17:57	04.16.2020 17:57	04.16.2020 17:57	04.16.2020 17:57
	Analyzed:	04.17.2020 06:45	04.17.2020 10:30	04.17.2020 10:50	04.17.2020 11:10	04.17.2020 11:31	04.17.2020 11:51
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00404 0.00404	<0.00403 0.00403	<0.00396 0.00396	<0.00403 0.00403	<0.00399 0.00399	<0.00404 0.00404
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	Extracted:	04.16.2020 17:21	04.16.2020 17:21	04.16.2020 17:21	04.16.2020 17:21	04.16.2020 17:21	04.16.2020 17:21
	Analyzed:	04.16.2020 21:36	04.16.2020 21:42	04.16.2020 21:47	04.16.2020 21:52	04.16.2020 22:09	04.16.2020 22:14
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		11000 501	8560 496	16100 498	6220 99.4	233 101	3690 101
TPH by SW8015 Mod	Extracted:	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00	04.16.2020 18:00
	Analyzed:	04.17.2020 09:11	04.17.2020 09:31	04.17.2020 09:51	04.17.2020 10:11	04.17.2020 10:31	04.17.2020 10:52
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.3 50.3	<49.8 49.8	<50.0 50.0	<50.3 50.3	<50.3 50.3	<50.3 50.3
Diesel Range Organics (DRO)		<50.3 50.3	<49.8 49.8	<50.0 50.0	<50.3 50.3	<50.3 50.3	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<49.8 49.8	<50.0 50.0	<50.3 50.3	<50.3 50.3	<50.3 50.3
Total GRO-DRO		<50.3 50.3	<49.8 49.8	<50.0 50.0	<50.3 50.3	<50.3 50.3	<50.3 50.3
Total TPH		<50.3 50.3	<49.8 49.8	<50.0 50.0	<50.3 50.3	<50.3 50.3	<50.3 50.3

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Jessica Kramer
Project Manager



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS01**
Lab Sample Id: 659115-001

Matrix: Soil
Date Collected: 04.16.2020 12:30

Date Received: 04.16.2020 16:37
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Date Prep: 04.16.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8250	494	mg/kg	04.16.2020 18:46		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123321

Date Prep: 04.16.2020 17:50

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.17.2020 14:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.17.2020 14:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.17.2020 14:54	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.17.2020 14:54	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.17.2020 14:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 14:54	
o-Terphenyl	84-15-1	111	%	70-135	04.17.2020 14:54	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS01**
 Lab Sample Id: 659115-001

Matrix: Soil
 Date Collected: 04.16.2020 12:30

Date Received: 04.16.2020 16:37
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.16.2020 23:57	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.16.2020 23:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.16.2020 23:57	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.16.2020 23:57	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS02**
Lab Sample Id: 659115-002

Matrix: Soil
Date Collected: 04.16.2020 12:40

Date Received: 04.16.2020 16:37
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Date Prep: 04.16.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6790	497	mg/kg	04.16.2020 18:52		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123321

Date Prep: 04.16.2020 17:50

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.17.2020 15:15	
o-Terphenyl	84-15-1	105	%	70-135	04.17.2020 15:15	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS02**
 Lab Sample Id: 659115-002

Matrix: Soil
 Date Collected: 04.16.2020 12:40

Date Received: 04.16.2020 16:37
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1
m,p-Xylenes	179601-23-1	<0.00395	0.00395	mg/kg	04.17.2020 00:17	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.17.2020 00:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.17.2020 00:17	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.17.2020 00:17	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS03** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-003 Date Collected: 04.16.2020 12:45 Sample Depth: 8 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8280	495	mg/kg	04.16.2020 18:57		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 17:50 Basis: Wet Weight
 Seq Number: 3123321

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.17.2020 15:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.17.2020 15:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.17.2020 15:35	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.17.2020 15:35	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.17.2020 15:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.17.2020 15:35	
o-Terphenyl	84-15-1	98	%	70-135	04.17.2020 15:35	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS03**
Lab Sample Id: 659115-003

Matrix: Soil
Date Collected: 04.16.2020 12:45

Date Received: 04.16.2020 16:37
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 00:37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 00:37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.17.2020 00:37		
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.17.2020 00:37		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS04**
Lab Sample Id: 659115-004

Matrix: Soil
Date Collected: 04.16.2020 12:50

Date Received: 04.16.2020 16:37
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 17:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7360	497	mg/kg	04.16.2020 19:14		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123321

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 17:50

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.17.2020 15:55	
o-Terphenyl	84-15-1	104	%	70-135	04.17.2020 15:55	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS04**
 Lab Sample Id: 659115-004

Matrix: Soil
 Date Collected: 04.16.2020 12:50

Date Received: 04.16.2020 16:37
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 00:58	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 00:58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.17.2020 00:58		
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.17.2020 00:58		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS05**
Lab Sample Id: 659115-005

Matrix: Soil
Date Collected: 04.16.2020 13:00

Date Received: 04.16.2020 16:37
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Date Prep: 04.16.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8410	499	mg/kg	04.16.2020 19:19		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123393

Date Prep: 04.17.2020 13:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.17.2020 15:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.17.2020 15:15	
o-Terphenyl	84-15-1	109	%	70-135	04.17.2020 15:15	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS05**
 Lab Sample Id: 659115-005

Matrix: Soil
 Date Collected: 04.16.2020 13:00

Date Received: 04.16.2020 16:37
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.17.2020 01:18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.17.2020 01:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 01:18	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.17.2020 01:18	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS06** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-006 Date Collected: 04.16.2020 13:05 Sample Depth: 8 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12300	497	mg/kg	04.16.2020 19:25		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.17.2020 13:00 Basis: Wet Weight
 Seq Number: 3123393

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.17.2020 15:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.17.2020 15:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.17.2020 15:35	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.17.2020 15:35	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.17.2020 15:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.17.2020 15:35	
o-Terphenyl	84-15-1	106	%	70-135	04.17.2020 15:35	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS06**
Lab Sample Id: 659115-006

Matrix: Soil
Date Collected: 04.16.2020 13:05

Date Received: 04.16.2020 16:37
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 01:39	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 01:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 01:39	
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.17.2020 01:39	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS07** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-007 Date Collected: 04.16.2020 13:10 Sample Depth: 8 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11600	498	mg/kg	04.16.2020 19:30		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.17.2020 13:00 Basis: Wet Weight
 Seq Number: 3123393

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.17.2020 15:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.17.2020 15:55	
o-Terphenyl	84-15-1	109	%	70-135	04.17.2020 15:55	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS07**
 Lab Sample Id: 659115-007

Matrix: Soil
 Date Collected: 04.16.2020 13:10

Date Received: 04.16.2020 16:37
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 01:59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 01:59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.17.2020 01:59		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.17.2020 01:59		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS08** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-008 Date Collected: 04.16.2020 13:15 Sample Depth: 8 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13600	499	mg/kg	04.16.2020 19:36		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.17.2020 04:04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.17.2020 04:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.17.2020 04:04	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.17.2020 04:04	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.17.2020 04:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	04.17.2020 04:04	
o-Terphenyl	84-15-1	122	%	70-135	04.17.2020 04:04	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS08**
 Lab Sample Id: 659115-008

Matrix: Soil
 Date Collected: 04.16.2020 13:15

Date Received: 04.16.2020 16:37
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 02:19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 02:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.17.2020 02:19	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 02:19	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS09** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-009 Date Collected: 04.16.2020 13:20 Sample Depth: 8 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12600	496	mg/kg	04.16.2020 19:52		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 05:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 05:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 05:05	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 05:05	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 05:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 05:05	
o-Terphenyl	84-15-1	109	%	70-135	04.17.2020 05:05	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS09**
 Lab Sample Id: 659115-009

Matrix: Soil
 Date Collected: 04.16.2020 13:20

Date Received: 04.16.2020 16:37
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 02:40	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 02:40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.17.2020 02:40		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 02:40		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS10** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-010 Date Collected: 04.16.2020 13:25 Sample Depth: 6 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21600	501	mg/kg	04.16.2020 19:57		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.17.2020 05:25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.17.2020 05:25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.17.2020 05:25	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.17.2020 05:25	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.17.2020 05:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	04.17.2020 05:25	
o-Terphenyl	84-15-1	106	%	70-135	04.17.2020 05:25	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS10**
 Lab Sample Id: 659115-010

Matrix: Soil
 Date Collected: 04.16.2020 13:25

Date Received: 04.16.2020 16:37
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 03:41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 03:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.17.2020 03:41	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.17.2020 03:41	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS11** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-011 Date Collected: 04.16.2020 13:35 Sample Depth: 6 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9940	502	mg/kg	04.16.2020 20:14		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 05:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 05:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 05:45	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 05:45	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 05:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.17.2020 05:45	
o-Terphenyl	84-15-1	105	%	70-135	04.17.2020 05:45	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS11**
Lab Sample Id: 659115-011

Matrix: Soil
Date Collected: 04.16.2020 13:35

Date Received: 04.16.2020 16:37
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 04:02	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 04:02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.17.2020 04:02		
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.17.2020 04:02		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS12** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-012 Date Collected: 04.16.2020 13:40 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20000	496	mg/kg	04.16.2020 20:19		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 06:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 06:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 06:05	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 06:05	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 06:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.17.2020 06:05	
o-Terphenyl	84-15-1	103	%	70-135	04.17.2020 06:05	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS12**
 Lab Sample Id: 659115-012

Matrix: Soil
 Date Collected: 04.16.2020 13:40

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 04:22	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 04:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.17.2020 04:22	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.17.2020 04:22	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS13** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-013 Date Collected: 04.16.2020 13:45 Sample Depth: 6 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20100	499	mg/kg	04.16.2020 20:25		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.17.2020 06:25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.17.2020 06:25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.17.2020 06:25	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.17.2020 06:25	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.17.2020 06:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	04.17.2020 06:25	
o-Terphenyl	84-15-1	113	%	70-135	04.17.2020 06:25	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS13**
Lab Sample Id: 659115-013

Matrix: Soil
Date Collected: 04.16.2020 13:45

Date Received: 04.16.2020 16:37
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 04:42	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 04:42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	04.17.2020 04:42		
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.17.2020 04:42		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS14**
Lab Sample Id: 659115-014

Matrix: Soil
Date Collected: 04.16.2020 13:55

Date Received: 04.16.2020 16:37
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Date Prep: 04.16.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14900	498	mg/kg	04.16.2020 20:30		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123314

Date Prep: 04.16.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.17.2020 06:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.17.2020 06:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.17.2020 06:45	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.17.2020 06:45	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.17.2020 06:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.17.2020 06:45	
o-Terphenyl	84-15-1	106	%	70-135	04.17.2020 06:45	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS14**
 Lab Sample Id: 659115-014

Matrix: Soil
 Date Collected: 04.16.2020 13:55

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 05:03	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 05:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.17.2020 05:03	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 05:03	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS15**
Lab Sample Id: 659115-015

Matrix: Soil
Date Collected: 04.16.2020 14:00

Date Received: 04.16.2020 16:37
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 17:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15000	496	mg/kg	04.16.2020 20:36		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123314

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 18:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.17.2020 07:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.17.2020 07:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.17.2020 07:06	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.17.2020 07:06	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.17.2020 07:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	04.17.2020 07:06	
o-Terphenyl	84-15-1	106	%	70-135	04.17.2020 07:06	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS15**
 Lab Sample Id: 659115-015

Matrix: Soil
 Date Collected: 04.16.2020 14:00

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 05:23	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 05:23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.17.2020 05:23		
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.17.2020 05:23		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS16**
Lab Sample Id: 659115-016

Matrix: Soil
Date Collected: 04.16.2020 14:05

Date Received: 04.16.2020 16:37
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123313

Date Prep: 04.16.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5630	499	mg/kg	04.16.2020 20:41		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123314

Date Prep: 04.16.2020 18:00

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	04.17.2020 07:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.17.2020 07:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.17.2020 07:26	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.17.2020 07:26	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.17.2020 07:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.17.2020 07:26	
o-Terphenyl	84-15-1	105	%	70-135	04.17.2020 07:26	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS16**
Lab Sample Id: 659115-016

Matrix: Soil
Date Collected: 04.16.2020 14:05

Date Received: 04.16.2020 16:37
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 05:44	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 05:44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.17.2020 05:44		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.17.2020 05:44		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS17** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-017 Date Collected: 04.16.2020 14:10 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:00 Basis: Wet Weight
 Seq Number: 3123313

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14500	498	mg/kg	04.16.2020 20:47		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.17.2020 07:46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.17.2020 07:46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.17.2020 07:46	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.17.2020 07:46	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.17.2020 07:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 07:46	
o-Terphenyl	84-15-1	111	%	70-135	04.17.2020 07:46	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS17**
 Lab Sample Id: 659115-017

Matrix: Soil
 Date Collected: 04.16.2020 14:10

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.17.2020 06:04	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.17.2020 06:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.17.2020 06:04	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 06:04	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS18** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-018 Date Collected: 04.16.2020 14:15 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:21 Basis: Wet Weight
 Seq Number: 3123315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21200	498	mg/kg	04.16.2020 21:20		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.17.2020 08:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.17.2020 08:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.17.2020 08:27	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.17.2020 08:27	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.17.2020 08:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 08:27	
o-Terphenyl	84-15-1	112	%	70-135	04.17.2020 08:27	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS18**
 Lab Sample Id: 659115-018

Matrix: Soil
 Date Collected: 04.16.2020 14:15

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 06:24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 06:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.17.2020 06:24	
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.17.2020 06:24	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS19** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-019 Date Collected: 04.16.2020 14:20 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:21 Basis: Wet Weight
 Seq Number: 3123315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11000	501	mg/kg	04.16.2020 21:36		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 09:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 09:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 09:11	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 09:11	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 09:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	04.17.2020 09:11	
o-Terphenyl	84-15-1	124	%	70-135	04.17.2020 09:11	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS19**
 Lab Sample Id: 659115-019

Matrix: Soil
 Date Collected: 04.16.2020 14:20

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:44

Basis: Wet Weight

Seq Number: 3123298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 06:45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 06:45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.17.2020 06:45		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.17.2020 06:45		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS20** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-020 Date Collected: 04.16.2020 14:25 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:21 Basis: Wet Weight
 Seq Number: 3123315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8560	496	mg/kg	04.16.2020 21:42		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.17.2020 09:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.17.2020 09:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.17.2020 09:31	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.17.2020 09:31	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.17.2020 09:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.17.2020 09:31	
o-Terphenyl	84-15-1	116	%	70-135	04.17.2020 09:31	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS20**
 Lab Sample Id: 659115-020

Matrix: Soil
 Date Collected: 04.16.2020 14:25

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:57

Basis: Wet Weight

Seq Number: 3123367

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 10:30	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 10:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.17.2020 10:30		
1,4-Difluorobenzene	540-36-3	109	%	70-130	04.17.2020 10:30		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS21** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-021 Date Collected: 04.16.2020 14:30 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:21 Basis: Wet Weight
 Seq Number: 3123315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16100	498	mg/kg	04.16.2020 21:47		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	04.17.2020 09:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.17.2020 09:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.17.2020 09:51	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.17.2020 09:51	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.17.2020 09:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 09:51	
o-Terphenyl	84-15-1	114	%	70-135	04.17.2020 09:51	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS21**
 Lab Sample Id: 659115-021

Matrix: Soil
 Date Collected: 04.16.2020 14:30

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:57

Basis: Wet Weight

Seq Number: 3123367

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.17.2020 10:50	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.17.2020 10:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.17.2020 10:50		
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.17.2020 10:50		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS22** Matrix: Soil Date Received: 04.16.2020 16:37
 Lab Sample Id: 659115-022 Date Collected: 04.16.2020 14:35 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.16.2020 17:21 Basis: Wet Weight
 Seq Number: 3123315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6220	99.4	mg/kg	04.16.2020 21:52		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.16.2020 18:00 Basis: Wet Weight
 Seq Number: 3123314

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 10:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 10:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 10:11	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 10:11	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 10:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.17.2020 10:11	
o-Terphenyl	84-15-1	115	%	70-135	04.17.2020 10:11	



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS22**
 Lab Sample Id: 659115-022

Matrix: Soil
 Date Collected: 04.16.2020 14:35

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:57

Basis: Wet Weight

Seq Number: 3123367

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.17.2020 11:10	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 11:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.17.2020 11:10	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.17.2020 11:10	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS23**
Lab Sample Id: 659115-023

Matrix: Soil
Date Collected: 04.16.2020 14:40

Date Received: 04.16.2020 16:37
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123315

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 17:21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	233	101	mg/kg	04.16.2020 22:09		10

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123314

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 18:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 10:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 10:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 10:31	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 10:31	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 10:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	04.17.2020 10:31	
o-Terphenyl	84-15-1	114	%	70-135	04.17.2020 10:31	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS23**
 Lab Sample Id: 659115-023

Matrix: Soil
 Date Collected: 04.16.2020 14:40

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:57

Basis: Wet Weight

Seq Number: 3123367

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.17.2020 11:31	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.17.2020 11:31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.17.2020 11:31		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 11:31		



Certificate of Analytical Results 659115

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS24**
Lab Sample Id: 659115-024

Matrix: Soil
Date Collected: 04.16.2020 14:45

Date Received: 04.16.2020 16:37
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123315

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 17:21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3690	101	mg/kg	04.16.2020 22:14		10

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123314

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Date Prep: 04.16.2020 18:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.17.2020 10:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.17.2020 10:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.17.2020 10:52	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.17.2020 10:52	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.17.2020 10:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.17.2020 10:52	
o-Terphenyl	84-15-1	111	%	70-135	04.17.2020 10:52	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS24**
 Lab Sample Id: 659115-024

Matrix: Soil
 Date Collected: 04.16.2020 14:45

Date Received: 04.16.2020 16:37
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.16.2020 17:57

Basis: Wet Weight

Seq Number: 3123367

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.17.2020 11:51	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.17.2020 11:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.17.2020 11:51	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.17.2020 11:51	



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. **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 19 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3123313

MB Sample Id: 7701473-1-BLK

Matrix: Solid

LCS Sample Id: 7701473-1-BKS

Prep Method: E300P

Date Prep: 04.16.2020

LCSD Sample Id: 7701473-1-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	261	104	262	105	90-110	0	20	mg/kg	04.16.2020 18:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3123315

MB Sample Id: 7701475-1-BLK

Matrix: Solid

LCS Sample Id: 7701475-1-BKS

Prep Method: E300P

Date Prep: 04.16.2020

LCSD Sample Id: 7701475-1-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	263	105	265	106	90-110	1	20	mg/kg	04.16.2020 21:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3123313

Parent Sample Id: 659112-001

Matrix: Soil

MS Sample Id: 659112-001 S

Prep Method: E300P

Date Prep: 04.16.2020

MSD Sample Id: 659112-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	654	200	852	99	856	101	90-110	0	20	mg/kg	04.16.2020 18:24	

Analytical Method: Chloride by EPA 300

Seq Number: 3123313

Parent Sample Id: 659115-008

Matrix: Soil

MS Sample Id: 659115-008 S

Prep Method: E300P

Date Prep: 04.16.2020

MSD Sample Id: 659115-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	13600	401	14000	100	14000	100	90-110	0	20	mg/kg	04.16.2020 19:41	

Analytical Method: Chloride by EPA 300

Seq Number: 3123315

Parent Sample Id: 659105-021

Matrix: Soil

MS Sample Id: 659105-021 S

Prep Method: E300P

Date Prep: 04.16.2020

MSD Sample Id: 659105-021 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	209	105	209	105	90-110	0	20	mg/kg	04.16.2020 22:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3123315

Parent Sample Id: 659115-018

Matrix: Soil

MS Sample Id: 659115-018 S

Prep Method: E300P

Date Prep: 04.16.2020

MSD Sample Id: 659115-018 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	21200	199	21400	101	21400	101	90-110	0	20	mg/kg	04.16.2020 21:25	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123321

MB Sample Id: 7701491-1-BLK

Matrix: Solid

LCS Sample Id: 7701491-1-BKS

Prep Method: SW8015P

Date Prep: 04.16.2020

LCSD Sample Id: 7701491-1-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	902	90	881	88	70-135	2	35	mg/kg	04.17.2020 09:31	
Diesel Range Organics (DRO)	<50.0	1000	997	100	974	97	70-135	2	35	mg/kg	04.17.2020 09:31	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	91		115		112		70-135	%	04.17.2020 09:31			
o-Terphenyl	99		99		95		70-135	%	04.17.2020 09:31			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123314

MB Sample Id: 7701487-1-BLK

Matrix: Solid

LCS Sample Id: 7701487-1-BKS

Prep Method: SW8015P

Date Prep: 04.16.2020

LCSD Sample Id: 7701487-1-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	1010	101	938	94	70-135	7	35	mg/kg	04.17.2020 03:24	
Diesel Range Organics (DRO)	<50.0	1000	1130	113	1050	105	70-135	7	35	mg/kg	04.17.2020 03:24	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	84		123		101		70-135	%	04.17.2020 03:24			
o-Terphenyl	89		102		96		70-135	%	04.17.2020 03:24			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123393

MB Sample Id: 7701527-1-BLK

Matrix: Solid

LCS Sample Id: 7701527-1-BKS

Prep Method: SW8015P

Date Prep: 04.17.2020

LCSD Sample Id: 7701527-1-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	954	95	70-135	5	35	mg/kg	04.17.2020 13:32	
Diesel Range Organics (DRO)	<50.0	1000	1170	117	1110	111	70-135	5	35	mg/kg	04.17.2020 13:32	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	94		112		109		70-135	%	04.17.2020 13:32			
o-Terphenyl	102		115		107		70-135	%	04.17.2020 13:32			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123321

Matrix: Solid

MB Sample Id: 7701491-1-BLK

Prep Method: SW8015P

Date Prep: 04.16.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.17.2020 09:11	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123314

Matrix: Solid

Prep Method: SW8015P

Date Prep: 04.16.2020

MB Sample Id: 7701487-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

**MB
Result**

<50.0

Units

mg/kg

**Analysis
Date**

04.17.2020 03:04

Flag

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123393

Matrix: Solid

Prep Method: SW8015P

Date Prep: 04.17.2020

MB Sample Id: 7701527-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

**MB
Result**

<50.0

Units

mg/kg

**Analysis
Date**

04.17.2020 13:12

Flag

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123321

Matrix: Soil

Prep Method: SW8015P

Date Prep: 04.16.2020

Parent Sample Id: 659105-018

MS Sample Id: 659105-018 S

MSD Sample Id: 659105-018 SD

Parameter

Gasoline Range Hydrocarbons (GRO)

**Parent
Result**

<50.0

**Spike
Amount**

999

**MS
Result**

1040

**MS
%Rec**

104

**MSD
Result**

1090

**MSD
%Rec**

109

Limits

70-135

%RPD

5

**RPD
Limit**

35

Units

mg/kg

**Analysis
Date**

04.17.2020 10:31

Flag

Diesel Range Organics (DRO)

<50.0

999

1170

117

1120

112

70-135

4

35

mg/kg

04.17.2020 10:31

Surrogate

1-Chlorooctane

**MS
%Rec**

117

**MS
Flag**

**MSD
%Rec**

120

**MSD
Flag**

Limits

70-135

Units

%

**Analysis
Date**

04.17.2020 10:31

o-Terphenyl

114

123

70-135

%

04.17.2020 10:31

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123314

Matrix: Soil

Prep Method: SW8015P

Date Prep: 04.16.2020

Parent Sample Id: 659115-008

MS Sample Id: 659115-008 S

MSD Sample Id: 659115-008 SD

Parameter

Gasoline Range Hydrocarbons (GRO)

**Parent
Result**

<50.2

**Spike
Amount**

1000

**MS
Result**

1060

**MS
%Rec**

106

**MSD
Result**

1080

**MSD
%Rec**

107

Limits

70-135

%RPD

2

**RPD
Limit**

35

Units

mg/kg

**Analysis
Date**

04.17.2020 04:24

Flag

Diesel Range Organics (DRO)

<50.2

1000

1180

118

1090

108

70-135

8

35

mg/kg

04.17.2020 04:24

Surrogate

1-Chlorooctane

**MS
%Rec**

123

**MS
Flag**

**MSD
%Rec**

124

**MSD
Flag**

Limits

70-135

Units

%

**Analysis
Date**

04.17.2020 04:24

o-Terphenyl

115

119

70-135

%

04.17.2020 04:24

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123393

Parent Sample Id: 659143-001

Matrix: Soil

MS Sample Id: 659143-001 S

Prep Method: SW8015P

Date Prep: 04.17.2020

MSD Sample Id: 659143-001 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)	<49.8	996	1120	112	1080	108	70-135	4	35	mg/kg	04.17.2020 14:33	
Diesel Range Organics (DRO)	<49.8	996	1140	114	1170	117	70-135	3	35	mg/kg	04.17.2020 14:33	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	129		125		70-135	%	04.17.2020 14:33
o-Terphenyl	122		119		70-135	%	04.17.2020 14:33

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123298

MB Sample Id: 7701462-1-BLK

Matrix: Solid

LCS Sample Id: 7701462-1-BKS

Prep Method: SW5030B

Date Prep: 04.16.2020

LCSD Sample Id: 7701462-1-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	0.113	113	70-130	7	35	mg/kg	04.16.2020 21:54	
Toluene	<0.00200	0.100	0.0998	100	0.107	107	70-130	7	35	mg/kg	04.16.2020 21:54	
Ethylbenzene	<0.00200	0.100	0.0920	92	0.0997	100	71-129	8	35	mg/kg	04.16.2020 21:54	
m,p-Xylenes	<0.00400	0.200	0.189	95	0.206	103	70-135	9	35	mg/kg	04.16.2020 21:54	
o-Xylene	<0.00200	0.100	0.0971	97	0.107	107	71-133	10	35	mg/kg	04.16.2020 21:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		104		103		70-130	%	04.16.2020 21:54
4-Bromofluorobenzene	97		93		93		70-130	%	04.16.2020 21:54

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123367

MB Sample Id: 7701468-1-BLK

Matrix: Solid

LCS Sample Id: 7701468-1-BKS

Prep Method: SW5030B

Date Prep: 04.16.2020

LCSD Sample Id: 7701468-1-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	0.107	107	70-130	3	35	mg/kg	04.17.2020 08:07	
Toluene	<0.00200	0.100	0.104	104	0.101	101	70-130	3	35	mg/kg	04.17.2020 08:07	
Ethylbenzene	<0.00200	0.100	0.0967	97	0.0939	94	71-129	3	35	mg/kg	04.17.2020 08:07	
m,p-Xylenes	<0.00400	0.200	0.199	100	0.192	96	70-135	4	35	mg/kg	04.17.2020 08:07	
o-Xylene	<0.00200	0.100	0.102	102	0.0990	99	71-133	3	35	mg/kg	04.17.2020 08:07	

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	%	04.17.2020 08:07
4-Bromofluorobenzene	96		94		90		70-130	%	04.17.2020 08:07

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



LT Environmental, Inc.
Remuda Basin 19 SWD

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123298

Parent Sample Id: 659113-001

Matrix: Soil

MS Sample Id: 659113-001 S

Prep Method: SW5030B

Date Prep: 04.16.2020

MSD Sample Id: 659113-001 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	0.0781	78	0.0943	94	70-130	19	35	mg/kg	04.16.2020 22:35	
Toluene	<0.00199	0.0996	0.0723	73	0.0884	89	70-130	20	35	mg/kg	04.16.2020 22:35	
Ethylbenzene	<0.00199	0.0996	0.0740	74	0.0814	82	71-129	10	35	mg/kg	04.16.2020 22:35	
m,p-Xylenes	<0.00398	0.199	0.152	76	0.167	84	70-135	9	35	mg/kg	04.16.2020 22:35	
o-Xylene	<0.00199	0.0996	0.0774	78	0.0845	85	71-133	9	35	mg/kg	04.16.2020 22:35	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	04.16.2020 22:35
4-Bromofluorobenzene	92		93		70-130	%	04.16.2020 22:35

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123367

Parent Sample Id: 659115-020

Matrix: Soil

MS Sample Id: 659115-020 S

Prep Method: SW5030B

Date Prep: 04.16.2020

MSD Sample Id: 659115-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0834	83	0.0833	83	70-130	0	35	mg/kg	04.17.2020 09:28	
Toluene	<0.00201	0.100	0.0791	79	0.0780	78	70-130	1	35	mg/kg	04.17.2020 09:28	
Ethylbenzene	<0.00201	0.100	0.0729	73	0.0722	72	71-129	1	35	mg/kg	04.17.2020 09:28	
m,p-Xylenes	<0.00402	0.201	0.149	74	0.147	74	70-135	1	35	mg/kg	04.17.2020 09:28	
o-Xylene	<0.00201	0.100	0.0757	76	0.0743	74	71-133	2	35	mg/kg	04.17.2020 09:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	04.17.2020 09:28
4-Bromofluorobenzene	96		94		70-130	%	04.17.2020 09:28

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



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) 885-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (81

Chain of Custody

Work Order No.:

659115

Project Manager:		Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:		LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:		3300 North A Street	Address:	3104 East Green Street
City, State ZIP:		Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:		(432) 236-3849	Email:	slc@llenry.com, dmoir@llenry.com, kkennedy@llenry.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 19 SWD	Turn Around	ANALYSIS REQUEST							Work Order Notes
Project Number:	012918106	Routine ☐								
P.O. Number:		Rush: 24H								
Sampler's Name:	Spencer Lo	Due Date:								

SAMPLE RECEIPT				Temp Blank:	☒ Yes	No	Wet Ice:	☒ Yes	No
Temperature (°C):	5.0			Thermometer ID					
Received Intact:	☒ Yes No								
Cooler Custody Seals:	Yes	☒ No	N/A	Correction Factor:	-0.2				
Sample Custody Seals:	Yes	☒ No	N/A	Total Containers:	24				

Number of Containers

PA 8015)

EPA 0=8021)

le (EPA 300.0)

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

[illegible][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 Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Service. Xencro will be liable only for the cost of samples and shall not assume any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xencro. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xencro, 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
		4/11/20 16:57			
		4			
		6			



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

Chain of Custody

Work Order No:

1059115

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Page 2 of 3

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slb@ltenv.com, dmoir@ltenv.com, kkennedy@ltenv.com

Program: UST/PT	☐ PRP	☐ Brownfields	☐ CRC	☐ Superfund
State of Project:				
Reporting Level: I	☐ Level II	☐ Level III	☐ ST/UST	☐ RRP
Deliverables: EDD	☐	ADAPT	☐	Other:

ANALYSIS REQUEST

Work Order Notes

Project Name:	Remuda Basin 19 SWD	Turn Around	
Project Number:	012918106	Routine	☐
P.O. Number:		Rush: 24H	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	5.0	Thermometer ID				
Received Intact:	Yes	No	Correction Factor:			
Cooler Custody Seals:	Yes	No	Total Containers:			
Sample Custody Seals:	Yes	No				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	Sample Comments											
FS11	S	4/16/2020	1335	6'	1	X	X	X												
FS12	S	4/16/2020	1340	4'	1	X	X	X												
FS13	S	4/16/2020	1345	6'	1	X	X	X												
FS14	S	4/16/2020	1355	4'	1	X	X	X												
FS15	S	4/16/2020	1400	4'	1	X	X	X												
FS16	S	4/16/2020	1405	5'	1	X	X	X												
FS17	S	4/16/2020	1410	4'	1	X	X	X												
FS18	S	4/16/2020	1415	4'	1	X	X	X												
FS19	S	4/16/2020	1420	4'	1	X	X	X												
FS20	S	4/16/2020	1425	4'	1	X	X	X												

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 Ti U
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

office: 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
		4/16/20 16:34			
		4			
		6			

Revised Date 05/14/18 Rev. 2018



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
Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 575-392-7650

Chain of Custody

Work Order No.:

059115

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Page _____ of _____

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slao@ltenv.com, dmoir@ltenv.com, kkennedy@ltenv.com

Work Order Comments	
Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐	
State of Project:	
Reporting Level: I ☐ Level II ☐ Level III ☐ ST/UST ☐ RP ☐ Level IV ☐	
Deliverables: EDD ☐ ADAPT ☐ Other: _____	

Project Name:	Remuda Basin 19 SWD	Turn Around	ANALYSIS REQUEST							Work Order Notes
Project Number:	012918106	Routine ☐								
P.O. Number:		Rush: 24H								
Sampler's Name:	Spencer Lo	Due Date:								

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

Number of Containers

PA 8015)

EPA 0=8021)

le (EPA 300.0)

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

[illegible]

Circle Method(s) and Metal(s) to be analyzed	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 SiO ₂ 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

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 sale to Xenco. 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
		4/14/20 14:57			

Revised Date 05/14/18 Rev. 2018.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.16.2020 04.37.00 PM

Work Order #: 659115

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist

Comments

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

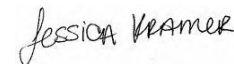
Checklist completed by:



Elizabeth McClellan

Date: 04.16.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.17.2020



Analytical Report 659314

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

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): **659314**

Remuda Basin 19 SWD

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) 659314. 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. 659314 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

A Small Business and Minority Company

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

**Sample Cross Reference 659314****LT Environmental, Inc., Arvada, CO**

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW01	S	04.20.2020 09:00	0 - 4 ft	659314-001
SW02	S	04.20.2020 09:05	0 - 4 ft	659314-002
SW03	S	04.20.2020 13:40	0 - 4 ft	659314-003
SW04	S	04.20.2020 13:50	0 - 4 ft	659314-004
SW05	S	04.20.2020 14:10	0 - 4 ft	659314-005
SW06	S	04.20.2020 14:20	0 - 4 ft	659314-006



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin 19 SWD*

Project ID: 012918106
Work Order Number(s): 659314

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-3123539 BTEX by EPA 8021B

Soil samples received in bulk containers.



Certificate of Analysis Summary 659314

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon 04.20.2020 16:35

Report Date: 04.21.2020 13:31

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659314-001	659314-002	659314-003	659314-004	659314-005	659314-006
	<i>Field Id:</i>	SW01	SW02	SW03	SW04	SW05	SW06
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.20.2020 09:00	04.20.2020 09:05	04.20.2020 13:40	04.20.2020 13:50	04.20.2020 14:10	04.20.2020 14:20
BTEX by EPA 8021B	<i>Extracted:</i>	04.20.2020 17:08	04.20.2020 17:08	04.20.2020 17:08	04.20.2020 17:08	04.20.2020 17:08	04.20.2020 17:08
	<i>Analyzed:</i>	04.21.2020 03:27	04.21.2020 03:48	04.21.2020 04:08	04.21.2020 04:28	04.21.2020 04:49	04.21.2020 05:09
	<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	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00399 0.00399	<0.00396 0.00396	<0.00402 0.00402	<0.00397 0.00397
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	04.20.2020 17:25	04.20.2020 17:25	04.20.2020 17:25	04.20.2020 17:25	04.20.2020 17:25	04.20.2020 17:25
	<i>Analyzed:</i>	04.20.2020 22:53	04.20.2020 22:59	04.20.2020 23:16	04.20.2020 23:22	04.20.2020 23:28	04.20.2020 23:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		232 49.8	145 9.98	58.2 9.96	39.3 9.98	13.3 9.96	<9.94 9.94
TPH by SW8015 Mod	<i>Extracted:</i>	04.20.2020 17:00	04.20.2020 17:00	04.20.2020 17:00	04.20.2020 17:00	04.20.2020 17:00	04.20.2020 17:00
	<i>Analyzed:</i>	04.21.2020 01:21	04.21.2020 01:41	04.21.2020 02:02	04.21.2020 02:22	04.21.2020 02:42	04.21.2020 03:23
	<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)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.3 50.3	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.3 50.3	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.3 50.3	<49.9 49.9	<50.0 50.0
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.3 50.3	<49.9 49.9	<50.0 50.0
Total TPH		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.3 50.3	<49.9 49.9	<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 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW01**
Lab Sample Id: 659314-001

Matrix: Soil
Date Collected: 04.20.2020 09:00

Date Received: 04.20.2020 16:35
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123548

Date Prep: 04.20.2020 17:25

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	232	49.8	mg/kg	04.20.2020 22:53		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123609

Date Prep: 04.20.2020 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	04.21.2020 01:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.21.2020 01:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.21.2020 01:21	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.21.2020 01:21	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.21.2020 01:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	04.21.2020 01:21	
o-Terphenyl	84-15-1	121	%	70-135	04.21.2020 01:21	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW01**
 Lab Sample Id: 659314-001

Matrix: Soil
 Date Collected: 04.20.2020 09:00

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.21.2020 03:27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.21.2020 03:27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.21.2020 03:27		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.21.2020 03:27		



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW02**
Lab Sample Id: 659314-002

Matrix: Soil
Date Collected: 04.20.2020 09:05

Date Received: 04.20.2020 16:35
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123548

Date Prep: 04.20.2020 17:25

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	145	9.98	mg/kg	04.20.2020 22:59		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123609

Date Prep: 04.20.2020 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	04.21.2020 01:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.21.2020 01:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.21.2020 01:41	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.21.2020 01:41	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.21.2020 01:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.21.2020 01:41	
o-Terphenyl	84-15-1	118	%	70-135	04.21.2020 01:41	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW02**
 Lab Sample Id: 659314-002

Matrix: Soil
 Date Collected: 04.20.2020 09:05

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

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	04.21.2020 03:48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.21.2020 03:48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.21.2020 03:48	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.21.2020 03:48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.21.2020 03:48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.21.2020 03:48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.21.2020 03:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.21.2020 03:48		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.21.2020 03:48		



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW03**
Lab Sample Id: 659314-003

Matrix: Soil
Date Collected: 04.20.2020 13:40

Date Received: 04.20.2020 16:35
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123548

Date Prep: 04.20.2020 17:25

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.2	9.96	mg/kg	04.20.2020 23:16		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123609

Date Prep: 04.20.2020 17:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.21.2020 02:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.21.2020 02:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.21.2020 02:02	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.21.2020 02:02	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.21.2020 02:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.21.2020 02:02	
o-Terphenyl	84-15-1	109	%	70-135	04.21.2020 02:02	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW03**
 Lab Sample Id: 659314-003

Matrix: Soil
 Date Collected: 04.20.2020 13:40

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

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	04.21.2020 04:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.21.2020 04:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.21.2020 04:08	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.21.2020 04:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.21.2020 04:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.21.2020 04:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.21.2020 04:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	90	%	70-130	04.21.2020 04:08	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.21.2020 04:08	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW04** Matrix: Soil Date Received: 04.20.2020 16:35
 Lab Sample Id: 659314-004 Date Collected: 04.20.2020 13:50 Sample Depth: 0 - 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.20.2020 17:25 Basis: Wet Weight
 Seq Number: 3123548

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	39.3	9.98	mg/kg	04.20.2020 23:22		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.20.2020 17:00 Basis: Wet Weight
 Seq Number: 3123609

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.21.2020 02:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.21.2020 02:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.21.2020 02:22	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.21.2020 02:22	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.21.2020 02:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.21.2020 02:22	
o-Terphenyl	84-15-1	112	%	70-135	04.21.2020 02:22	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW04**
 Lab Sample Id: 659314-004

Matrix: Soil
 Date Collected: 04.20.2020 13:50

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.21.2020 04:28	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.21.2020 04:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.21.2020 04:28	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.21.2020 04:28	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW05** Matrix: Soil Date Received: 04.20.2020 16:35
 Lab Sample Id: 659314-005 Date Collected: 04.20.2020 14:10 Sample Depth: 0 - 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.20.2020 17:25 Basis: Wet Weight
 Seq Number: 3123548

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.3	9.96	mg/kg	04.20.2020 23:28		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.20.2020 17:00 Basis: Wet Weight
 Seq Number: 3123609

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.21.2020 02:42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.21.2020 02:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.21.2020 02:42	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.21.2020 02:42	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.21.2020 02:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	04.21.2020 02:42	
o-Terphenyl	84-15-1	108	%	70-135	04.21.2020 02:42	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW05**
 Lab Sample Id: 659314-005

Matrix: Soil
 Date Collected: 04.20.2020 14:10

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.21.2020 04:49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.21.2020 04:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.21.2020 04:49		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.21.2020 04:49		



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW06**
Lab Sample Id: 659314-006

Matrix: Soil
Date Collected: 04.20.2020 14:20

Date Received: 04.20.2020 16:35
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123548

Date Prep: 04.20.2020 17:25

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	04.20.2020 23:34	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123609

Date Prep: 04.20.2020 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	04.21.2020 03:23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.21.2020 03:23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.21.2020 03:23	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.21.2020 03:23	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.21.2020 03:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	04.21.2020 03:23	
o-Terphenyl	84-15-1	112	%	70-135	04.21.2020 03:23	



Certificate of Analytical Results 659314

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW06**
 Lab Sample Id: 659314-006

Matrix: Soil
 Date Collected: 04.20.2020 14:20

Date Received: 04.20.2020 16:35
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.20.2020 17:08

Basis: Wet Weight

Seq Number: 3123539

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.21.2020 05:09	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.21.2020 05:09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.21.2020 05:09		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.21.2020 05:09		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **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 19 SWD

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: 3123609

MB Sample Id: 7701654-1-BLK

Matrix: Solid

LCS Sample Id: 7701654-1-BKS

Prep Method: SW8015P

Date Prep: 04.20.2020

LCSD Sample Id: 7701654-1-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	993	99	943	94	70-135	5	35	mg/kg	04.20.2020 22:19	
Diesel Range Organics (DRO)	<50.0	1000	1160	116	1070	107	70-135	8	35	mg/kg	04.20.2020 22:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		112		108		70-135	%	04.20.2020 22:19
o-Terphenyl	98		112		102		70-135	%	04.20.2020 22:19

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123609

Matrix: Solid

MB Sample Id: 7701654-1-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 21:59	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123609

Parent Sample Id: 659295-001

Matrix: Soil

MS Sample Id: 659295-001 S

Prep Method: SW8015P

Date Prep: 04.20.2020

MSD Sample Id: 659295-001 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)	<49.9	998	907	91	868	87	70-135	4	35	mg/kg	04.20.2020 23:20	
Diesel Range Organics (DRO)	<49.9	998	1010	101	955	96	70-135	6	35	mg/kg	04.20.2020 23:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		126		70-135	%	04.20.2020 23:20
o-Terphenyl	115		111		70-135	%	04.20.2020 23:20

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

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



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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) 281-1111

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Chain of Custody

Work Order No:

7/6/57

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slo@ltenv.com , dmoir@ltenv.com , kkennedy@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:	

ANALYSIS REQUEST

Work Order Notes

Project Number:	012918166	Routine	☐
P.O. Number:		Rush:	24H
Sampler's Name:	Spencer Lo	Due Date:	
SAMPLE RECEIPT	Temp Blank:	Yes	No
Temperature (°C):	3.6	Thermometer ID	TMM007
Received intact:	Yes	No	
Cooler Custody Seals:	Yes	No	N/A
Sample Custody Seals:	Yes	No	N/A
		Correction Factor:	-0.2
		Total Containers:	6

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
-----------------------	--------	--------------	--------------	-------

[illegible]

SW01	SW02	SW03	SW04	SW05	SW06
5	4.20	900	0-4	1	X
		905			X
		1340			X
		1350			X
		1410			X
		1420			X

Total	200.7 / 6010	200.8 / 6020:
-------	--------------	---------------

8RUCRA 13PFM 1exas 11 Al 3D MS Da De D Os Cu Cr Se Ag Ti U
TC1 D / ENI PC440. 8PCBA Sh 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

ICLP / SPLP 8010. ORCUM CD MS DA DC DO DI DO E

1111

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 sale to Xenco. 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 16:35			

Revised Date 05/14/18 Rev. 2018

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.20.2020 04.35.00 PM

Work Order #: 659314

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)?	3.6
#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

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

Analyst:

PH Device/Lot#:

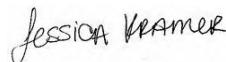
Checklist completed by:



Elizabeth McClellan

Date: 04.20.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.21.2020



Analytical Report 659581

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

04.23.2020

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)



04.23.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659581**

Remuda Basin 19 SWD

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) 659581. 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. 659581 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

A Small Business and Minority Company

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

**Sample Cross Reference 659581****LT Environmental, Inc., Arvada, CO**

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS25	S	04.22.2020 09:50	4 ft	659581-001
FS26	S	04.22.2020 10:00	4 ft	659581-002
FS27	S	04.22.2020 10:10	4 ft	659581-003
FS28	S	04.22.2020 10:20	4 ft	659581-004
FS29	S	04.22.2020 10:30	4 ft	659581-005
FS30	S	04.22.2020 10:40	4 ft	659581-006
FS31	S	04.22.2020 10:50	4 ft	659581-007
FS32	S	04.22.2020 11:00	4 ft	659581-008
FS33	S	04.22.2020 11:10	4 ft	659581-009
FS34	S	04.22.2020 11:20	4 ft	659581-010
FS35	S	04.22.2020 11:30	4 ft	659581-011
FS36	S	04.22.2020 15:30	6 ft	659581-012
FS37	S	04.22.2020 11:50	4 ft	659581-013
FS38	S	04.22.2020 12:00	4 ft	659581-014
FS39	S	04.22.2020 15:45	6 ft	659581-015
FS40	S	04.22.2020 12:20	4 ft	659581-016
FS41	S	04.22.2020 12:30	4 ft	659581-017
FS42	S	04.22.2020 16:00	6 ft	659581-018
FS43	S	04.22.2020 12:50	4 ft	659581-019
FS44	S	04.22.2020 13:00	4 ft	659581-020
FS45	S	04.22.2020 16:10	6 ft	659581-021
FS46	S	04.22.2020 13:20	4 ft	659581-022
FS47	S	04.22.2020 13:30	4 ft	659581-023
FS48	S	04.22.2020 13:40	4 ft	659581-024
FS49	S	04.22.2020 13:50	4 ft	659581-025
FS50	S	04.22.2020 14:00	4 ft	659581-026
FS51	S	04.22.2020 14:10	4 ft	659581-027
FS52	S	04.22.2020 14:20	4 ft	659581-028



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin 19 SWD*

Project ID: 012918106
Work Order Number(s): 659581

Report Date: 04.23.2020
Date Received: 04.22.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 659581

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659581-001	659581-002	659581-003	659581-004	659581-005	659581-006
	Field Id:	FS25	FS26	FS27	FS28	FS29	FS30
	Depth:	4- ft	4- ft	4- ft	4- ft	4- ft	4- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.22.2020 09:50	04.22.2020 10:00	04.22.2020 10:10	04.22.2020 10:20	04.22.2020 10:30	04.22.2020 10:40
BTEX by EPA 8021B	Extracted:	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00
	Analyzed:	04.22.2020 21:59	04.22.2020 22:19	04.22.2020 22:40	04.22.2020 23:00	04.22.2020 23:21	04.22.2020 23:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Toluene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Ethylbenzene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
m,p-Xylenes		<0.00403 0.00403	<0.00399 0.00399	<0.00401 0.00401	<0.00400 0.00400	<0.00398 0.00398	<0.00397 0.00397
o-Xylene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total Xylenes		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total BTEX		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Chloride by EPA 300	Extracted:	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08
	Analyzed:	04.22.2020 18:43	04.22.2020 19:02	04.22.2020 19:08	04.22.2020 19:22	04.22.2020 19:39	04.22.2020 20:27
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		348 50.0	2820 49.8	592 9.92	2730 50.1	1120 50.2	3650 49.6
TPH by SW8015 Mod	Extracted:	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30
	Analyzed:	04.22.2020 20:51	04.22.2020 21:31	04.22.2020 21:51	04.22.2020 22:12	04.22.2020 22:32	04.22.2020 22:52
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.2 50.2
Diesel Range Organics (DRO)		<49.8 49.8	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.2 50.2
Total GRO-DRO		<49.8 49.8	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.2 50.2
Total TPH		<49.8 49.8	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.1 50.1	<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 Manager



Certificate of Analysis Summary 659581

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659581-007	659581-008	659581-009	659581-010	659581-011	659581-012
	Field Id:	FS31	FS32	FS33	FS34	FS35	FS36
	Depth:	4- ft	4- ft	4- ft	4- ft	4- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.22.2020 10:50	04.22.2020 11:00	04.22.2020 11:10	04.22.2020 11:20	04.22.2020 11:30	04.22.2020 15:30
BTEX by EPA 8021B	Extracted:	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00	04.22.2020 19:00
	Analyzed:	04.23.2020 00:01	04.23.2020 00:22	04.23.2020 01:23	04.23.2020 01:43	04.23.2020 02:04	04.23.2020 02:24
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00402 0.00402	<0.00401 0.00401	<0.00398 0.00398	<0.00398 0.00398	<0.00399 0.00399	<0.00402 0.00402
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	Extracted:	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08
	Analyzed:	04.22.2020 20:43	04.22.2020 20:59	04.22.2020 21:15	04.22.2020 21:32	04.22.2020 21:48	04.22.2020 22:36
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1240 49.9	1360 49.8	177 9.92	127 9.98	5430 49.8	681 249
TPH by SW8015 Mod	Extracted:	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:30	04.22.2020 17:45
	Analyzed:	04.22.2020 23:12	04.22.2020 23:33	04.22.2020 23:53	04.23.2020 00:13	04.23.2020 00:34	04.23.2020 02:56
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.2 50.2	<50.3 50.3
Diesel Range Organics (DRO)		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.2 50.2	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.2 50.2	<50.3 50.3
Total GRO-DRO		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.2 50.2	<50.3 50.3
Total TPH		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.2 50.2	<50.3 50.3

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 Analysis Summary 659581

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659581-013	659581-014	659581-015	659581-016	659581-017	659581-018
	Field Id:	FS37	FS38	FS39	FS40	FS41	FS42
	Depth:	4- ft	4- ft	6- ft	4- ft	4- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.22.2020 11:50	04.22.2020 12:00	04.22.2020 15:45	04.22.2020 12:20	04.22.2020 12:30	04.22.2020 16:00
BTEX by EPA 8021B	Extracted:	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57
	Analyzed:	04.23.2020 05:48	04.23.2020 05:28	04.23.2020 06:08	04.23.2020 06:29	04.23.2020 06:49	04.23.2020 07:10
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
	Toluene	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes	<0.00396 0.00396	<0.00399 0.00399	<0.00398 0.00398	<0.00398 0.00398	<0.00398 0.00398	<0.00398 0.00398	<0.00398 0.00398
o-Xylene	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total BTEX	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Chloride by EPA 300	Extracted:	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 17:08
	Analyzed:	04.22.2020 22:53	04.22.2020 23:41	04.22.2020 23:57	04.23.2020 00:13	04.23.2020 00:29	04.23.2020 00:44
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	4760 249	9440 252	1840 251	282 50.2	4160 49.6	542 49.9
TPH by SW8015 Mod	Extracted:	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45
	Analyzed:	04.23.2020 03:57	04.23.2020 04:17	04.23.2020 04:37	04.23.2020 04:57	04.23.2020 05:18	04.23.2020 05:38
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Gasoline Range Hydrocarbons (GRO)	<50.1 50.1	<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.2 50.2	<50.2 50.2
	Diesel Range Organics (DRO)	<50.1 50.1	<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.2 50.2	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)	<50.1 50.1	<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.2 50.2
Total GRO-DRO	<50.1 50.1	<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.2 50.2
Total TPH	<50.1 50.1	<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.2 50.2	<50.2 50.2	<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 Manager



Certificate of Analysis Summary 659581

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659581-019	659581-020	659581-021	659581-022	659581-023	659581-024
	Field Id:	FS43	FS44	FS45	FS46	FS47	FS48
	Depth:	4- ft	4- ft	6- ft	4- ft	4- ft	4- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.22.2020 12:50	04.22.2020 13:00	04.22.2020 16:10	04.22.2020 13:20	04.22.2020 13:30	04.22.2020 13:40
BTEX by EPA 8021B	Extracted:	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57
	Analyzed:	04.23.2020 07:30	04.23.2020 07:50	04.23.2020 08:11	04.23.2020 08:52	04.23.2020 09:12	04.23.2020 10:34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00398 0.00398	<0.00397 0.00397	<0.00399 0.00399	<0.00399 0.00399	<0.00399 0.00399
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300	Extracted:	04.22.2020 17:08	04.22.2020 17:08	04.22.2020 18:52	04.22.2020 18:52	04.22.2020 18:52	04.22.2020 18:52
	Analyzed:	04.23.2020 01:00	04.23.2020 01:16	04.23.2020 02:51	04.23.2020 03:40	04.23.2020 03:56	04.23.2020 04:12
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		723 50.1	5160 49.9	3410 250	369 50.0	3760 50.0	6150 250
TPH by SW8015 Mod	Extracted:	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45
	Analyzed:	04.23.2020 05:58	04.23.2020 06:18	04.23.2020 06:38	04.23.2020 07:19	04.23.2020 07:39	04.23.2020 08:00
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.3 50.3	<49.8 49.8	<50.2 50.2
Diesel Range Organics (DRO)		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.3 50.3	<49.8 49.8	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.3 50.3	<49.8 49.8	<50.2 50.2
Total GRO-DRO		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.3 50.3	<49.8 49.8	<50.2 50.2
Total TPH		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.3 50.3	<49.8 49.8	<50.2 50.2

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

Jessica Kramer
Project Manager



Certificate of Analysis Summary 659581

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:44

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659581-025	659581-026	659581-027	659581-028		
	Field Id:	FS49	FS50	FS51	FS52		
	Depth:	4- ft	4- ft	4- ft	4- ft		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	04.22.2020 13:50	04.22.2020 14:00	04.22.2020 14:10	04.22.2020 14:20		
BTEX by EPA 8021B	Extracted:	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57	04.22.2020 17:57		
	Analyzed:	04.23.2020 10:54	04.23.2020 11:35	04.23.2020 11:55	04.23.2020 12:16		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Toluene		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Ethylbenzene		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
m,p-Xylenes		<0.00397 0.00397	<0.00402 0.00402	<0.00400 0.00400	<0.00403 0.00403		
o-Xylene		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Total Xylenes		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Total BTEX		<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202		
Chloride by EPA 300	Extracted:	04.22.2020 18:52	04.22.2020 18:52	04.22.2020 18:52	04.22.2020 18:52		
	Analyzed:	04.23.2020 04:28	04.23.2020 08:00	04.23.2020 08:06	04.23.2020 08:11		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		197 10.0	6890 250	2840 250	5790 500		
TPH by SW8015 Mod	Extracted:	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45	04.22.2020 17:45		
	Analyzed:	04.23.2020 08:20	04.23.2020 08:40	04.23.2020 09:00	04.23.2020 09:21		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2		
Diesel Range Organics (DRO)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2		
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2		
Total GRO-DRO		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2		
Total TPH		<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.2 50.2		

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Jessica Kramer
Project Manager



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS25
Lab Sample Id: 659581-001

Matrix: Soil
Date Collected: 04.22.2020 09:50

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	348	50.0	mg/kg	04.22.2020 18:43		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.22.2020 20:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.22.2020 20:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.22.2020 20:51	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.22.2020 20:51	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.22.2020 20:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	04.22.2020 20:51	
o-Terphenyl	84-15-1	121	%	70-135	04.22.2020 20:51	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS25**
 Lab Sample Id: 659581-001

Matrix: Soil
 Date Collected: 04.22.2020 09:50

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.22.2020 21:59	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.22.2020 21:59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.22.2020 21:59		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.22.2020 21:59		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS26**
Lab Sample Id: 659581-002

Matrix: Soil
Date Collected: 04.22.2020 10:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2820	49.8	mg/kg	04.22.2020 19:02		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

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	04.22.2020 21:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 21:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 21:31	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 21:31	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 21:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	04.22.2020 21:31	
o-Terphenyl	84-15-1	128	%	70-135	04.22.2020 21:31	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS26**
Lab Sample Id: 659581-002

Matrix: Soil
Date Collected: 04.22.2020 10:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.22.2020 22:19	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.22.2020 22:19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.22.2020 22:19		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.22.2020 22:19		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS27
Lab Sample Id: 659581-003

Matrix: Soil
Date Collected: 04.22.2020 10:10

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	592	9.92	mg/kg	04.22.2020 19:08		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

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	04.22.2020 21:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 21:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 21:51	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 21:51	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 21:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	04.22.2020 21:51	
o-Terphenyl	84-15-1	122	%	70-135	04.22.2020 21:51	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS27**
Lab Sample Id: 659581-003

Matrix: Soil
Date Collected: 04.22.2020 10:10

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.22.2020 22:40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.22.2020 22:40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.22.2020 22:40		
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.22.2020 22:40		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS28**
Lab Sample Id: 659581-004

Matrix: Soil
Date Collected: 04.22.2020 10:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2730	50.1	mg/kg	04.22.2020 19:22		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.22.2020 22:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.22.2020 22:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.22.2020 22:12	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.22.2020 22:12	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.22.2020 22:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	04.22.2020 22:12	
o-Terphenyl	84-15-1	110	%	70-135	04.22.2020 22:12	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS28**
 Lab Sample Id: 659581-004

Matrix: Soil
 Date Collected: 04.22.2020 10:20

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.22.2020 23:00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.22.2020 23:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.22.2020 23:00		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.22.2020 23:00		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS29**
Lab Sample Id: 659581-005

Matrix: Soil
Date Collected: 04.22.2020 10:30

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1120	50.2	mg/kg	04.22.2020 19:39		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.22.2020 22:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.22.2020 22:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.22.2020 22:32	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.22.2020 22:32	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.22.2020 22:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.22.2020 22:32	
o-Terphenyl	84-15-1	111	%	70-135	04.22.2020 22:32	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS29**
Lab Sample Id: 659581-005

Matrix: Soil
Date Collected: 04.22.2020 10:30

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.22.2020 23:21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.22.2020 23:21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.22.2020 23:21		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.22.2020 23:21		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS30** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-006 Date Collected: 04.22.2020 10:40 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 17:08 Basis: Wet Weight
 Seq Number: 3123863

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3650	49.6	mg/kg	04.22.2020 20:27		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:30 Basis: Wet Weight
 Seq Number: 3123877

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.22.2020 22:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 22:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 22:52	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 22:52	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 22:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	04.22.2020 22:52	
o-Terphenyl	84-15-1	125	%	70-135	04.22.2020 22:52	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS30**
Lab Sample Id: 659581-006

Matrix: Soil
Date Collected: 04.22.2020 10:40

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.22.2020 23:41	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.22.2020 23:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.22.2020 23:41	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.22.2020 23:41	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS31**
Lab Sample Id: 659581-007

Matrix: Soil
Date Collected: 04.22.2020 10:50

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1240	49.9	mg/kg	04.22.2020 20:43		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

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	04.22.2020 23:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 23:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 23:12	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 23:12	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 23:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	04.22.2020 23:12	
o-Terphenyl	84-15-1	111	%	70-135	04.22.2020 23:12	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS31**
 Lab Sample Id: 659581-007

Matrix: Soil
 Date Collected: 04.22.2020 10:50

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.23.2020 00:01	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.23.2020 00:01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.23.2020 00:01	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 00:01	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS32** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-008 Date Collected: 04.22.2020 11:00 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 17:08 Basis: Wet Weight
 Seq Number: 3123863

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1360	49.8	mg/kg	04.22.2020 20:59		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:30 Basis: Wet Weight
 Seq Number: 3123877

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.22.2020 23:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 23:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 23:33	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 23:33	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 23:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	04.22.2020 23:33	
o-Terphenyl	84-15-1	119	%	70-135	04.22.2020 23:33	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS32**
Lab Sample Id: 659581-008

Matrix: Soil
Date Collected: 04.22.2020 11:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.23.2020 00:22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 00:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 00:22		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.23.2020 00:22		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS33** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-009 Date Collected: 04.22.2020 11:10 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 17:08 Basis: Wet Weight
 Seq Number: 3123863

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	177	9.92	mg/kg	04.22.2020 21:15		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:30 Basis: Wet Weight
 Seq Number: 3123877

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.22.2020 23:53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.22.2020 23:53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.22.2020 23:53	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.22.2020 23:53	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.22.2020 23:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	04.22.2020 23:53	
o-Terphenyl	84-15-1	125	%	70-135	04.22.2020 23:53	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS33**
 Lab Sample Id: 659581-009

Matrix: Soil
 Date Collected: 04.22.2020 11:10

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 01:23	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 01:23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.23.2020 01:23		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.23.2020 01:23		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS34**
Lab Sample Id: 659581-010

Matrix: Soil
Date Collected: 04.22.2020 11:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	127	9.98	mg/kg	04.22.2020 21:32		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.23.2020 00:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.23.2020 00:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.23.2020 00:13	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.23.2020 00:13	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.23.2020 00:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	04.23.2020 00:13	
o-Terphenyl	84-15-1	116	%	70-135	04.23.2020 00:13	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS34**
 Lab Sample Id: 659581-010

Matrix: Soil
 Date Collected: 04.22.2020 11:20

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 01:43	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 01:43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.23.2020 01:43		
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.23.2020 01:43		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS35
Lab Sample Id: 659581-011

Matrix: Soil
Date Collected: 04.22.2020 11:30

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5430	49.8	mg/kg	04.22.2020 21:48		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123877

Date Prep: 04.22.2020 17:30

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	04.23.2020 00:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 00:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 00:34	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 00:34	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 00:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.23.2020 00:34	
o-Terphenyl	84-15-1	119	%	70-135	04.23.2020 00:34	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS35**
 Lab Sample Id: 659581-011

Matrix: Soil
 Date Collected: 04.22.2020 11:30

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.23.2020 02:04	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 02:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.23.2020 02:04	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 02:04	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS36**
Lab Sample Id: 659581-012

Matrix: Soil
Date Collected: 04.22.2020 15:30

Date Received: 04.22.2020 16:45
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	681	249	mg/kg	04.22.2020 22:36		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.23.2020 02:56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.23.2020 02:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.23.2020 02:56	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.23.2020 02:56	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.23.2020 02:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	04.23.2020 02:56	
o-Terphenyl	84-15-1	117	%	70-135	04.23.2020 02:56	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS36**
 Lab Sample Id: 659581-012

Matrix: Soil
 Date Collected: 04.22.2020 15:30

Date Received: 04.22.2020 16:45
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 19:00

Basis: Wet Weight

Seq Number: 3123852

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.23.2020 02:24	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.23.2020 02:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.23.2020 02:24	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 02:24	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS37** Matrix: **Soil** Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-013 Date Collected: 04.22.2020 11:50 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: **MAB** % Moisture:
 Analyst: **MAB** Date Prep: 04.22.2020 17:08 Basis: **Wet Weight**
 Seq Number: 3123863

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4760	249	mg/kg	04.22.2020 22:53		25

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: **DTH** % Moisture:
 Analyst: **DTH** Date Prep: 04.22.2020 17:45 Basis: **Wet Weight**
 Seq Number: 3123903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 03:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 03:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 03:57	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 03:57	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 03:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.23.2020 03:57	
o-Terphenyl	84-15-1	102	%	70-135	04.23.2020 03:57	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS37
Lab Sample Id: 659581-013

Matrix: Soil
Date Collected: 04.22.2020 11:50

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.23.2020 05:48	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.23.2020 05:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 05:48		
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.23.2020 05:48		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS38**
Lab Sample Id: 659581-014

Matrix: Soil
Date Collected: 04.22.2020 12:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9440	252	mg/kg	04.22.2020 23:41		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 04:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 04:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 04:17	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 04:17	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 04:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	04.23.2020 04:17	
o-Terphenyl	84-15-1	125	%	70-135	04.23.2020 04:17	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS38**
 Lab Sample Id: 659581-014

Matrix: Soil
 Date Collected: 04.22.2020 12:00

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.23.2020 05:28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 05:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.23.2020 05:28	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 05:28	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS39** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-015 Date Collected: 04.22.2020 15:45 Sample Depth: 6 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 17:08 Basis: Wet Weight
 Seq Number: 3123863

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1840	251	mg/kg	04.22.2020 23:57		25

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:45 Basis: Wet Weight
 Seq Number: 3123903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.23.2020 04:37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.23.2020 04:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.23.2020 04:37	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.23.2020 04:37	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.23.2020 04:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	04.23.2020 04:37	
o-Terphenyl	84-15-1	112	%	70-135	04.23.2020 04:37	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS39**
 Lab Sample Id: 659581-015

Matrix: Soil
 Date Collected: 04.22.2020 15:45

Date Received: 04.22.2020 16:45
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 06:08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 06:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.23.2020 06:08		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 06:08		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS40**
Lab Sample Id: 659581-016

Matrix: Soil
Date Collected: 04.22.2020 12:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	282	50.2	mg/kg	04.23.2020 00:13		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 04:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 04:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 04:57	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 04:57	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 04:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	04.23.2020 04:57	
o-Terphenyl	84-15-1	117	%	70-135	04.23.2020 04:57	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS40**
 Lab Sample Id: 659581-016

Matrix: Soil
 Date Collected: 04.22.2020 12:20

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 06:29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 06:29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.23.2020 06:29		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 06:29		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS41**
Lab Sample Id: 659581-017

Matrix: Soil
Date Collected: 04.22.2020 12:30

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4160	49.6	mg/kg	04.23.2020 00:29		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 05:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 05:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 05:18	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 05:18	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 05:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	04.23.2020 05:18	
o-Terphenyl	84-15-1	125	%	70-135	04.23.2020 05:18	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS41**
 Lab Sample Id: 659581-017

Matrix: Soil
 Date Collected: 04.22.2020 12:30

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 06:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 06:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.23.2020 06:49		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 06:49		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS42**
Lab Sample Id: 659581-018

Matrix: Soil
Date Collected: 04.22.2020 16:00

Date Received: 04.22.2020 16:45
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	542	49.9	mg/kg	04.23.2020 00:44		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 05:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 05:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 05:38	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 05:38	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 05:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	04.23.2020 05:38	
o-Terphenyl	84-15-1	116	%	70-135	04.23.2020 05:38	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS42**
 Lab Sample Id: 659581-018

Matrix: Soil
 Date Collected: 04.22.2020 16:00

Date Received: 04.22.2020 16:45
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 07:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 07:10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.23.2020 07:10		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.23.2020 07:10		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS43**
Lab Sample Id: 659581-019

Matrix: Soil
Date Collected: 04.22.2020 12:50

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	723	50.1	mg/kg	04.23.2020 01:00		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 05:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 05:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 05:58	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 05:58	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 05:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	04.23.2020 05:58	
o-Terphenyl	84-15-1	118	%	70-135	04.23.2020 05:58	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS43**
 Lab Sample Id: 659581-019

Matrix: Soil
 Date Collected: 04.22.2020 12:50

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.23.2020 07:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 07:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.23.2020 07:30		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.23.2020 07:30		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS44**
Lab Sample Id: 659581-020

Matrix: Soil
Date Collected: 04.22.2020 13:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123863

Date Prep: 04.22.2020 17:08

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5160	49.9	mg/kg	04.23.2020 01:16		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 06:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.23.2020 06:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.23.2020 06:18	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.23.2020 06:18	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.23.2020 06:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	04.23.2020 06:18	
o-Terphenyl	84-15-1	125	%	70-135	04.23.2020 06:18	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS44**
 Lab Sample Id: 659581-020

Matrix: Soil
 Date Collected: 04.22.2020 13:00

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.23.2020 07:50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.23.2020 07:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.23.2020 07:50		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 07:50		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS45**
Lab Sample Id: 659581-021

Matrix: Soil
Date Collected: 04.22.2020 16:10

Date Received: 04.22.2020 16:45
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3410	250	mg/kg	04.23.2020 02:51		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 06:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 06:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 06:38	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 06:38	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 06:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.23.2020 06:38	
o-Terphenyl	84-15-1	121	%	70-135	04.23.2020 06:38	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS45**
 Lab Sample Id: 659581-021

Matrix: Soil
 Date Collected: 04.22.2020 16:10

Date Received: 04.22.2020 16:45
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.23.2020 08:11	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.23.2020 08:11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.23.2020 08:11		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 08:11		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS46** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-022 Date Collected: 04.22.2020 13:20 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 18:52 Basis: Wet Weight
 Seq Number: 3123884

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	369	50.0	mg/kg	04.23.2020 03:40		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:45 Basis: Wet Weight
 Seq Number: 3123903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.23.2020 07:19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.23.2020 07:19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.23.2020 07:19	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.23.2020 07:19	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.23.2020 07:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	04.23.2020 07:19	
o-Terphenyl	84-15-1	126	%	70-135	04.23.2020 07:19	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS46**
Lab Sample Id: 659581-022

Matrix: Soil
Date Collected: 04.22.2020 13:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.23.2020 08:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 08:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.23.2020 08:52	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 08:52	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS47** Matrix: Soil Date Received: 04.22.2020 16:45
 Lab Sample Id: 659581-023 Date Collected: 04.22.2020 13:30 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.22.2020 18:52 Basis: Wet Weight
 Seq Number: 3123884

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3760	50.0	mg/kg	04.23.2020 03:56		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.22.2020 17:45 Basis: Wet Weight
 Seq Number: 3123903

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.23.2020 07:39	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.23.2020 07:39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.23.2020 07:39	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.23.2020 07:39	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.23.2020 07:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-135	04.23.2020 07:39	
o-Terphenyl	84-15-1	131	%	70-135	04.23.2020 07:39	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS47**
Lab Sample Id: 659581-023

Matrix: Soil
Date Collected: 04.22.2020 13:30

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.23.2020 09:12	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 09:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.23.2020 09:12	
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.23.2020 09:12	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS48**
Lab Sample Id: 659581-024

Matrix: Soil
Date Collected: 04.22.2020 13:40

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6150	250	mg/kg	04.23.2020 04:12		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 08:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 08:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 08:00	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 08:00	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 08:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	04.23.2020 08:00	
o-Terphenyl	84-15-1	126	%	70-135	04.23.2020 08:00	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS48**
Lab Sample Id: 659581-024

Matrix: Soil
Date Collected: 04.22.2020 13:40

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.23.2020 10:34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 10:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	90	%	70-130	04.23.2020 10:34	
4-Bromofluorobenzene	460-00-4	104	%	70-130	04.23.2020 10:34	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS49**
Lab Sample Id: 659581-025

Matrix: Soil
Date Collected: 04.22.2020 13:50

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	197	10.0	mg/kg	04.23.2020 04:28		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 08:20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 08:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 08:20	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 08:20	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 08:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.23.2020 08:20	
o-Terphenyl	84-15-1	119	%	70-135	04.23.2020 08:20	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS49**
 Lab Sample Id: 659581-025

Matrix: Soil
 Date Collected: 04.22.2020 13:50

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3123936

Prep Method: SW5035A

% Moisture:

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.23.2020 10:54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.23.2020 10:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.23.2020 10:54		
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.23.2020 10:54		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS50**
Lab Sample Id: 659581-026

Matrix: Soil
Date Collected: 04.22.2020 14:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6890	250	mg/kg	04.23.2020 08:00		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 08:40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 08:40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 08:40	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 08:40	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 08:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	04.23.2020 08:40	
o-Terphenyl	84-15-1	112	%	70-135	04.23.2020 08:40	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS50**
Lab Sample Id: 659581-026

Matrix: Soil
Date Collected: 04.22.2020 14:00

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.23.2020 11:35	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.23.2020 11:35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.23.2020 11:35		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.23.2020 11:35		



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS51**
Lab Sample Id: 659581-027

Matrix: Soil
Date Collected: 04.22.2020 14:10

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2840	250	mg/kg	04.23.2020 08:06		25

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.23.2020 09:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.23.2020 09:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.23.2020 09:00	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.23.2020 09:00	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.23.2020 09:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	04.23.2020 09:00	
o-Terphenyl	84-15-1	114	%	70-135	04.23.2020 09:00	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS51**
Lab Sample Id: 659581-027

Matrix: Soil
Date Collected: 04.22.2020 14:10

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.23.2020 11:55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.2020 11:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 11:55	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.23.2020 11:55	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS52
Lab Sample Id: 659581-028

Matrix: Soil
Date Collected: 04.22.2020 14:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5790	500	mg/kg	04.23.2020 08:11		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 09:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 09:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 09:21	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 09:21	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 09:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.23.2020 09:21	
o-Terphenyl	84-15-1	99	%	70-135	04.23.2020 09:21	



Certificate of Analytical Results 659581

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS52
Lab Sample Id: 659581-028

Matrix: Soil
Date Collected: 04.22.2020 14:20

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.23.2020 12:16	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.23.2020 12:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.23.2020 12:16		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.23.2020 12:16		



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 19 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3123863

MB Sample Id: 7701854-1-BLK

Matrix: Solid

LCS Sample Id: 7701854-1-BKS

Prep Method: E300P

Date Prep: 04.22.2020

LCSD Sample Id: 7701854-1-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	254	102	254	102	90-110	0	20	mg/kg	04.22.2020 18:30	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

MB Sample Id: 7701855-1-BLK

Matrix: Solid

LCS Sample Id: 7701855-1-BKS

Prep Method: E300P

Date Prep: 04.22.2020

LCSD Sample Id: 7701855-1-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	257	103	257	103	90-110	0	20	mg/kg	04.23.2020 02:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3123863

Parent Sample Id: 659581-001

Matrix: Soil

MS Sample Id: 659581-001 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659581-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	348	249	604	103	605	103	90-110	0	20	mg/kg	04.22.2020 18:49	

Analytical Method: Chloride by EPA 300

Seq Number: 3123863

Parent Sample Id: 659581-011

Matrix: Soil

MS Sample Id: 659581-011 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659581-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5430	202	5640	104	5620	94	90-110	0	20	mg/kg	04.22.2020 22:04	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659581-021

Matrix: Soil

MS Sample Id: 659581-021 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659581-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3410	200	3600	95	3600	95	90-110	0	20	mg/kg	04.23.2020 03:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659585-002

Matrix: Soil

MS Sample Id: 659585-002 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659585-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	266	200	467	101	463	99	90-110	1	20	mg/kg	04.23.2020 08:33	

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



LT Environmental, Inc.
Remuda Basin 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123877

MB Sample Id: 7701870-1-BLK

Matrix: Solid

LCS Sample Id: 7701870-1-BKS

Prep Method: SW8015P

Date Prep: 04.22.2020

LCSD Sample Id: 7701870-1-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	896	90	707	71	70-135	24	35	mg/kg	04.22.2020 15:42	
Diesel Range Organics (DRO)	<50.0	1000	1010	101	777	78	70-135	26	35	mg/kg	04.22.2020 15:42	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	78		117		89		70-135	%	04.22.2020 15:42
o-Terphenyl	83		101		76		70-135	%	04.22.2020 15:42

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

MB Sample Id: 7701869-1-BLK

Matrix: Solid

LCS Sample Id: 7701869-1-BKS

Prep Method: SW8015P

Date Prep: 04.22.2020

LCSD Sample Id: 7701869-1-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	983	98	881	88	70-135	11	35	mg/kg	04.23.2020 02:15	
Diesel Range Organics (DRO)	<50.0	1000	1110	111	985	99	70-135	12	35	mg/kg	04.23.2020 02:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		128		117		70-135	%	04.23.2020 02:15
o-Terphenyl	132		127		118		70-135	%	04.23.2020 02:15

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123877

Matrix: Solid

MB Sample Id: 7701870-1-BLK

Prep Method: SW8015P

Date Prep: 04.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.22.2020 13:30	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Matrix: Solid

MB Sample Id: 7701869-1-BLK

Prep Method: SW8015P

Date Prep: 04.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.23.2020 01:55	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123877

Parent Sample Id: 659425-003

Matrix: Soil

MS Sample Id: 659425-003 S

Prep Method: SW8015P

Date Prep: 04.22.2020

MSD Sample Id: 659425-003 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	876	88	890	89	70-135	2	35	mg/kg	04.22.2020 17:24	
Diesel Range Organics (DRO)	<50.2	1000	970	97	988	99	70-135	2	35	mg/kg	04.22.2020 17:24	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		114		70-135	%	04.22.2020 17:24
o-Terphenyl	117		120		70-135	%	04.22.2020 17:24

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Parent Sample Id: 659581-012

Matrix: Soil

MS Sample Id: 659581-012 S

Prep Method: SW8015P

Date Prep: 04.22.2020

MSD Sample Id: 659581-012 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	956	96	917	92	70-135	4	35	mg/kg	04.23.2020 03:16	
Diesel Range Organics (DRO)	<50.1	1000	1080	108	1030	103	70-135	5	35	mg/kg	04.23.2020 03:16	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		124		70-135	%	04.23.2020 03:16
o-Terphenyl	130		125		70-135	%	04.23.2020 03:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123852

MB Sample Id: 7701799-1-BLK

Matrix: Solid

LCS Sample Id: 7701799-1-BKS

Prep Method: SW5035A

Date Prep: 04.22.2020

LCSD Sample Id: 7701799-1-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	0.0997	100	0.109	109	70-130	9	35	mg/kg	04.22.2020 14:29	
Toluene	<0.00200	0.100	0.0941	94	0.104	104	70-130	10	35	mg/kg	04.22.2020 14:29	
Ethylbenzene	<0.00200	0.100	0.0882	88	0.0975	98	71-129	10	35	mg/kg	04.22.2020 14:29	
m,p-Xylenes	<0.00400	0.200	0.181	91	0.201	101	70-135	10	35	mg/kg	04.22.2020 14:29	
o-Xylene	<0.00200	0.100	0.0912	91	0.102	102	71-133	11	35	mg/kg	04.22.2020 14:29	

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	%	04.22.2020 14:29
4-Bromofluorobenzene	93		92		90		70-130	%	04.22.2020 14:29

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 19 SWD

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

Matrix: Solid

Prep Method: SW5035A

Date Prep: 04.22.2020

MB Sample Id: 7701856-1-BLK

LCS Sample Id: 7701856-1-BKS

LCSD Sample Id: 7701856-1-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	0.110	110	70-130	3	35	mg/kg	04.23.2020 03:46	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	04.23.2020 03:46	
Ethylbenzene	<0.00200	0.100	0.0950	95	0.0974	97	71-129	2	35	mg/kg	04.23.2020 03:46	
m,p-Xylenes	<0.00400	0.200	0.195	98	0.200	100	70-135	3	35	mg/kg	04.23.2020 03:46	
o-Xylene	<0.00200	0.100	0.0991	99	0.102	102	71-133	3	35	mg/kg	04.23.2020 03:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		100		104		70-130	%	04.23.2020 03:46
4-Bromofluorobenzene	94		88		94		70-130	%	04.23.2020 03:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123852

Matrix: Soil

Prep Method: SW5035A

Date Prep: 04.22.2020

Parent Sample Id: 659427-001

MS Sample Id: 659427-001 S

MSD Sample Id: 659427-001 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	0.0882	88	0.0954	94	70-130	8	35	mg/kg	04.22.2020 21:39	
Toluene	<0.00200	0.100	0.0972	97	0.0905	90	70-130	7	35	mg/kg	04.22.2020 21:39	
Ethylbenzene	<0.00200	0.100	0.0892	89	0.0834	83	71-129	7	35	mg/kg	04.22.2020 21:39	
m,p-Xylenes	<0.00401	0.200	0.186	93	0.170	84	70-135	9	35	mg/kg	04.22.2020 21:39	
o-Xylene	<0.00200	0.100	0.0862	86	0.0867	86	71-133	1	35	mg/kg	04.22.2020 21:39	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		105		70-130	%	04.22.2020 21:39
4-Bromofluorobenzene	93		96		70-130	%	04.22.2020 21:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

Matrix: Soil

Prep Method: SW5035A

Date Prep: 04.22.2020

Parent Sample Id: 659581-014

MS Sample Id: 659581-014 S

MSD Sample Id: 659581-014 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	0.103	103	0.102	102	70-130	1	35	mg/kg	04.23.2020 04:26	
Toluene	<0.00200	0.100	0.0980	98	0.0970	97	70-130	1	35	mg/kg	04.23.2020 04:26	
Ethylbenzene	<0.00200	0.100	0.0913	91	0.0911	91	71-129	0	35	mg/kg	04.23.2020 04:26	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.187	94	70-135	0	35	mg/kg	04.23.2020 04:26	
o-Xylene	<0.00200	0.100	0.0949	95	0.0943	94	71-133	1	35	mg/kg	04.23.2020 04:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	04.23.2020 04:26
4-Bromofluorobenzene	94		94		70-130	%	04.23.2020 04:26

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



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
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 281-1111
Hobbs, NM (575-392-7550)

Work Order No: 659581

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Chain of Custody

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slo@ltenv.com , dmoir@ltenv.com , kkennedy@ltenv.com

Work Order Comments	
Program: US/PT	☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:	
Reporting: Level II	☐ Level III ☐ ST/UST ☐ RP ☐ Level IV ☐
Deliverables: EDD	☐ ADAPT ☐ Other:

Project Name:	Remuda Basin 19 SWD	Turn Around	ANALYSIS REQUEST								Work Order Notes
Project Number:	012918106	Routine ☐									
P.O. Number:		Rush: 24H									
Sampler's Name:	Spencer Lo	Due Date:									

SAMPLE RECEIPT		Temp Blank:	Yes	No	Well Ice:	Yes	No
Temperature (°C):	0.0	Thermometer ID					
Received Intact:	Yes	No	T-NM-003				
Cooler Custody Seals:	Yes	No	Correction Factor:		-0.1		
Sample Custody Seals:	Yes	No	Total Containers:		28		

Number of Containers

(EPA 8015)

(EPA 0=8021)

de (EPA 300.0)

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

[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 SiO ₂ 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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time
[Signature]	[Signature]	04/22/20 @ 1630
[Signature]	[Signature]	4/22/20 16:45



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
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 251-3921
Hobbs, NM (575-392-7550)

Page 6 of 7
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Chain of Custody

Work Order No: _____

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slo@ltenv.com , dmoir@ltenv.com , kkennedy@ltenv.com

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund ☐ State of Project: Reporting Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other: ☐	Work Order Notes
---	-------------------------

[illegible][illegible]

Total	200.7 / 6010	200.8 / 6020:
8RCRA	13PPM	
Sd As Ba Be Cd Cr Cu Cui Pb Mn Mo Ni Se Ag Ti U		
1631 / 245.1 / 7470	1631 / 245.1 / 7470	1631 / 245.1 / 7471 : Hg

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

ICLP / SPLP 6010: 8RCKA 3D AS BA DE DU DI DO DU 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

office: 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 between client company and Xenco. Client company agrees to pay Xenco the amount due for all samples submitted to Xenco, whether or not analyzed, at the time of submission. If payment is not received by Xenco, it shall have no obligation to analyze any samples submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

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.

For each sample submitted to Xenco, but not analyzed, \$5 per sample shall be charged to the client.

[illegible]



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
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 233-3927
Hobbs, NM (575-392-7550)

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Page 01

Chain of Custody

Work Order No:

65958

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slo@ltenv.com , dmoir@ltenv.com , lkennedy@ltenv.com

Work Order Comments									
Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐									
State of Project:									
Reporting Level: I ☐ Level II ☐ Level III ☐ ST/UST ☐ RP ☐ Level IV ☐									
Deliverables: EDD ☐ ☐ ADAPT ☐ Other: ☐									

Project Name:	Remuda Basin 19 SWD	Turn Around
Project Number:	012918106	Routine ☐
P.O. Number:		Rush: 24H
Sampler's Name:	Spencer Lo	Due Date:

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):					Thermometer ID		
Received intact:	Yes	No					
Cooler Custody Seals:	Yes	No			Correction Factor:		
Sample Custody Seals:	Yes	No			Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Num	TPH	BTEX	Chlor	Sample Comments									
FS45	S	4/22/2020	1610	6'	1	X	X	X										
FS46	S	4/20/2020	1320	4'	1	X	X	X										
FS47	S	4/20/2020	1330	4'	1	X	X	X										
FS48	S	4/20/2020	1340	4'	1	X	X	X										
FS49	S	4/20/2020	1350	4'	1	X	X	X										
FS50	S	4/20/2020	1400	4'	1	X	X	X										
FS51	S	4/20/2020	1410	4'	1	X	X	X										
FS52	S	4/20/2020	1420	4'	1	X	X	X										

Total	200.7 / 6010	200.8 / 6020:
-------	--------------	---------------

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

[illegible]

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 to Xenco. 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, but not analyzed. These terms will be enforced unless previously negotiated. A fee of \$5 for each sample submitted to Xenco, but not analyzed. This fee is non-refundable and a charge of \$5 for each sample submitted to Xenco, but not analyzed.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	[Signature]	[Signature]	04/22/20 @ 16:30	[Signature]	[Signature]	4/22/20 16:45
2						
3						
4						
5						

Revised Date 05/14/18 Rev. 2018

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.22.2020 04.45.00 PM

Work Order #: 659581

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 *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	Samples received in bulk containers.
#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#:

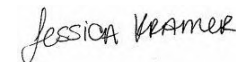
Checklist completed by:



Elizabeth McClellan

Date: 04.22.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.23.2020



Analytical Report 659583

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

04.23.2020

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)



04.23.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659583**

Remuda Basin 19 SWD

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) 659583. 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. 659583 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

A Small Business and Minority Company

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



Sample Cross Reference 659583

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW14	S	04.22.2020 14:30	0 - 4 ft	659583-001



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin 19 SWD*

Project ID: 012918106
Work Order Number(s): 659583

Report Date: 04.23.2020
Date Received: 04.22.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 659583

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:45

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 659583-001 Field Id: SW14 Depth: 0-4 ft Matrix: SOIL Sampled: 04.22.2020 14:30					
BTEX by EPA 8021B	Extracted: 04.22.2020 17:57 Analyzed: 04.23.2020 12:36 Units/RL: mg/kg RL					
Benzene	<0.00202 0.00202					
Toluene	<0.00202 0.00202					
Ethylbenzene	<0.00202 0.00202					
m,p-Xylenes	<0.00403 0.00403					
o-Xylene	<0.00202 0.00202					
Total Xylenes	<0.00202 0.00202					
Total BTEX	<0.00202 0.00202					
Chloride by EPA 300	Extracted: 04.22.2020 18:52 Analyzed: 04.23.2020 08:16 Units/RL: mg/kg RL					
Chloride	<50.0 50.0					
TPH by SW8015 Mod	Extracted: 04.22.2020 17:45 Analyzed: 04.23.2020 09:41 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



Certificate of Analytical Results 659583

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW14**
Lab Sample Id: 659583-001

Matrix: Soil
Date Collected: 04.22.2020 14:30

Date Received: 04.22.2020 16:45
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<50.0	50.0	mg/kg	04.23.2020 08:16	U	5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.23.2020 09:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.23.2020 09:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.23.2020 09:41	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.23.2020 09:41	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.23.2020 09:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	04.23.2020 09:41	
o-Terphenyl	84-15-1	88	%	70-135	04.23.2020 09:41	



Certificate of Analytical Results 659583

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **SW14**
 Lab Sample Id: 659583-001

Matrix: Soil
 Date Collected: 04.22.2020 14:30

Date Received: 04.22.2020 16:45
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.23.2020 12:36	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.23.2020 12:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.23.2020 12:36		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.23.2020 12:36		



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 19 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

MB Sample Id: 7701855-1-BLK

Matrix: Solid

LCS Sample Id: 7701855-1-BKS

Prep Method: E300P

Date Prep: 04.22.2020

LCSD Sample Id: 7701855-1-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	257	103	257	103	90-110	0	20	mg/kg	04.23.2020 02:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659581-021

Matrix: Soil

MS Sample Id: 659581-021 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659581-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3410	200	3600	95	3600	95	90-110	0	20	mg/kg	04.23.2020 03:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659585-002

Matrix: Soil

MS Sample Id: 659585-002 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659585-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	266	200	467	101	463	99	90-110	1	20	mg/kg	04.23.2020 08:33	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

MB Sample Id: 7701869-1-BLK

Matrix: Solid

LCS Sample Id: 7701869-1-BKS

Prep Method: SW8015P

Date Prep: 04.22.2020

LCSD Sample Id: 7701869-1-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	983	98	881	88	70-135	11	35	mg/kg	04.23.2020 02:15	
Diesel Range Organics (DRO)	<50.0	1000	1110	111	985	99	70-135	12	35	mg/kg	04.23.2020 02:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		128		117		70-135	%	04.23.2020 02:15
o-Terphenyl	132		127		118		70-135	%	04.23.2020 02:15

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Matrix: Solid

MB Sample Id: 7701869-1-BLK

Prep Method: SW8015P

Date Prep: 04.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.23.2020 01:55	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Parent Sample Id: 659581-012

Matrix: Soil

MS Sample Id: 659581-012 S

Prep Method: SW8015P

Date Prep: 04.22.2020

MSD Sample Id: 659581-012 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	956	96	917	92	70-135	4	35	mg/kg	04.23.2020 03:16	
Diesel Range Organics (DRO)	<50.1	1000	1080	108	1030	103	70-135	5	35	mg/kg	04.23.2020 03:16	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		124		70-135	%	04.23.2020 03:16
o-Terphenyl	130		125		70-135	%	04.23.2020 03:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

MB Sample Id: 7701856-1-BLK

Matrix: Solid

LCS Sample Id: 7701856-1-BKS

Prep Method: SW5035A

Date Prep: 04.22.2020

LCSD Sample Id: 7701856-1-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	0.110	110	70-130	3	35	mg/kg	04.23.2020 03:46	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	04.23.2020 03:46	
Ethylbenzene	<0.00200	0.100	0.0950	95	0.0974	97	71-129	2	35	mg/kg	04.23.2020 03:46	
m,p-Xylenes	<0.00400	0.200	0.195	98	0.200	100	70-135	3	35	mg/kg	04.23.2020 03:46	
o-Xylene	<0.00200	0.100	0.0991	99	0.102	102	71-133	3	35	mg/kg	04.23.2020 03:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		100		104		70-130	%	04.23.2020 03:46
4-Bromofluorobenzene	94		88		94		70-130	%	04.23.2020 03:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

Parent Sample Id: 659581-014

Matrix: Soil

MS Sample Id: 659581-014 S

Prep Method: SW5035A

Date Prep: 04.22.2020

MSD Sample Id: 659581-014 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	0.103	103	0.102	102	70-130	1	35	mg/kg	04.23.2020 04:26	
Toluene	<0.00200	0.100	0.0980	98	0.0970	97	70-130	1	35	mg/kg	04.23.2020 04:26	
Ethylbenzene	<0.00200	0.100	0.0913	91	0.0911	91	71-129	0	35	mg/kg	04.23.2020 04:26	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.187	94	70-135	0	35	mg/kg	04.23.2020 04:26	
o-Xylene	<0.00200	0.100	0.0949	95	0.0943	94	71-133	1	35	mg/kg	04.23.2020 04:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	04.23.2020 04:26
4-Bromofluorobenzene	94		94		70-130	%	04.23.2020 04:26

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



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
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 291-1111
Hobbs, NM (575-392-7550)

Page _____ of _____

Chain of Custody

Work Order No:

659583

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 East Green Street
City, State ZIP:		Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:		(432) 236-3849	Email:	slo@ltenv.com , dmoir@ltenv.com , kkennedy@ltenv.com

Program: UST/PSST ☐ RRP ☐ Brownfields ☐ RRC ☐ Superfund ☐ State of Project: Reporting/Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other: ☐		Work Order Notes
---	--	-------------------------

[illegible]

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):							
Received Intact:							
Cooler Custody Seals:							
Sample Custody Seals:							

Number of Containers

EPA 8015)

(EPA 0=8021)

side (EPA 300.0)

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

[illegible]

Total	200.7 / 6010	200.8 / 6020:
-------	--------------	---------------

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Cr Co Cu Fe Ni Pb Mn Mo Ni Se Ag Ti U
1631 / 245.1 / 7470 / 7471 : Hg

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

ICLP/SPLP 6010: 8KCA 3D AS BA DE CU CI CC CA 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1000000

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. For each sample submitted to Xenco, but not analyzed, these terms will be enforced unless previously negotiated.

Xenoco. A minimum charge of \$75.00 will be applied to each project and a charge of \$9 for each sample submitted to Xenoco.					
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>[Signature]</i>	<i>[Signature]</i>	04/22/20 @ 1630	2 <i>[Signature]</i>	<i>[Signature]</i>	4/22/20 16:45
3			4		
5			6		

Revised Date 05/14/18 Rev. 2018.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.22.2020 04.45.00 PM

Work Order #: 659583

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 *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#:

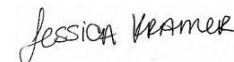
Checklist completed by:



Elizabeth McClellan

Date: 04.22.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.23.2020



Analytical Report 659585

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

04.23.2020

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)



04.23.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659585**

Remuda Basin 19 SWD

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) 659585. 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. 659585 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

A Small Business and Minority Company

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



Sample Cross Reference 659585

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH12	S	04.22.2020 09:25	2 ft	659585-001
PH12A	S	04.20.2020 09:35	4 ft	659585-002



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *Remuda Basin 19 SWD*

Project ID: 012918106
Work Order Number(s): 659585

Report Date: 04.23.2020
Date Received: 04.22.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 659585

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 04.22.2020 16:45

Report Date: 04.23.2020 15:45

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659585-001	659585-002				
	Field Id:	PH12	PH12A				
	Depth:	2- ft	4- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	04.22.2020 09:25	04.20.2020 09:35				
BTEX by EPA 8021B	Extracted:	04.22.2020 17:57	04.22.2020 17:57				
	Analyzed:	04.23.2020 12:56	04.23.2020 13:17				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00198 0.00198	<0.00201 0.00201				
	Toluene	<0.00198 0.00198	<0.00201 0.00201				
	Ethylbenzene	<0.00198 0.00198	<0.00201 0.00201				
	m,p-Xylenes	<0.00397 0.00397	<0.00402 0.00402				
	o-Xylene	<0.00198 0.00198	<0.00201 0.00201				
	Total Xylenes	<0.00198 0.00198	<0.00201 0.00201				
	Total BTEX	<0.00198 0.00198	<0.00201 0.00201				
Chloride by EPA 300	Extracted:	04.22.2020 18:52	04.22.2020 18:52				
	Analyzed:	04.23.2020 08:22	04.23.2020 08:27				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	243 50.0	266 50.0				
TPH by SW8015 Mod	Extracted:	04.22.2020 17:45	04.22.2020 17:45				
	Analyzed:	04.23.2020 10:02	04.23.2020 10:22				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<50.2 50.2	<49.9 49.9				
	Diesel Range Organics (DRO)	<50.2 50.2	<49.9 49.9				
	Motor Oil Range Hydrocarbons (MRO)	<50.2 50.2	<49.9 49.9				
	Total GRO-DRO	<50.2 50.2	<49.9 49.9				
	Total TPH	<50.2 50.2	<49.9 49.9				

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.

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

Jessica Kramer
Project Manager



Certificate of Analytical Results 659585

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **PH12**
Lab Sample Id: 659585-001

Matrix: Soil
Date Collected: 04.22.2020 09:25

Date Received: 04.22.2020 16:45
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

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	04.23.2020 08:22		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

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	04.23.2020 10:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.23.2020 10:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.23.2020 10:02	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.23.2020 10:02	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.23.2020 10:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.23.2020 10:02	
o-Terphenyl	84-15-1	96	%	70-135	04.23.2020 10:02	



Certificate of Analytical Results 659585

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **PH12**
 Lab Sample Id: 659585-001

Matrix: Soil
 Date Collected: 04.22.2020 09:25

Date Received: 04.22.2020 16:45
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.23.2020 12:56	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.23.2020 12:56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.23.2020 12:56		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 12:56		



Certificate of Analytical Results 659585

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **PH12A**
Lab Sample Id: 659585-002

Matrix: Soil
Date Collected: 04.20.2020 09:35

Date Received: 04.22.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3123884

Date Prep: 04.22.2020 18:52

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	266	50.0	mg/kg	04.23.2020 08:27		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3123903

Date Prep: 04.22.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.23.2020 10:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.23.2020 10:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.23.2020 10:22	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.23.2020 10:22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.23.2020 10:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.23.2020 10:22	
o-Terphenyl	84-15-1	105	%	70-135	04.23.2020 10:22	



Certificate of Analytical Results 659585

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **PH12A**
 Lab Sample Id: 659585-002

Matrix: Soil
 Date Collected: 04.20.2020 09:35

Date Received: 04.22.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.22.2020 17:57

Basis: Wet Weight

Seq Number: 3123936

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.23.2020 13:17	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.23.2020 13:17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	92	%	70-130	04.23.2020 13:17		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.23.2020 13:17		



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 19 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

MB Sample Id: 7701855-1-BLK

Matrix: Solid

LCS Sample Id: 7701855-1-BKS

Prep Method: E300P

Date Prep: 04.22.2020

LCSD Sample Id: 7701855-1-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	257	103	257	103	90-110	0	20	mg/kg	04.23.2020 02:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659581-021

Matrix: Soil

MS Sample Id: 659581-021 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659581-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3410	200	3600	95	3600	95	90-110	0	20	mg/kg	04.23.2020 03:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3123884

Parent Sample Id: 659585-002

Matrix: Soil

MS Sample Id: 659585-002 S

Prep Method: E300P

Date Prep: 04.22.2020

MSD Sample Id: 659585-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	266	200	467	101	463	99	90-110	1	20	mg/kg	04.23.2020 08:33	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

MB Sample Id: 7701869-1-BLK

Matrix: Solid

LCS Sample Id: 7701869-1-BKS

Prep Method: SW8015P

Date Prep: 04.22.2020

LCSD Sample Id: 7701869-1-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	983	98	881	88	70-135	11	35	mg/kg	04.23.2020 02:15	
Diesel Range Organics (DRO)	<50.0	1000	1110	111	985	99	70-135	12	35	mg/kg	04.23.2020 02:15	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		128		117		70-135	%	04.23.2020 02:15
o-Terphenyl	132		127		118		70-135	%	04.23.2020 02:15

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Matrix: Solid

MB Sample Id: 7701869-1-BLK

Prep Method: SW8015P

Date Prep: 04.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.23.2020 01:55	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3123903

Parent Sample Id: 659581-012

Matrix: Soil

MS Sample Id: 659581-012 S

Prep Method: SW8015P

Date Prep: 04.22.2020

MSD Sample Id: 659581-012 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	956	96	917	92	70-135	4	35	mg/kg	04.23.2020 03:16	
Diesel Range Organics (DRO)	<50.1	1000	1080	108	1030	103	70-135	5	35	mg/kg	04.23.2020 03:16	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		124		70-135	%	04.23.2020 03:16
o-Terphenyl	130		125		70-135	%	04.23.2020 03:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

MB Sample Id: 7701856-1-BLK

Matrix: Solid

LCS Sample Id: 7701856-1-BKS

Prep Method: SW5035A

Date Prep: 04.22.2020

LCSD Sample Id: 7701856-1-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	0.110	110	70-130	3	35	mg/kg	04.23.2020 03:46	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	04.23.2020 03:46	
Ethylbenzene	<0.00200	0.100	0.0950	95	0.0974	97	71-129	2	35	mg/kg	04.23.2020 03:46	
m,p-Xylenes	<0.00400	0.200	0.195	98	0.200	100	70-135	3	35	mg/kg	04.23.2020 03:46	
o-Xylene	<0.00200	0.100	0.0991	99	0.102	102	71-133	3	35	mg/kg	04.23.2020 03:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		100		104		70-130	%	04.23.2020 03:46
4-Bromofluorobenzene	94		88		94		70-130	%	04.23.2020 03:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3123936

Parent Sample Id: 659581-014

Matrix: Soil

MS Sample Id: 659581-014 S

Prep Method: SW5035A

Date Prep: 04.22.2020

MSD Sample Id: 659581-014 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	0.103	103	0.102	102	70-130	1	35	mg/kg	04.23.2020 04:26	
Toluene	<0.00200	0.100	0.0980	98	0.0970	97	70-130	1	35	mg/kg	04.23.2020 04:26	
Ethylbenzene	<0.00200	0.100	0.0913	91	0.0911	91	71-129	0	35	mg/kg	04.23.2020 04:26	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.187	94	70-135	0	35	mg/kg	04.23.2020 04:26	
o-Xylene	<0.00200	0.100	0.0949	95	0.0943	94	71-133	1	35	mg/kg	04.23.2020 04:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	04.23.2020 04:26
4-Bromofluorobenzene	94		94		70-130	%	04.23.2020 04:26

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



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)

Chain of Custody

Work Order No:

699585

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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 East Green Street	
City, State ZIP:		Midland, TX 79705		City, State ZIP:		Carlsbad, NM 88220	
Phone:		(432) 236-3849		Email:		slo@llenrv.com , dmoir@llenrv.com , kkennedy@llenrv.com	

Work Order Comments Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund State of Project: Reporting Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV Deliverables: EDD ☐ ADaPT ☐ Other:							
--	--	--	--	--	--	--	--

Project Name:	Remuda Basin 19 SWD	Turn Around	ANALYSIS REQUEST							Work Order Notes
Project Number:	012918106	Routine ☐								
P.O. Number:		Rush: 24H								
Sampler's Name:	Spencer Lo	Due Date:								

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	0-12	Thermometer ID					
Received Intact:	Yes	No	T-24-094				
Cooler Custody Seals:	Yes	No	Correction Factor: 0.2				
Sample Custody Seals:	Yes	No	Total Containers: 2				

Number of Containers

PA 8015)

EPA 0=8021)

e (EPA 300.0)

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

[illegible]

Total 200.7 / 6010		200.8 / 6020:																											
Circle Method(s) and Metal(s) to be analyzed		8RCRA 13PPM		Texas 11																									
		TCLP / SPLP 6010:		8RCRA																									
		Sb	As	Ba	Be	B	Cd	Ca	Cr	Cu	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
		As	Ba	Be	B	Cd	Ca	Cr	Cu	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U										
		1631 / 245.1 / 7470 / 7471 : Hg																											

Signature of this document on relinquishment of samples constitutes a valid purchase order from client company to Xenoco, its affiliates and subcontractors. It assigns standard terms and conditions to the client company. Xenoco and its affiliates and subcontractors 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 Xenoco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample limited to Xenoco, 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
		04/22/20 @ 16:30			4/22/20 @ 16:45

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.22.2020 04.45.00 PM

Work Order #: 659585

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 *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#:

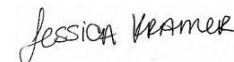
Checklist completed by:



Elizabeth McClellan

Date: 04.22.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.23.2020



Certificate of Analysis Summary 659714

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.23.2020 17:00

Report Date: 05.08.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659714-001	659714-002	659714-003	659714-004	659714-005	659714-006
	<i>Field Id:</i>	FS06A	FS07A	FS08A	FS09A	FS10A	FS12A
	<i>Depth:</i>	8.5- ft	8.5- ft	8.5- ft	8.5- ft	6.5- ft	4.5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.23.2020 11:50	04.23.2020 12:00	04.23.2020 12:15	04.23.2020 12:30	04.23.2020 12:45	04.23.2020 13:00
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33
	<i>Analyzed:</i>	04.24.2020 17:33	04.24.2020 17:54	04.24.2020 18:16	04.24.2020 18:37	04.24.2020 18:58	04.24.2020 19:20
	<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	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	<0.00397 0.00397	<0.00398 0.00398	<0.00402 0.00402
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:30
	<i>Analyzed:</i>	04.23.2020 20:12	04.23.2020 20:18	04.23.2020 20:36	04.23.2020 20:42	04.23.2020 20:48	04.23.2020 20:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		375 49.5	915 199	1670 198	3030 199	1960 199	3230 199
TPH by SW8015 Mod	<i>Extracted:</i>	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45
	<i>Analyzed:</i>	04.24.2020 06:33	04.24.2020 06:53	04.24.2020 07:13	04.24.2020 07:34	04.24.2020 08:14	04.24.2020 08:35
	<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)		<50.0 50.0	<50.1 50.1	<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.3 50.3
Diesel Range Organics (DRO)		<50.0 50.0	<50.1 50.1	<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.1 50.1	<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.3 50.3
Total GRO-DRO		<50.0 50.0	<50.1 50.1	<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.3 50.3
Total TPH		<50.0 50.0	<50.1 50.1	<49.9 49.9	<49.9 49.9	<50.2 50.2	<50.3 50.3

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 659714

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.23.2020 17:00

Report Date: 05.08.2020 08:36

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	659714-007	659714-008	659714-009	659714-010	659714-011	659714-012
	Field Id:	FS13A	FS14A	FS15A	FS17A	FS18A	FS19A
	Depth:	6.5- ft	4.5- ft	4.5- ft	4.5- ft	4.5- ft	4.5- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	04.23.2020 13:15	04.23.2020 13:30	04.23.2020 13:45	04.23.2020 14:00	04.23.2020 14:10	04.23.2020 14:20
BTEX by EPA 8021B SUB: T104704400-19-19	Extracted:	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33
	Analyzed:	04.24.2020 19:41	04.24.2020 20:02	04.24.2020 20:24	04.24.2020 20:45	04.24.2020 21:49	04.24.2020 22:11
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00397 0.00397	<0.00399 0.00399	<0.00399 0.00399	<0.00399 0.00399	<0.00398 0.00398	<0.00398 0.00398
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
Total BTEX		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199
Chloride by EPA 300	Extracted:	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:30	04.23.2020 17:44	04.23.2020 17:44	04.23.2020 17:44
	Analyzed:	04.23.2020 21:00	04.23.2020 21:06	04.23.2020 21:12	04.23.2020 21:47	04.23.2020 22:06	04.23.2020 22:12
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1520 200	1340 199	1170 200	3090 X 497	3630 501	2670 199
TPH by SW8015 Mod	Extracted:	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:45
	Analyzed:	04.24.2020 08:55	04.24.2020 09:16	04.24.2020 09:36	04.24.2020 09:57	04.24.2020 10:17	04.24.2020 10:37
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.2 50.2	<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.1 50.1
Diesel Range Organics (DRO)		<50.2 50.2	<50.2 50.2	<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.1 50.1
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.1 50.1
Total GRO-DRO		<50.2 50.2	<50.2 50.2	<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.1 50.1
Total TPH		<50.2 50.2	<50.2 50.2	<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.1 50.1

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 659714

LT Environmental, Inc., Arvada, CO

Project Name: Remuda Basin 19 SWD

Project Id: 012918106

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 04.23.2020 17:00

Report Date: 05.08.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	659714-013	659714-014	659714-015	659714-016		
	<i>Field Id:</i>	FS21A	FS53	FS54	FS55		
	<i>Depth:</i>	4.5- ft	4- ft	4- ft	5- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	04.23.2020 14:25	04.23.2020 11:20	04.23.2020 11:30	04.23.2020 11:40		
BTEX by EPA 8021B SUB: T104704400-19-19	<i>Extracted:</i>	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33	04.24.2020 10:33		
	<i>Analyzed:</i>	04.24.2020 22:32	04.24.2020 22:54	04.24.2020 23:15	04.24.2020 23:36		
	<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	<0.00198 0.00198	<0.00200 0.00200		
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
m,p-Xylenes		<0.00401 0.00401	<0.00399 0.00399	<0.00397 0.00397	<0.00399 0.00399		
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	04.23.2020 17:44	04.23.2020 17:44	04.23.2020 17:44	04.23.2020 17:44		
	<i>Analyzed:</i>	04.23.2020 22:17	04.23.2020 22:23	04.23.2020 22:29	04.23.2020 22:35		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		2720 202	3670 201	3660 497	1020 200		
TPH by SW8015 Mod	<i>Extracted:</i>	04.23.2020 17:45	04.23.2020 17:45	04.23.2020 17:30	04.23.2020 17:30		
	<i>Analyzed:</i>	04.24.2020 10:58	04.24.2020 11:18	04.24.2020 11:59	04.24.2020 12:19		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.2 50.2	<50.0 50.0	<49.9 49.9		
Diesel Range Organics (DRO)		<50.2 50.2	<50.2 50.2	<50.0 50.0	<49.9 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<50.0 50.0	<49.9 49.9		
Total GRO-DRO		<50.2 50.2	<50.2 50.2	<50.0 50.0	<49.9 49.9		
Total TPH		<50.2 50.2	<50.2 50.2	<50.0 50.0	<49.9 49.9		

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Jessica Kramer
Project Manager



Analytical Report 659714

for

LT Environmental, Inc.

Project Manager: Dan Moir

Remuda Basin 19 SWD

012918106

05.08.2020

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)



05.08.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **659714**

Remuda Basin 19 SWD

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) 659714. 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. 659714 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

A Small Business and Minority Company

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

**Sample Cross Reference 659714****LT Environmental, Inc., Arvada, CO**

Remuda Basin 19 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS06A	S	04.23.2020 11:50	8.5 ft	659714-001
FS07A	S	04.23.2020 12:00	8.5 ft	659714-002
FS08A	S	04.23.2020 12:15	8.5 ft	659714-003
FS09A	S	04.23.2020 12:30	8.5 ft	659714-004
FS10A	S	04.23.2020 12:45	6.5 ft	659714-005
FS12A	S	04.23.2020 13:00	4.5 ft	659714-006
FS13A	S	04.23.2020 13:15	6.5 ft	659714-007
FS14A	S	04.23.2020 13:30	4.5 ft	659714-008
FS15A	S	04.23.2020 13:45	4.5 ft	659714-009
FS17A	S	04.23.2020 14:00	4.5 ft	659714-010
FS18A	S	04.23.2020 14:10	4.5 ft	659714-011
FS19A	S	04.23.2020 14:20	4.5 ft	659714-012
FS21A	S	04.23.2020 14:25	4.5 ft	659714-013
FS53	S	04.23.2020 11:20	4 ft	659714-014
FS54	S	04.23.2020 11:30	4 ft	659714-015
FS55	S	04.23.2020 11:40	5 ft	659714-016

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: Remuda Basin 19 SWD**Project ID: 012918106
Work Order Number(s): 659714Report Date: 05.08.2020
Date Received: 04.23.2020

Sample receipt non conformances and comments:V1.001 Revision (client email) Corrected sample depth for FS55 from 4' to 5' JK 05/08/20

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3124030 Chloride by EPA 300

Lab Sample ID 659714-010 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 659714-010, -011, -012, -013, -014, -015, -016. The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3124053 TPH by SW8015 Mod

Surrogate 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 659713-001 S.

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

Samples affected are: 659713-001 S, 659714-004.



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS06A**
Lab Sample Id: 659714-001

Matrix: Soil
Date Collected: 04.23.2020 11:50

Date Received: 04.23.2020 17:00
Sample Depth: 8.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	375	49.5	mg/kg	04.23.2020 20:12		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

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	04.24.2020 06:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.24.2020 06:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.24.2020 06:33	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.24.2020 06:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.24.2020 06:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	04.24.2020 06:33	
o-Terphenyl	84-15-1	127	%	70-135	04.24.2020 06:33	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS06A**
 Lab Sample Id: 659714-001

Matrix: Soil
 Date Collected: 04.23.2020 11:50

Date Received: 04.23.2020 17:00
 Sample Depth: 8.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 17:33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.24.2020 17:33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.24.2020 17:33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.24.2020 17:33	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.24.2020 17:33	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.24.2020 17:33	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.24.2020 17:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.24.2020 17:33	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 17:33	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS07A**
Lab Sample Id: 659714-002

Matrix: Soil
Date Collected: 04.23.2020 12:00

Date Received: 04.23.2020 17:00
Sample Depth: 8.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	915	199	mg/kg	04.23.2020 20:18		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.24.2020 06:53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.24.2020 06:53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.24.2020 06:53	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.24.2020 06:53	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.24.2020 06:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	04.24.2020 06:53	
o-Terphenyl	84-15-1	131	%	70-135	04.24.2020 06:53	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS07A**
Lab Sample Id: 659714-002

Matrix: Soil
Date Collected: 04.23.2020 12:00

Date Received: 04.23.2020 17:00
Sample Depth: 8.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 17:54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 17:54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 17:54	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 17:54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 17:54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 17:54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 17:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 17:54		
4-Bromofluorobenzene	460-00-4	106	%	70-130	04.24.2020 17:54		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS08A**
Lab Sample Id: 659714-003

Matrix: Soil
Date Collected: 04.23.2020 12:15

Date Received: 04.23.2020 17:00
Sample Depth: 8.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1670	198	mg/kg	04.23.2020 20:36		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.24.2020 07:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.24.2020 07:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.24.2020 07:13	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.24.2020 07:13	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.24.2020 07:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	04.24.2020 07:13	
o-Terphenyl	84-15-1	122	%	70-135	04.24.2020 07:13	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS08A**
 Lab Sample Id: 659714-003

Matrix: Soil
 Date Collected: 04.23.2020 12:15

Date Received: 04.23.2020 17:00
 Sample Depth: 8.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 18:16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.24.2020 18:16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.24.2020 18:16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.24.2020 18:16	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.24.2020 18:16	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.24.2020 18:16	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.24.2020 18:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.24.2020 18:16		
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 18:16		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS09A**
Lab Sample Id: 659714-004

Matrix: Soil
Date Collected: 04.23.2020 12:30

Date Received: 04.23.2020 17:00
Sample Depth: 8.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3030	199	mg/kg	04.23.2020 20:42		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.24.2020 07:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.24.2020 07:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.24.2020 07:34	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.24.2020 07:34	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.24.2020 07:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	04.24.2020 07:34	
o-Terphenyl	84-15-1	136	%	70-135	04.24.2020 07:34	**



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS09A**
 Lab Sample Id: 659714-004

Matrix: Soil
 Date Collected: 04.23.2020 12:30

Date Received: 04.23.2020 17:00
 Sample Depth: 8.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.24.2020 18:37	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.24.2020 18:37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	115	%	70-130	04.24.2020 18:37		
4-Bromofluorobenzene	460-00-4	107	%	70-130	04.24.2020 18:37		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS10A** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-005 Date Collected: 04.23.2020 12:45 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:30 Basis: Wet Weight
 Seq Number: 3124029

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1960	199	mg/kg	04.23.2020 20:48		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.24.2020 08:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 08:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 08:14	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 08:14	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 08:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	04.24.2020 08:14	
o-Terphenyl	84-15-1	128	%	70-135	04.24.2020 08:14	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS10A**
Lab Sample Id: 659714-005

Matrix: Soil
Date Collected: 04.23.2020 12:45

Date Received: 04.23.2020 17:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 18:58	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.24.2020 18:58	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.24.2020 18:58	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.24.2020 18:58	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.24.2020 18:58	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.24.2020 18:58	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.24.2020 18:58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 18:58		
4-Bromofluorobenzene	460-00-4	106	%	70-130	04.24.2020 18:58		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS12A**
Lab Sample Id: 659714-006

Matrix: Soil
Date Collected: 04.23.2020 13:00

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3230	199	mg/kg	04.23.2020 20:54		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	04.24.2020 08:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	04.24.2020 08:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	04.24.2020 08:35	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	04.24.2020 08:35	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	04.24.2020 08:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	04.24.2020 08:35	
o-Terphenyl	84-15-1	122	%	70-135	04.24.2020 08:35	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS12A**
 Lab Sample Id: 659714-006

Matrix: Soil
 Date Collected: 04.23.2020 13:00

Date Received: 04.23.2020 17:00
 Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 19:20	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.24.2020 19:20	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.24.2020 19:20	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.24.2020 19:20	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.24.2020 19:20	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.24.2020 19:20	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.24.2020 19:20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.24.2020 19:20		
1,4-Difluorobenzene	540-36-3	115	%	70-130	04.24.2020 19:20		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS13A**
Lab Sample Id: 659714-007

Matrix: Soil
Date Collected: 04.23.2020 13:15

Date Received: 04.23.2020 17:00
Sample Depth: 6.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124029

Date Prep: 04.23.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1520	200	mg/kg	04.23.2020 21:00		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

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	04.24.2020 08:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 08:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 08:55	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 08:55	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 08:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	04.24.2020 08:55	
o-Terphenyl	84-15-1	126	%	70-135	04.24.2020 08:55	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS13A**
Lab Sample Id: 659714-007

Matrix: Soil
Date Collected: 04.23.2020 13:15

Date Received: 04.23.2020 17:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.24.2020 19:41	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.24.2020 19:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	106	%	70-130	04.24.2020 19:41	
1,4-Difluorobenzene	540-36-3	114	%	70-130	04.24.2020 19:41	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS14A** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-008 Date Collected: 04.23.2020 13:30 Sample Depth: 4.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:30 Basis: Wet Weight
 Seq Number: 3124029

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	199	mg/kg	04.23.2020 21:06		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.24.2020 09:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 09:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 09:16	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 09:16	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 09:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.24.2020 09:16	
o-Terphenyl	84-15-1	108	%	70-135	04.24.2020 09:16	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS14A**
 Lab Sample Id: 659714-008

Matrix: Soil
 Date Collected: 04.23.2020 13:30

Date Received: 04.23.2020 17:00
 Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 20:02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 20:02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 20:02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 20:02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 20:02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 20:02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 20:02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.24.2020 20:02		
1,4-Difluorobenzene	540-36-3	115	%	70-130	04.24.2020 20:02		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS15A** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-009 Date Collected: 04.23.2020 13:45 Sample Depth: 4.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:30 Basis: Wet Weight
 Seq Number: 3124029

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1170	200	mg/kg	04.23.2020 21:12		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.24.2020 09:36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.24.2020 09:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.24.2020 09:36	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.24.2020 09:36	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.24.2020 09:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.24.2020 09:36	
o-Terphenyl	84-15-1	104	%	70-135	04.24.2020 09:36	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS15A**
 Lab Sample Id: 659714-009

Matrix: Soil
 Date Collected: 04.23.2020 13:45

Date Received: 04.23.2020 17:00
 Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 04.24.2020 10:33

Basis: Wet Weight

Seq Number: 3124155

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 20:24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 20:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.24.2020 20:24	
1,4-Difluorobenzene	540-36-3	114	%	70-130	04.24.2020 20:24	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS17A** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-010 Date Collected: 04.23.2020 14:00 Sample Depth: 4.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:44 Basis: Wet Weight
 Seq Number: 3124030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3090	497	mg/kg	04.23.2020 21:47	X	50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	04.24.2020 09:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	04.24.2020 09:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.24.2020 09:57	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	04.24.2020 09:57	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	04.24.2020 09:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	04.24.2020 09:57	
o-Terphenyl	84-15-1	125	%	70-135	04.24.2020 09:57	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS17A**
 Lab Sample Id: 659714-010

Matrix: Soil
 Date Collected: 04.23.2020 14:00

Date Received: 04.23.2020 17:00
 Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 20:45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 20:45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 20:45	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 20:45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 20:45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 20:45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 20:45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.24.2020 20:45		
1,4-Difluorobenzene	540-36-3	117	%	70-130	04.24.2020 20:45		



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS18A**
Lab Sample Id: 659714-011

Matrix: Soil
Date Collected: 04.23.2020 14:10

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124030

Date Prep: 04.23.2020 17:44

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3630	501	mg/kg	04.23.2020 22:06		50

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

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	04.24.2020 10:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 10:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 10:17	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 10:17	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 10:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.24.2020 10:17	
o-Terphenyl	84-15-1	119	%	70-135	04.24.2020 10:17	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS18A**
Lab Sample Id: 659714-011

Matrix: Soil
Date Collected: 04.23.2020 14:10

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 21:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.24.2020 21:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.24.2020 21:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.24.2020 21:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.24.2020 21:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.24.2020 21:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.24.2020 21:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	04.24.2020 21:49	
1,4-Difluorobenzene	540-36-3	117	%	70-130	04.24.2020 21:49	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS19A** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-012 Date Collected: 04.23.2020 14:20 Sample Depth: 4.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:44 Basis: Wet Weight
 Seq Number: 3124030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2670	199	mg/kg	04.23.2020 22:12		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	04.24.2020 10:37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	04.24.2020 10:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	04.24.2020 10:37	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	04.24.2020 10:37	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	04.24.2020 10:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	04.24.2020 10:37	
o-Terphenyl	84-15-1	119	%	70-135	04.24.2020 10:37	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS19A**
Lab Sample Id: 659714-012

Matrix: Soil
Date Collected: 04.23.2020 14:20

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 22:11	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.24.2020 22:11	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.24.2020 22:11	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.24.2020 22:11	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.24.2020 22:11	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.24.2020 22:11	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.24.2020 22:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	104	%	70-130	04.24.2020 22:11	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 22:11	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS21A**
Lab Sample Id: 659714-013

Matrix: Soil
Date Collected: 04.23.2020 14:25

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124030

Date Prep: 04.23.2020 17:44

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2720	202	mg/kg	04.23.2020 22:17		20

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124053

Date Prep: 04.23.2020 17:45

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	04.24.2020 10:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 10:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 10:58	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 10:58	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 10:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.24.2020 10:58	
o-Terphenyl	84-15-1	107	%	70-135	04.24.2020 10:58	



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LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS21A**
Lab Sample Id: 659714-013

Matrix: Soil
Date Collected: 04.23.2020 14:25

Date Received: 04.23.2020 17:00
Sample Depth: 4.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 22:32	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 22:32	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 22:32	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.24.2020 22:32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 22:32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 22:32	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 22:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	04.24.2020 22:32	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.24.2020 22:32	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS53** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-014 Date Collected: 04.23.2020 11:20 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:44 Basis: Wet Weight
 Seq Number: 3124030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3670	201	mg/kg	04.23.2020 22:23		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:45 Basis: Wet Weight
 Seq Number: 3124053

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	04.24.2020 11:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	04.24.2020 11:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	04.24.2020 11:18	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	04.24.2020 11:18	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	04.24.2020 11:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.24.2020 11:18	
o-Terphenyl	84-15-1	104	%	70-135	04.24.2020 11:18	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS53**
 Lab Sample Id: 659714-014

Matrix: Soil
 Date Collected: 04.23.2020 11:20

Date Received: 04.23.2020 17:00
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 22:54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 22:54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 22:54	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 22:54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 22:54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 22:54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 22:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.24.2020 22:54		
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.24.2020 22:54		



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS54** Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-015 Date Collected: 04.23.2020 11:30 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:44 Basis: Wet Weight
 Seq Number: 3124030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3660	497	mg/kg	04.23.2020 22:29		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:30 Basis: Wet Weight
 Seq Number: 3124046

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	04.24.2020 11:59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	04.24.2020 11:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.24.2020 11:59	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	04.24.2020 11:59	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.24.2020 11:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.24.2020 11:59	
o-Terphenyl	84-15-1	103	%	70-135	04.24.2020 11:59	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: **FS54**
 Lab Sample Id: 659714-015

Matrix: Soil
 Date Collected: 04.23.2020 11:30

Date Received: 04.23.2020 17:00
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

Basis: Wet Weight

SUB: T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.24.2020 23:15	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.24.2020 23:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	04.24.2020 23:15	
4-Bromofluorobenzene	460-00-4	106	%	70-130	04.24.2020 23:15	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS55 Matrix: Soil Date Received: 04.23.2020 17:00
 Lab Sample Id: 659714-016 Date Collected: 04.23.2020 11:40 Sample Depth: 5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 04.23.2020 17:44 Basis: Wet Weight
 Seq Number: 3124030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1020	200	mg/kg	04.23.2020 22:35		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 04.23.2020 17:30 Basis: Wet Weight
 Seq Number: 3124046

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	04.24.2020 12:19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	04.24.2020 12:19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.24.2020 12:19	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	04.24.2020 12:19	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.24.2020 12:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	04.24.2020 12:19	
o-Terphenyl	84-15-1	126	%	70-135	04.24.2020 12:19	



Certificate of Analytical Results 659714

LT Environmental, Inc., Arvada, CO

Remuda Basin 19 SWD

Sample Id: FS55
Lab Sample Id: 659714-016

Matrix: Soil
Date Collected: 04.23.2020 11:40

Date Received: 04.23.2020 17:00
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3124155

Prep Method: SW5035A

% Moisture:

Date Prep: 04.24.2020 10:33

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	04.24.2020 23:36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.24.2020 23:36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.24.2020 23:36	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.24.2020 23:36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.24.2020 23:36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.24.2020 23:36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.24.2020 23:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.24.2020 23:36	
1,4-Difluorobenzene	540-36-3	117	%	70-130	04.24.2020 23:36	



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 19 SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3124029

MB Sample Id: 7701932-1-BLK

Matrix: Solid

LCS Sample Id: 7701932-1-BKS

Prep Method: E300P

Date Prep: 04.23.2020

LCSD Sample Id: 7701932-1-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	04.23.2020 18:26	

Analytical Method: Chloride by EPA 300

Seq Number: 3124030

MB Sample Id: 7701975-1-BLK

Matrix: Solid

LCS Sample Id: 7701975-1-BKS

Prep Method: E300P

Date Prep: 04.23.2020

LCSD Sample Id: 7701975-1-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	249	100	236	94	90-110	5	20	mg/kg	04.23.2020 21:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3124029

Parent Sample Id: 659681-011

Matrix: Soil

MS Sample Id: 659681-011 S

Prep Method: E300P

Date Prep: 04.23.2020

MSD Sample Id: 659681-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	180	200	364	92	369	95	90-110	1	20	mg/kg	04.23.2020 18:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3124029

Parent Sample Id: 659713-006

Matrix: Soil

MS Sample Id: 659713-006 S

Prep Method: E300P

Date Prep: 04.23.2020

MSD Sample Id: 659713-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	233	200	440	104	440	104	90-110	0	20	mg/kg	04.23.2020 20:00	

Analytical Method: Chloride by EPA 300

Seq Number: 3124030

Parent Sample Id: 659714-010

Matrix: Soil

MS Sample Id: 659714-010 S

Prep Method: E300P

Date Prep: 04.23.2020

MSD Sample Id: 659714-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3090	201	3270	90	3270	89	90-110	0	20	mg/kg	04.23.2020 21:54	X

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124046

MB Sample Id: 7701997-1-BLK

Matrix: Solid

LCS Sample Id: 7701997-1-BKS

Prep Method: SW8015P

Date Prep: 04.23.2020

LCSD Sample Id: 7701997-1-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	838	84	889	89	70-135	6	35	mg/kg	04.23.2020 19:20	
Diesel Range Organics (DRO)	<50.0	1000	925	93	978	98	70-135	6	35	mg/kg	04.23.2020 19:20	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		107		131		70-135	%	04.23.2020 19:20
o-Terphenyl	108		106		118		70-135	%	04.23.2020 19:20

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124053

MB Sample Id: 7701961-1-BLK

Matrix: Solid

LCS Sample Id: 7701961-1-BKS

Prep Method: SW8015P

Date Prep: 04.23.2020

LCSD Sample Id: 7701961-1-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	758	76	814	81	70-135	7	35	mg/kg	04.24.2020 13:00	
Diesel Range Organics (DRO)	<50.0	1000	815	82	891	89	70-135	9	35	mg/kg	04.24.2020 13:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		108		117		70-135	%	04.24.2020 13:00
o-Terphenyl	117		95		104		70-135	%	04.24.2020 13:00

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124046

Matrix: Solid

MB Sample Id: 7701997-1-BLK

Prep Method: SW8015P

Date Prep: 04.23.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.23.2020 18:59	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124053

Matrix: Solid

MB Sample Id: 7701961-1-BLK

Prep Method: SW8015P

Date Prep: 04.23.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.24.2020 02:49	

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 19 SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124046

Parent Sample Id: 659618-002

Matrix: Soil

MS Sample Id: 659618-002 S

Prep Method: SW8015P

Date Prep: 04.23.2020

MSD Sample Id: 659618-002 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)	<50.0	1000	813	81	1050	105	70-135	25	35	mg/kg	04.23.2020 20:21	
Diesel Range Organics (DRO)	<50.0	1000	879	88	1200	120	70-135	31	35	mg/kg	04.23.2020 20:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		134		70-135	%	04.23.2020 20:21
o-Terphenyl	110		125		70-135	%	04.23.2020 20:21

Analytical Method: TPH by SW8015 Mod

Seq Number: 3124053

Parent Sample Id: 659713-001

Matrix: Soil

MS Sample Id: 659713-001 S

Prep Method: SW8015P

Date Prep: 04.23.2020

MSD Sample Id: 659713-001 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)	<49.8	995	988	99	884	88	70-135	11	35	mg/kg	04.24.2020 04:10	
Diesel Range Organics (DRO)	<49.8	995	1120	113	991	99	70-135	12	35	mg/kg	04.24.2020 04:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	136	**	121		70-135	%	04.24.2020 04:10
o-Terphenyl	141	**	128		70-135	%	04.24.2020 04:10

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124155

MB Sample Id: 7702024-1-BLK

Matrix: Solid

LCS Sample Id: 7702024-1-BKS

Prep Method: SW5035A

Date Prep: 04.24.2020

LCSD Sample Id: 7702024-1-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	0.129	129	0.127	127	70-130	2	35	mg/kg	04.24.2020 15:24	
Toluene	<0.00200	0.100	0.122	122	0.123	123	70-130	1	35	mg/kg	04.24.2020 15:24	
Ethylbenzene	<0.00200	0.100	0.115	115	0.116	116	71-129	1	35	mg/kg	04.24.2020 15:24	
m,p-Xylenes	<0.00400	0.200	0.223	112	0.226	113	70-135	1	35	mg/kg	04.24.2020 15:24	
o-Xylene	<0.00200	0.100	0.113	113	0.113	113	71-133	0	35	mg/kg	04.24.2020 15:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		109		110		70-130	%	04.24.2020 15:24
4-Bromofluorobenzene	101		96		98		70-130	%	04.24.2020 15:24

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 19 SWD

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124155

Parent Sample Id: 659714-001

Matrix: Soil

MS Sample Id: 659714-001 S

Prep Method: SW5035A

Date Prep: 04.24.2020

MSD Sample Id: 659714-001 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	0.126	126	0.116	117	70-130	8	35	mg/kg	04.24.2020 16:07	
Toluene	<0.00200	0.0998	0.117	117	0.0987	99	70-130	17	35	mg/kg	04.24.2020 16:07	
Ethylbenzene	<0.00200	0.0998	0.111	111	0.0866	87	71-129	25	35	mg/kg	04.24.2020 16:07	
m,p-Xylenes	<0.00399	0.200	0.215	108	0.164	82	70-135	27	35	mg/kg	04.24.2020 16:07	
o-Xylene	<0.00200	0.0998	0.108	108	0.0873	88	71-133	21	35	mg/kg	04.24.2020 16:07	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		111		70-130	%	04.24.2020 16:07
4-Bromofluorobenzene	95		97		70-130	%	04.24.2020 16:07

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



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)

Chain of Custody

Work Order No: 1659714

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 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	slong@ltenv.com, dmair@ltenv.com, kkenedy@ltenv.com

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

Project Name:	Remuda Basin 19 SWD	Turn Around		ANALYSIS REQUEST	Work Order Notes
Project Number:	012918106	Routine	☐		
P.O. Number:		Rush: 24H			
Sampler's Name:	Spencer Lo	Due Date:			

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):		Thermometer ID					
Received In tact:	Yes	No					
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:			
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)									
FS18 A	S	4/23/2020	1410	4.5'	1	X	X	X						
FS19 A	S	4/23/2020	1420	4.5'	1	X	X	X						
FS21 A	S	4/23/2020	1425	4.5'	1	X	X	X						
FS53	S	4/23/2020	1120	4	1	X	X	X						
FS54	S	4/23/2020	1130	4	1	X	X	X						
FS55	S	4/23/2020	1140	4	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

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>[Signature]</i>	<i>[Signature]</i>	04/23/2020 1653	<i>[Signature]</i>	<i>[Signature]</i>	4/23/2020 1700



Inter-Office Shipment

Page 1 of 1

IOS Number **62634**

Date/Time: 04/24/20 11:01

Created by: Elizabeth McClellan

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Midland**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
659714-001	S	FS06A	04/23/20 11:50	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-002	S	FS07A	04/23/20 12:00	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-003	S	FS08A	04/23/20 12:15	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-004	S	FS09A	04/23/20 12:30	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-005	S	FS10A	04/23/20 12:45	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-006	S	FS12A	04/23/20 13:00	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-007	S	FS13A	04/23/20 13:15	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-008	S	FS14A	04/23/20 13:30	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-009	S	FS15A	04/23/20 13:45	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-010	S	FS17A	04/23/20 14:00	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-011	S	FS18A	04/23/20 14:10	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-012	S	FS19A	04/23/20 14:20	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-013	S	FS21A	04/23/20 14:25	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-014	S	FS53	04/23/20 11:20	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-015	S	FS54	04/23/20 11:30	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	
659714-016	S	FS55	04/23/20 11:40	SW8021B	BTEX by EPA 8021B	04/24/20	05/07/20	JKR	BZ BZME EBZ XYLENES	

Inter Office Shipment or Sample Comments:

Relinquished By:

Elizabeth McClellan

Date Relinquished: 04/24/2020

Received By:

Brianna Teel

Date Received: 04/28/2020 11:23

Cooler Temperature: 0.6



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 62634

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R9

Sent By: Elizabeth McClellan

Date Sent: 04/24/2020 11:01 AM

Received By: Brianna Teel

Date Received: 04/28/2020 11:23 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.6
#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: 04/28/2020

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04.23.2020 05.00.00 PM

Work Order #: 659714

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)?	2.6
#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)?	Yes
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

Samples split in lab for subbing. 4/24/20

BTEX subbed to Midland. 4/24/20

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

Analyst:

PH Device/Lot#:

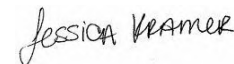
Checklist completed by:



Elizabeth McClellan

Date: 04.23.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.24.2020



APPENDIX B

Referenced Well Records

Project Manager: Tacoma Morrissey

Geologist: Connor Whitman

Released to Imaging: 6/11/2025 10:39:31 AM



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[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

USGS Water Resources

Data Category:	Geographic Area:	
Groundwater	New Mexico	GO

Click to hideNews Bulletins

- Explore the *NEW* [USGS National Water Dashboard](#) interactive map to access real-time water data from over 13,500 stations nationwide.

Groundwater levels for New Mexico

Click to hide state-specific text

i Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 321742103552601

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321742103552601 23S.30E.19.123421

Eddy County, New Mexico

Latitude 32°17'42", Longitude 103°55'26" NAD27

Land-surface elevation 3,034 feet above NAVD88

The depth of the well is 100 feet below land surface.

This well is completed in the Other aquifers (N9999OTHER) national aquifer.

This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status
1959-02-06			D62610		2954.29	NGVD29	P		Z		A
1959-02-06			D62611		2955.90	NAVD88	P		Z		A
1959-02-06			D72019	78.10			P		Z		A
1959-04-07			D62610		2963.09	NGVD29	1		Z		A
1959-04-07			D62611		2964.70	NAVD88	1		Z		A
1959-04-07			D72019	69.30			1		Z		A
1972-09-20			D62610		2963.64	NGVD29	1		Z		A
1972-09-20			D62611		2965.25	NAVD88	1		Z		A
1972-09-20			D72019	68.75			1		Z		A
1975-12-09			D62610		2963.40	NGVD29	1		Z		A
1975-12-09			D62611		2965.01	NAVD88	1		Z		A
1975-12-09			D72019	68.99			1		Z		A
1976-01-15			D62610		2962.29	NGVD29	1		Z		A
1976-01-15			D62611		2963.90	NAVD88	1		Z		A
1976-01-15			D72019	70.10			1		Z		A
1977-01-19			D62610		2963.99	NGVD29	1		Z		A
1977-01-19			D62611		2965.60	NAVD88	1		Z		A
1977-01-19			D72019	68.40			1		Z		A
1987-10-14			D62610		2965.07	NGVD29	1		Z		A
1987-10-14			D62611		2966.68	NAVD88	1		Z		A
1987-10-14			D72019	67.32			1		Z		A
1993-05-06			D62610		2966.29	NGVD29	1		S		A
1993-05-06			D62611		2967.90	NAVD88	1		S		A
1993-05-06			D72019	66.10			1		S		A

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet

Section	Code	Description
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	P	Pumping
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Title: Groundwater for New Mexico: Water Levels
URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>



Page Contact Information: [New Mexico Water Data Maintainer](#)
Page Last Modified: 2024-12-03 15:40:23 EST
0.36 0.24 nadww02



APPENDIX C

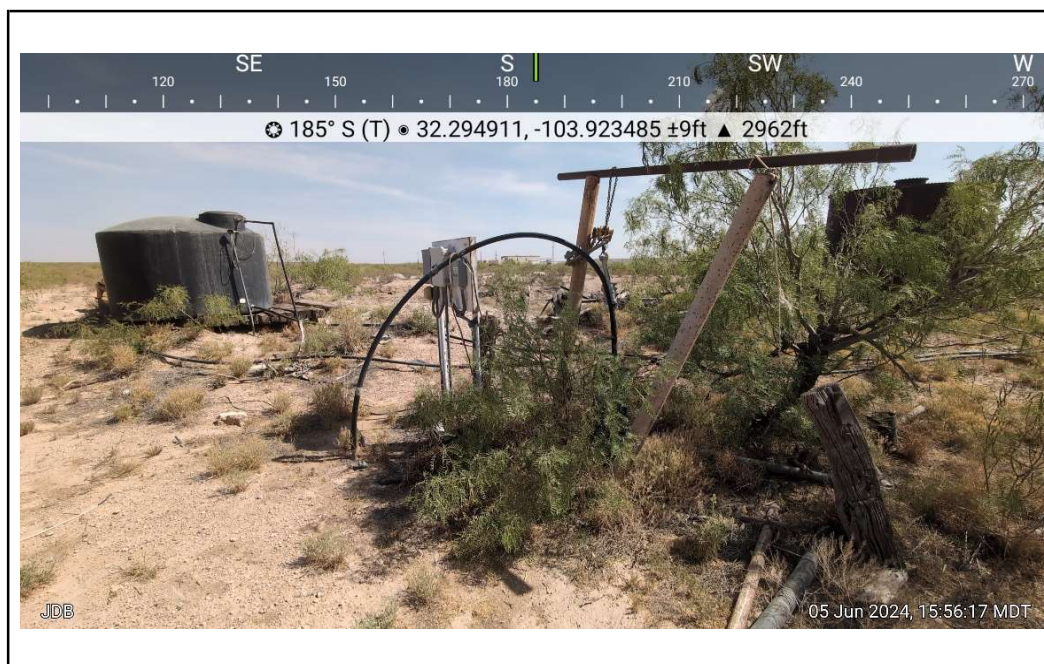
Photographic Log

**Photographic Log**

XTO Energy, Inc.

Remuda Basin 19 Fed #2 SWD

Incident Number NAB1520554210



Photograph 1

Date: June 5, 2024

Description: View of discovery of USGS well, facing south.



Photograph 2

Date: June 11, 2024

Description: Direct view of USGS well during measurement activities

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS

Action 469326

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAB1520554210
Incident Name	NAB1520554210 REMUDA BASIN 19 FED #2 SWD @ 30-015-28901
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-015-28901] REMUDA BASIN 19 FEDERAL #002

Location of Release Source

Please answer all the questions in this group.

Site Name	REMUDA BASIN 19 FED #2 SWD
Date Release Discovered	06/13/2015
Surface Owner	Federal

Incident Details

Please answer all the questions in this group.

Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release

Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.

Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure Other (Specify) Produced Water Released: 160 BBL Recovered: 0 BBL Lost: 160 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

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QUESTIONS, Page 2

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

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	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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.

I hereby agree and sign off to the above statement	Name: Robert Woodall Title: Environmental Analyst Email: robert.d.woodall@exxonmobil.com Date: 05/30/2025
--	---

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QUESTIONS, Page 3

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
<i>Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	Direct Measurement
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 500 and 1000 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1000 (ft.) and ½ (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 500 and 1000 (ft.)
A subsurface mine	Between 1 and 5 (mi.)
An (non-karst) unstable area	Between 200 and 300 (ft.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

Remediation Plan	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	21200
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	49
GRO+DRO (EPA SW-846 Method 8015M)	49
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
On what estimated date will the remediation commence	06/13/2015
On what date will (or did) the final sampling or liner inspection occur	04/29/2020
On what date will (or was) the remediation complete(d)	04/29/2020
What is the estimated surface area (in square feet) that will be reclaimed	19000
What is the estimated volume (in cubic yards) that will be reclaimed	3000
What is the estimated surface area (in square feet) that will be remediated	19000
What is the estimated volume (in cubic yards) that will be remediated	3000
<i>These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.</i>	
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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Energy, Minerals and Natural Resources
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Santa Fe, NM 87505

QUESTIONS, Page 4

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	HALFWAY DISPOSAL AND LANDFILL [FEEM0112334510]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
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.	
I hereby agree and sign off to the above statement	Name: Robert Woodall Title: Environmental Analyst Email: robert.d.woodall@exxonmobil.com Date: 05/30/2025
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS, Page 5

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS, Page 6

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	470584
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/29/2020
What was the (estimated) number of samples that were to be gathered	17
What was the sampling surface area in square feet	3400

Remediation Closure Request	
<i>Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.</i>	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	19000
What was the total volume (cubic yards) remediated	3000
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	19000
What was the total volume (in cubic yards) reclaimed	3000
Summarize any additional remediation activities not included by answers (above)	Depth to groundwater has been determined to be between 50 feet and 100 feet bgs based on a recent gauging of a livestock watering well; therefore, the Site-specific Closure Criteria presented in the original Closure Request was correctly applied. Based on excavation of impacted soil in compliance with the confirmed Site Closure Criteria and reclamation requirement, XTO respectfully requests closure for Incident Number NAB1520554210.
<i>The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (in .pdf format) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.	
I hereby agree and sign off to the above statement	Name: Robert Woodall Title: Environmental Analyst Email: robert.d.woodall@exxonmobil.com Date: 05/30/2025

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QUESTIONS, Page 7

Action 469326

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 469326

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 469326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	6/11/2025