



LT Environmental, Inc.

3300 North "A" Street
Building 1, Unit 103
Midland, Texas 79705
432.704.5178

March 10, 2020

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

**RE: Deferral Request
Poker Lake Unit Big Sinks 11 Federal Battery
Remediation Permit Number 2RP-3887
Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing site assessment, soil sampling, and excavation activities at the Poker Lake Unit (PLU) Big Sinks 11 Federal Battery (Site) in Unit P, Section 11, Township 24 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 resulting from a crude oil release at the Site. Based on the results of the soil sampling events, XTO is submitting this Deferral Request, describing remediation that has occurred and requesting deferral of final remediation.

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

On September 13, 2016, a Victaulic check valve cap failed on the LACT unit, causing approximately 79 barrels (bbls) of crude oil to release onto the surface of the well pad. A vacuum truck recovered approximately 42 bbls of oil from the ground surface. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on September 14, 2016, and was assigned Remediation Permit (RP) Number 2RP-3887 (Attachment 1).



SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the NMAC. Depth to groundwater at the Site is estimated to be between greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well 321334103494901, located approximately 4,955 feet east of the Site. The water well has a depth to groundwater of approximately 367 feet bgs and a total depth of 500 feet bgs. Ground surface elevation at the water well location is 3,522 feet above mean sea level (AMSL), which is approximately 43 feet higher in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an intermittent stream approximately 250 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 in a low-potential karst area.

CLOSURE CRITERIA

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

- Benzene: 10 milligrams per kilogram (mg/kg);
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg;
- Total petroleum hydrocarbons (TPH): 100 mg/kg; and
- Chloride: 600 mg/kg.

SITE ASSESSMENT, EXCAVATION, AND DELINEATION SOIL SAMPLING ACTIVITIES

On February 13, 2018, LTE personnel inspected the Site to evaluate the release extent. Surficial hydrocarbon staining was observed in the release area. An LTE scientist collected eight preliminary soil samples (SS01 through SS08) within the release area to assess the lateral extent of impacted soil. The soil sample locations, depicted on Figure 2, were selected based on information provided on the initial Form C-141 and field observations. To eliminate the effects from weathering and natural degradation of contaminants at the ground surface, the soil samples were collected from each sample location from a depth of 0.5 feet bgs.

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



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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. The soil sample locations are depicted on Figure 2.

During March and December 2019, LTE personnel returned to the Site to oversee excavation and delineation activities.

Impacted soil was excavated from the release area as indicated by visual observations, field screening activities, and laboratory analytical results for the preliminary soil samples. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Impacted soil was excavated to depths ranging from 1 foot to 7 feet bgs. Following removal of impacted soil, LTE collected 5-point composite soil samples every 200 square feet from the sidewalls and floor of the excavation. The 5-point composite samples were collected by depositing five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 through SW18 were collected from the sidewalls of the excavation from depths ranging from ground surface to 6 feet bgs. Composite soil samples FS01 through FS26, FS09A, FS10A, FS15A, FS16A, and FS18A were collected from the floor of the excavation from depths ranging from 1 foot to 7 feet bgs. The excavation extent and excavation soil sample locations are depicted on Figure 3.

Further excavation of impacted soil to the east was limited by the presence of active production equipment and pipelines. Potholes were advanced via backhoe at five locations around the production equipment to delineate the maximum extent of impacted soil left in place. Potholes PH01 through PH05 were advanced to a depth of 8 feet bgs. Delineation soil samples were collected from each pothole at depths ranging from 2 foot to 8 feet bgs. Soil from the potholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for each pothole were logged on lithologic/soil sampling logs, which are included in Attachment 2. The pothole delineation soil sample locations are depicted on Figure 4.

The excavation and delineation soil samples were collected, handled, and analyzed as described above and submitted to Xenco. Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 3.

The excavation measured approximately 9,000 square feet in area with a depth of 1 foot to 7 feet bgs. A total of approximately 1,700 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 indicated that TPH concentrations exceeded the Closure Criteria in preliminary soil samples SS01 through SS08. Based on visible surface staining and laboratory analytical results for the preliminary soil samples, excavation and delineation of impacted soil was conducted.

Laboratory analytical results indicated that TPH concentrations initially exceeded the Closure Criteria in excavation sidewall samples SW01 through SW03, SW05 through SW07, SW09, SW16 through SW18, and excavation floor samples FS01 through FS04, FS09, FS10/FS10A, FS15, FS16, and FS18. Additional impacted soil was removed from these areas, to the extent possible. Laboratory analytical results indicated that BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria in final excavation sidewall samples SW04, SW08, and SW10 through SW15 and final excavation floor samples FS05 through FS08, FS09A, FS11 through FS14, FS15A, FS16A, FS17, FS18A, and FS19 through FS26.

Further excavation of impacted soil beyond sidewall samples SW06, SW07, and SW16 through SW18 was limited by the presence of active production equipment and pipelines. XTO safety policy restricts soil disturbing activities to a 2 foot radius of any active production equipment and pipelines. This XTO safety policy is established to protect workers and reduce the likelihood of compromising the foundation of the process equipment. This policy was enforced on the eastern excavation sidewall where impacted soil was identified within 2 feet of active production equipment and pipelines in excavation sidewall samples SW06, SW07, and SW16 through SW18.

Potholes PH01 through PH05 were advanced around the production equipment to delineate the maximum extent of impacted soil left in place. Laboratory analytical results for the delineation soil samples collected from potholes PH01 through PH05 indicated that BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the laboratory analytical results for the pothole soil samples, the lateral and vertical extent of impacted soil was delineated.

The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

DEFERRAL REQUEST

A total of approximately 1,700 cubic yards of impacted soil were excavated from the Site; however, residual impacted soil was left in place for compliance with the XTO safety policy regarding earth moving activities within 2 feet of active production equipment and pipelines. Impacted soil was excavated to the extent possible. Laboratory analytical results for excavation sidewall samples SW06, SW07, and SW16 through SW18, collected at depths ranging from the ground surface to 6 feet bgs, indicated that soil with TPH concentrations exceeding the Closure



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Criteria was left in place within 2 feet of active production equipment and pipelines. The impacted soil remaining in place is delineated vertically and laterally by excavation soil samples SW11, SW15, FS05, FS06, FS16A, FS17, FS18A, and FS19, collected from the sidewalls and floor of the final excavation extent, and the delineation soil samples collected from potholes PH01 through PH05. An estimated 800 cubic yards of impacted soil remains in place, assuming a maximum 7 foot depth based on the excavation and delineation soil samples listed above collected from depths of 0 to 8 feet bgs, that were compliant with the Closure Criteria. Upon completion of excavation activities, a 10% solution of MicroBlaze®, a concentrated solution of microbes, nutrients, and surfactants designed to bioremediate petroleum hydrocarbons, was applied to the sidewalls and floor of the excavation to enhance remediation of residual hydrocarbons.

XTO backfilled the excavation and requests to complete final remediation during any future major construction/alteration or final plugging and abandonment, whichever occurs first. LTE and XTO do not believe deferment will result in imminent risk to human health, the environment, or groundwater. The majority of the released fluids were recovered during initial response activities and no saturated soil remains in-place. XTO requests deferral of final remediation for RP Number 2RP-3887. An updated NMOCD Form C-141 is included as 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.

A handwritten signature in black ink that reads "Aimee Cole".

Aimee Cole
Project Environmental Scientist

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

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	Preliminary Soil Sample Locations
Figure 3	Excavation Soil Sample Locations



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Figure 4	Delineation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/Final NMOC Form C-141 (2RP-3887)
Attachment 2	Lithologic / Soil Sample Logs
Attachment 3	Photographic Log
Attachment 4	Laboratory Analytical Reports

FIGURES



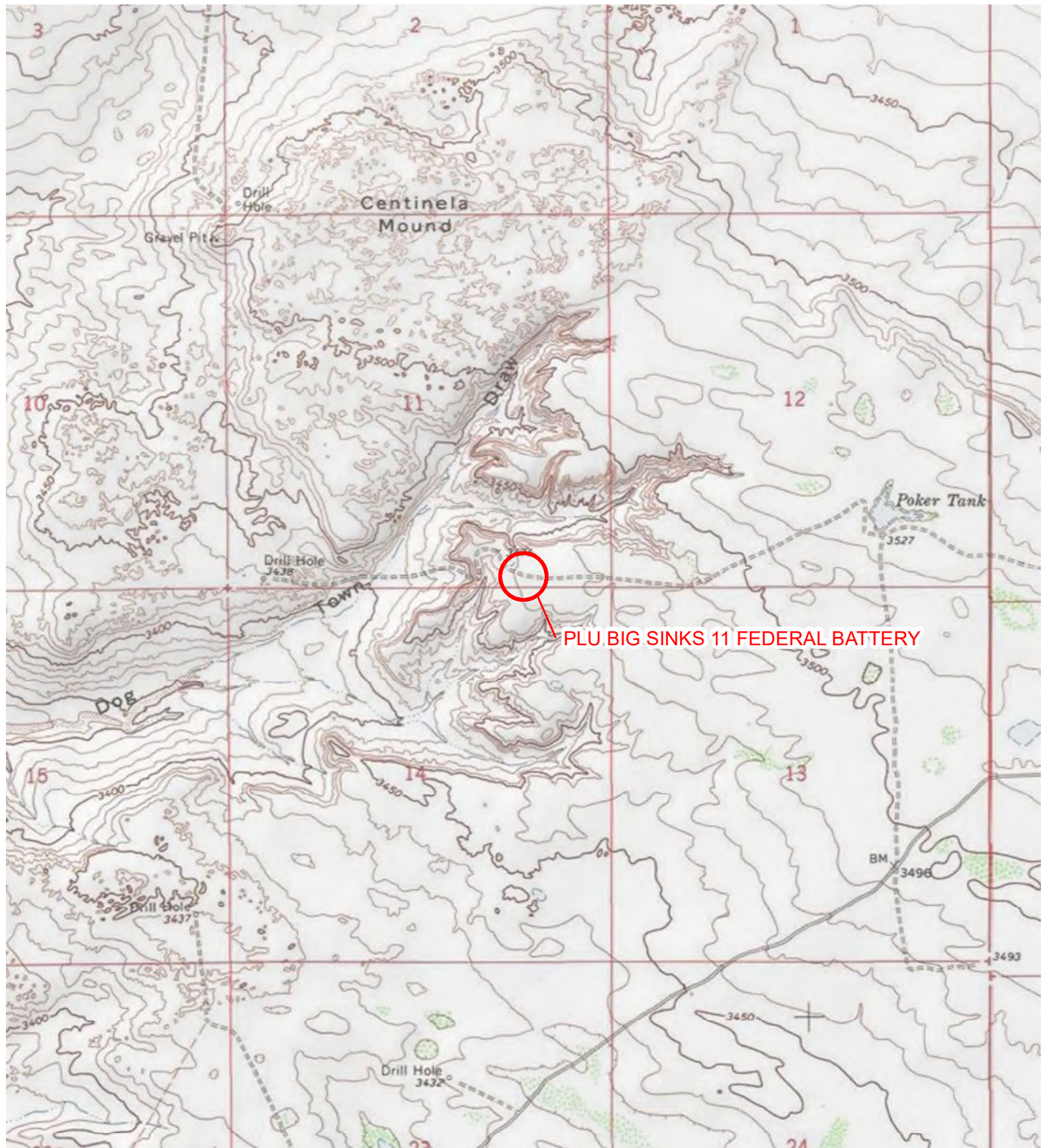
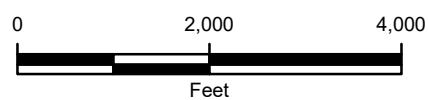


IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION

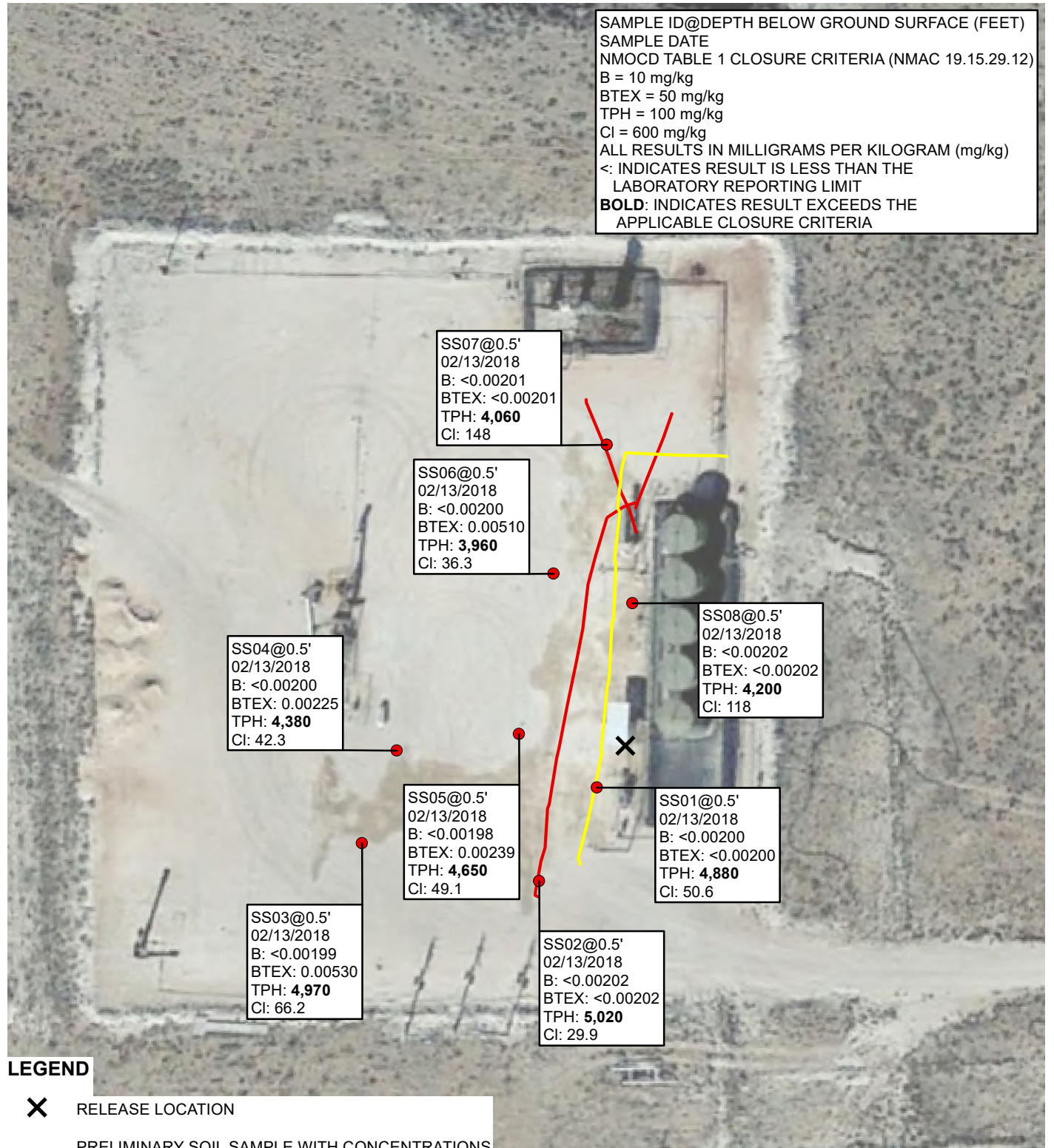


NOTE: REMEDIATION PERMIT
NUMBER 2RP-3887

FIGURE 1
SITE LOCATION MAP
PLU BIG SINKS 11 FEDERAL BATTERY
UNIT P SEC 11 T24S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)
 SAMPLE DATE
 NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)
 B = 10 mg/kg
 BTEX = 50 mg/kg
 TPH = 100 mg/kg
 Cl = 600 mg/kg
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT
BOLD: INDICATES RESULT EXCEEDS THE
 APPLICABLE CLOSURE CRITERIA



LEGEND



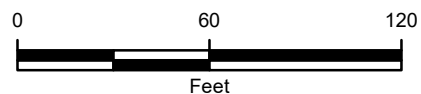
RELEASE LOCATION



PRELIMINARY SOIL SAMPLE WITH CONCENTRATIONS
 EXCEEDING APPLICABLE CLOSURE CRITERIA

ELECTRIC LINE

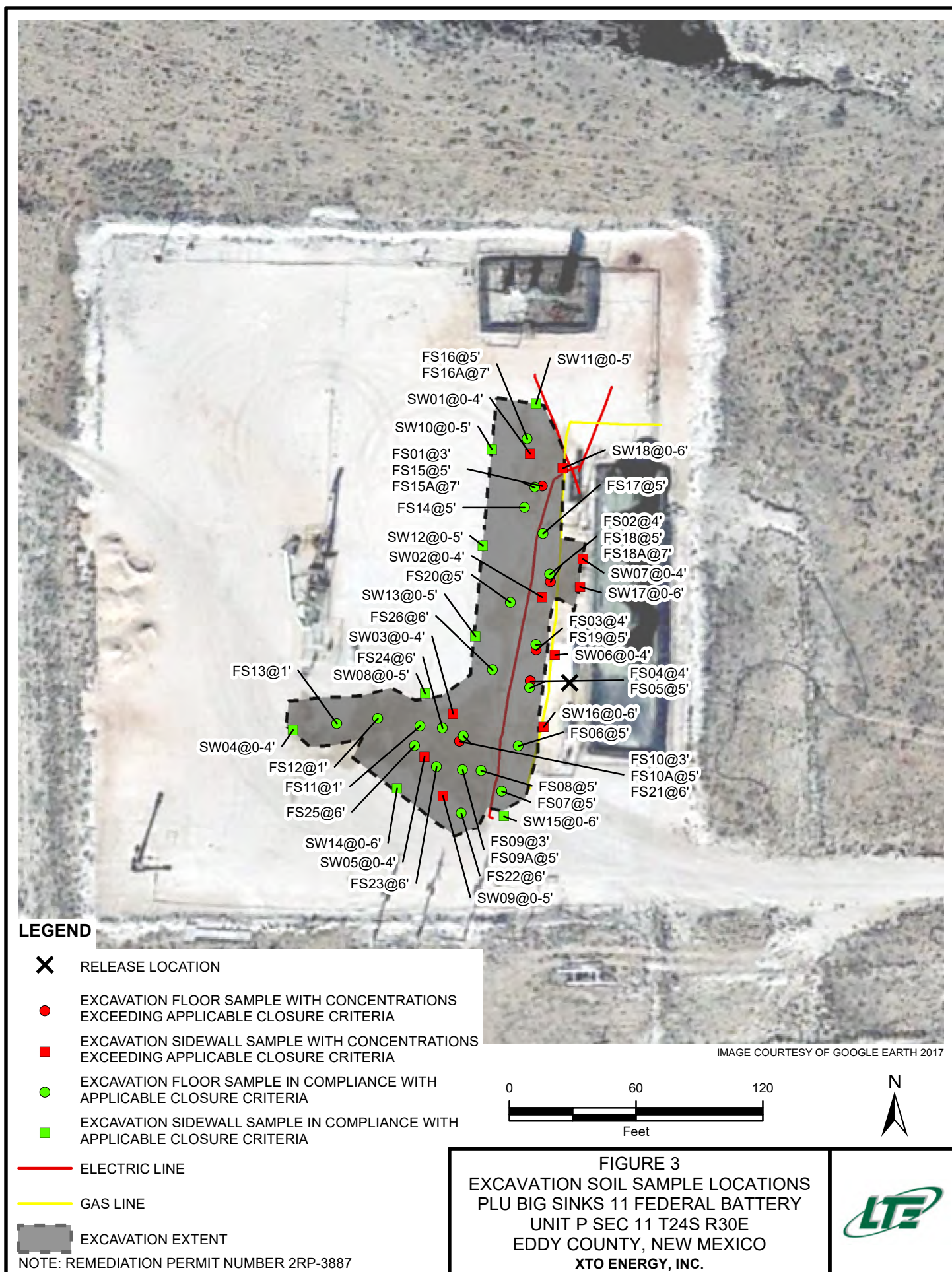
GAS LINE



B: BENZENE
 BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE,
 AND TOTAL XYLENES
 TPH: TOTAL PETROLEUM HYDROCARBONS
 Cl: CHLORIDE
 NMAC: NEW MEXICO ADMINISTRATIVE CODE
 NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
 NOTE: REMEDIATION PERMIT NUMBER 2RP-3887

FIGURE 2
 PRELIMINARY SOIL SAMPLE LOCATIONS
 PLU BIG SINKS 11 FEDERAL BATTERY
 UNIT P SEC 11 T24S R30E
 EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.





SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)
 SAMPLE DATE
 NMOCD TABLE 1 CLOSURE CRITERIA (NMAC 19.15.29.12)
 B = 10 mg/kg
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 TPH = 100 mg/kg
 Cl = 600 mg/kg
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT

PH02@2' 12/06/2019 B: <0.00198 BTEX: <0.00198 TPH: <50.0 Cl: 157	PH02A@4' 12/06/2019 B: <0.00200 BTEX: <0.00200 TPH: <50.1 Cl: 303	PH02B@8' 12/06/2019 B: <0.00198 BTEX: <0.00198 TPH: <50.3 Cl: 397	PH05@2' 12/12/2019 B: <0.00199 BTEX: <0.00199 TPH: <50.2 Cl: 13.5	PH05A@5' 12/12/2019 B: <0.00198 BTEX: <0.00198 TPH: <50.2 Cl: 134	PH05B@8' 12/12/2019 B: <0.00201 BTEX: <0.00201 TPH: <50.0 Cl: 120
PH04@2' 12/12/2019 B: <0.00201 BTEX: <0.00201 TPH: <50.0 Cl: <10.1	PH04A@5' 12/12/2019 B: <0.00198 BTEX: <0.00198 TPH: <50.1 Cl: 38.0	PH04B@8' 12/12/2019 B: <0.00202 BTEX: <0.00202 TPH: <49.8 Cl: 219	PH03@2' 12/12/2019 B: <0.00200 BTEX: <0.00200 TPH: <49.8 Cl: 79.8	PH03A@5' 12/12/2019 B: <0.00200 BTEX: <0.00200 TPH: <49.9 Cl: 46.9	PH03B@8' 12/12/2019 B: <0.00202 BTEX: <0.00202 TPH: <49.9 Cl: 85.6
PH01@6' 12/06/2019 B: <0.00199 BTEX: <0.00199 TPH: <50.2 Cl: 71.3	PH01A@8' 12/06/2019 B: <0.00198 BTEX: <0.00198 TPH: <50.0 Cl: 304	PH01B@3' 12/06/2019 B: <0.00198 BTEX: <0.00198 TPH: <49.9 Cl: 110			

LEGEND

RELEASE LOCATION

DELINEATION SOIL SAMPLE IN COMPLIANCE WITH
APPLICABLE CLOSURE CRITERIA

ELECTRIC LINE

GAS LINE

EXCAVATION EXTENT

B: BENZENE
 BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE,
 AND TOTAL XYLENES
 TPH: TOTAL PETROLEUM HYDROCARBONS
 Cl: CHLORIDE
 NMAC: NEW MEXICO ADMINISTRATIVE CODE
 NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
 NOTE: REMEDIATION PERMIT NUMBER 2RP-3887

IMAGE COURTESY OF GOOGLE EARTH 2017

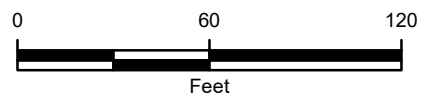


FIGURE 4
 DELINEATION SOIL SAMPLE LOCATIONS
 PLU BIG SINKS 11 FEDERAL BATTERY
 UNIT P SEC 11 T24S R30E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



TABLES



TABLE 1
SOIL ANALYTICAL RESULTS

PLU BIG SINKS 11 FEDERAL BATTERY
REMEDATION PERMIT NUMBER 2RP-3887
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	600
SS01	0.5	02/13/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<74.9	4,180	697	4,180	4,880	50.6
SS02	0.5	02/13/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<74.9	4,320	699	4,320	5,020	29.9
SS03	0.5	02/13/2018	<0.00199	0.00243	<0.00199	0.00287	0.00530	<74.7	4,260	705	4,260	4,970	66.2
SS04	0.5	02/13/2018	<0.00200	<0.00200	<0.00200	0.00225	0.00225	107	3,680	593	3,790	4,380	42.3
SS05	0.5	02/13/2018	<0.00198	<0.00198	<0.00198	0.00239	0.00239	<74.7	3,990	663	3,990	4,650	49.1
SS06	0.5	02/13/2018	<0.00200	0.00228	<0.00200	0.00282	0.00510	<74.9	3,400	562	3,400	3,960	36.3
SS07	0.5	02/13/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<74.9	3,520	544	3,520	4,060	148
SS08	0.5	02/13/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<74.8	3,600	599	3,600	4,200	118
SW01	0 - 4	03/29/2019	<0.00199	0.00266	<0.00199	0.00824	0.0109	20.0	792	128	812	940	64.5
SW02	0 - 4	03/29/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	404	79.2	404	483	70.2
SW03	0 - 4	03/29/2019	<0.00199	<0.00199	<0.00199	0.00798	0.00798	19.9	629	92.8	649	742	9.58
SW04	0 - 4	03/29/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	56.6	<15.0	56.6	56.6	44.9
SW05	0 - 4	03/29/2019	<0.00200	0.00286	<0.00200	0.0368	0.0397	66.5	838	123	905	1,030	5.19
SW06	0 - 4	03/29/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	221	28.4	221	249	13.6
SW07	0 - 4	03/29/2019	<0.00201	0.0108	0.00865	0.119	0.138	127	1,820	259	1,950	2,210	23.8
SW08	0 - 5	12/03/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	<10.1
SW09	0 - 5	12/03/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	180	<49.9	180	180	<10.0
SW10	0 - 5	12/04/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<9.98
SW11	0 - 5	12/04/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	58.9	<50.1	58.9	58.9	<10.0
SW12	0 - 5	12/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.3	<50.3	<50.3	<50.3	<50.3	42.4
SW13	0 - 5	12/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	82.4
SW14	0 - 6	12/10/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	13
SW15	0 - 6	12/10/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.8	58.4	<49.8	58.4	58.4	<9.88
SW16	0 - 6	12/12/2019	<0.00200	<0.00200	<0.00200	0.00201	0.00201	<50.0	2060	211	2060	2,270	<9.98
SW17	0 - 6	12/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	685	122	685	807	<9.94
SW18	0 - 6	12/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.1	741	81.5	741	823	<9.92

TABLE 1
SOIL ANALYTICAL RESULTS

PLU BIG SINKS 11 FEDERAL BATTERY
REMEDATION PERMIT NUMBER 2RP-3887
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	600
FS01	3	03/29/2019	<0.00200	<0.00200	<0.00200	0.0162	0.0162	<15.0	289	57.5	289	347	16.8
FS02	4	03/29/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	210	35.1	210	245	25.6
FS03	4	03/29/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<14.9	425	67.4	425	492	33.0
FS04	4	03/29/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	375	58.9	375	434	70.9
FS05	5	03/29/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	26.8	<15.0	26.8	26.8	7.51
FS06	5	03/29/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	37.5	<15.0	37.5	37.5	6.85
FS07	5	03/29/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	27.3	<15.0	27.3	27.3	7.07
FS08	5	03/29/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	28.2	<15.0	28.2	28.2	5.42
FS09	3	03/29/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	155	19.2	155	174	14.0
FS09A	5	12/03/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	62.4	<50.3	62.4	62.4	<9.98
FS10	3	03/29/2019	<0.00202	0.00816	0.0711	0.519	0.598	410	1,620	165	2,030	2,200	7.95
FS10A	5	12/03/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	139	<50.1	139	139	<10.1
FS11	1	03/29/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<14.9	34.6	<14.9	34.6	34.6	21.8
FS12	1	03/29/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	60.2	<15.0	60.2	60.2	30.5
FS13	1	03/29/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	69.3	<15.0	69.3	69.3	27.3
FS14	5	12/04/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.0	99.4	<50.0	99.4	99.4	<10.0
FS15	5	12/04/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	169	<50.2	169	169	<10.0
FS15A	7	12/10/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	95.9	<50.2	95.9	95.9	13.1
FS16	5	12/04/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	320	<50.1	320	320	<10.0
FS16A	7	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	10.5
FS17	5	12/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	100	<50.2	100	100	11.6
FS18	5	12/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	184	<50.2	184	184	<9.98
FS18A	7	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	84.7	<50.1	84.7	84.7	<9.98
FS19	5	12/05/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	<9.92
FS20	5	12/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	<10.1
FS21	6	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	<9.92
FS22	6	12/10/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	<9.94
FS23	6	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<9.96
FS24	6	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	<9.96
FS25	6	12/10/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	<9.98
FS26	6	12/10/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	<9.92

TABLE 1
SOIL ANALYTICAL RESULTS

PLU BIG SINKS 11 FEDERAL BATTERY
REMEDATION PERMIT NUMBER 2RP-3887
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	600
PH01	6	12/06/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	71.3
PH01A	8	12/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	304
PH01B	3	12/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	110
PH02	2	12/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	157
PH02A	4	12/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	303
PH02B	8	12/06/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	397
PH03	2	12/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	79.8
PH03A	5	12/12/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	46.9
PH03B	8	12/12/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	85.6
PH04	2	12/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	<10.1
PH04A	5	12/12/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	38.0
PH04B	8	12/12/2019	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	219
PH05	2	12/12/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	13.5
PH05A	5	12/12/2019	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	134
PH05B	8	12/12/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	120

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

ORO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

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

ARTESIA DISTRICT

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

SEP 14 2016

Form C-141
Revised August 8, 2011

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

Submit 1 Copy to appropriate District Office in
conformance with 19.15.29 NMAC.

RECEIVED

Release Notification and Corrective Action

OPERATOR ☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. **260737**
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220
Facility Name: PLU Big Sinks 11 Federal Battery (PLU CVX JV BS 002H)
Contact: Bradley Blevins
Telephone No. 575-887-7329
Facility Type: Exploration and Production

Surface Owner: Federal **Mineral Owner:** Federal **API No.** 30-015-37147

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	11	24S	30E	255		1300		Eddy

Latitude: 32.225975 Longitude: 103.847008

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: 79 barrels	Volume Recovered: 42 barrels
Source of Release: Victaulic check valve cap failed on lact unit	Date and Hour of Occurrence: 9-13-16 @ 11:00am	Date and Hour of Discovery: 9-13-16 @ 12:00pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, Jim Amos BLM	
By Whom? Bradley Blevins	Date and Hour: 9-13-16 2 1:43pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
A Victaulic check valve cap failed on the lact unit releasing crude oil to the location, a vacuum truck was called to the location and was able to recover 42 barrels of oil from the ground surface. All released fluid remained on the well pad.		
Describe Area Affected and Cleanup Action Taken.*		
A vacuum truck was called to the location and was able to recover 42 barrels of oil; a remediation response crew was dispatched to the location to begin removing the saturated surface soils and conduct a sampling event.		
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.		
Signature: <u>Bradley Blevins</u>	OIL CONSERVATION DIVISION	
Printed Name: Bradley Blevins	Signed By: <u>Mike Bratcher</u> Approved by Environmental Specialist.	
Title: Assistant Remediation Foreman	Approval Date: <u>9/15/16</u>	Expiration Date: <u>NA</u>
E-mail Address: bblevins@basspet.com	Conditions of Approval:	
Date: <u>9-14-16</u> Phone: 432-214-3704	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO <u>2RP-3887</u>	

* Attach Additional Sheets If Necessary

LATER THAN: 9/15/16

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	2RP-3887
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-3887
Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude N 32.225975 Longitude W -103.847008
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: PLU Big Sinks 11 Federal Battery	Site Type: Production Well Facility
Date Release Discovered: 9/13/2016	API# (if applicable): 30-015-37147

Unit Letter	Section	Township	Range	County
P	11	24S	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): 79	Volume Recovered (bbls): 42
☐ Produced Water	Volume Released (bbls):	Volume Recovered (bbls):
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A Victaulic check valve cap failed on the LACT unit, releasing crude oil to the location. Free-standing fluids were recovered. All released fluid remained on the well pad.

Incident ID	
District RP	2RP-3887
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? Release volume was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? By Bradley Blevins to Mike Bratcher/Heather Patterson (NMOCD) and Jim Amos (BLM) on 9/13/2016 at 1:43 pm.	

Initial Response

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

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: N/A	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Kyle Littrell</u>	Title: <u>SH&E Supervisor</u>
Signature: 	Date: <u>3-10-2020</u>
email: <u>Kyle_Littrell@xtoenergy.com</u>	Telephone: <u>432-221-7331</u>
<u>OCD Only</u> Received by: _____ Date: _____	

Incident ID	
District RP	2RP-3887
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	☐ 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

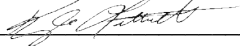
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, 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-3887
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Kyle Littrell Title: SH&E SupervisorSignature:  Date: 3-10-2020email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331**OCD Only**

Received by: _____ Date: _____

Incident ID	
District RP	2RP-3887
Facility ID	
Application ID	

Remediation Plan

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

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

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

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☒ Extents of contamination must be fully delineated.
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature:  Date: 3-10-2020

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

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

ATTACHMENT 2: LITHOLOGIC / SOIL SAMPLE LOGS



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

Compliance · Engineering · Remediation

Identifier:

PH01

Date:

12-6-2019

Project Name:

DLW BS 1A Federal Battery

RP Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: B.B. LTD

Method: *Buelcher*

Lat/Long:

Field Screening: CHLORIDES, PID.

Hole Diameter:

Total Depth:

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			
					1			
					2			
1527	N/A	1.0 6169	0.1	N/A	3	3'		Slightly dark brown Light brown, no odor, no moisture, no clumping, poorly graded, fine grained sand, no organics
					4			
					5			
1245	N/A	0.8 7168	0.1	N/A	6	6'		Light brown, no odor, no moisture, no clumping, no plasticity, poorly graded, fine-grained sand, no organics
					7			
					8			
1325	N/A	1.5 207.4	0.1	N/A	9	8.5'		SAA
					10			
					11			
					12			



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

Compliance · Engineering · Remediation

Identifier:

PH02

Date:

12/6/2019

Project Name:

PLU BS Federal Battery

RP Number:

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: B.B. LAD

Method:

Lat/Long:

Field Screening: CHLORIDES, PID.

Hole Diameter:

Total Depth:

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
Nue	1.0 (2128)	1.2	Nue	1	0	2'		Slightly dark brown, no moisture, no clumping, poorly graded, fine-grained sand, not no organics
Nue	1.8 (2408)	0.0	Nue	2	4	4'		Light brown, no moisture, no clumping, poorly graded, fine-grained sand, no clumping
Nue	2.0 (275.1)	2.4	Nue	3	8	8'		Dark brown/reddish crystals/veins, otherwise SAA

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH03	Date: 12-13-19					
Project Name: PLU BS II Fed Battery		RP Number: 2RP-3887						
Logged By: JL		Method: Trackhoe						
Hole Diameter: —		Total Depth: 8'						
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening: PID <u> </u> Chloride <u> </u>						
Comments: TD @ 8'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		SP-SM	0-1
					1			sand, brown, no odor, no stain, m-f, poorly graded / trace silt
D	<179	0.0	N	PH03	2	2'	Caliche	2-8
					3			Caliche, tan, offwhite, no odor, no stain
					4			
D	<179	0.0	N	PH03A	5	5'		
					6			
					7			
D	<179	0.0	N	PH03B	8	8'		
					9			TD @ 8'
					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH04		Date: 12.13.19		
				Project Name: PLV BS II Fed Battery		RP Number: ZRP-3887		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: SL		Method: Trackbe		
Lat/Long:		Field Screening:		Hole Diameter:		Total Depth: 8'		
		(PID) (Chloride)						
Comments: TD @ 8'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		SP-SM	0 - 1 sand, brown, no odor, no stain, m-f, poorly graded trace silt
					1			
D	<179	0.0	N	PH04	2	2'		2-8
					3		CHE	caliche, tan, off white, no odor, no stain
					4			
D	<179	0.0	N	PH04A	5	5'		
					6			
					7			
D	<179	0.0	N	PH04B	8	8'		
					9			TD @ 8'
					10			
					11			
					12			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: PH05		Date: 12.13.19		
				Project Name: PLU 85 11 Fed Battery		RP Number: ZRP-3887		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: SL		Method: Trackhoe		
Lat/Long:		Field Screening:		Hole Diameter:		Total Depth:		
		(PH) Chloride				8'		
Comments: TD @ 8'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			0-1 ft
					1		SP-SM	sand, brown, no odor, no stain, m-f, poorly graded trace silt
D	<179	0.0	N	PH05	2	2'		2-8 c
					3			caliche, off white, tan, no odor, no stain
					4			
D	<179	0.0	N	PH05A	5	5'	CCHE	
					6			
					7			
D	<179	0.0	N	PH05B	8	8'		
					9			TD @ 8'
					10			
					11			
					12			

ATTACHMENT 3: PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Photograph 1: Northwest facing view of excavation.



Photograph 2: North facing view of excavation.

PHOTOGRAPHIC LOG



Photograph 3: North facing view of excavation.



Photograph 4: South facing view of excavation.

ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS



Analytical Report 576503

for
LT Environmental, Inc.

Project Manager: Adrian Baker

PLU Big Sinks 11 Federal

23-FEB-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):

Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)

Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)

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

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



23-FEB-18

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

Reference: XENCO Report No(s): **576503**
PLU Big Sinks 11 Federal
Project Address: NM

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 576503. 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. 576503 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

Odessa Laboratory Director

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 576503****LT Environmental, Inc., Arvada, CO**

PLU Big Sinks 11 Federal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	02-13-18 16:10	6 In	576503-001
SS02	S	02-13-18 16:20	6 In	576503-002
SS03	S	02-13-18 16:30	6 In	576503-003
SS04	S	02-13-18 16:40	6 In	576503-004
SS05	S	02-13-18 16:50	6 In	576503-005
SS06	S	02-13-18 17:00	6 In	576503-006
SS07	S	02-13-18 17:10	6 In	576503-007
SS08	S	02-13-18 17:20	6 In	576503-008



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU Big Sinks 11 Federal

Project ID:
Work Order Number(s): 576503

Report Date: 23-FEB-18
Date Received: 02/14/2018

Sample receipt non conformance and comments:

Sample receipt non conformance and comments per sample:

None

Analytical non conformance and comments:

Batch: LBA-3041453 BTEX by EPA 8021B

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

Batch: LBA-3041865 Inorganic Anions by EPA 300

Lab Sample ID 576503-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 576503-003, -004, -005, -006, -007, -008.

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



Certificate of Analysis Summary 576503

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal



Project Id:

Contact: Adrian Baker

Project Location: NM

Date Received in Lab: Wed Feb-14-18 06:00 pm

Report Date: 23-FEB-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	576503-001	576503-002	576503-003	576503-004	576503-005	576503-006
	<i>Field Id:</i>	SS01	SS02	SS03	SS04	SS05	SS06
	<i>Depth:</i>	6- In	6- In	6- In	6- In	6- In	6- In
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Feb-13-18 16:10	Feb-13-18 16:20	Feb-13-18 16:30	Feb-13-18 16:40	Feb-13-18 16:50	Feb-13-18 17:00
BTEX by EPA 8021B	<i>Extracted:</i>	Feb-16-18 15:30	Feb-16-18 15:30	Feb-16-18 15:30	Feb-16-18 15:30	Feb-16-18 15:30	Feb-16-18 15:30
	<i>Analyzed:</i>	Feb-16-18 23:02	Feb-16-18 23:21	Feb-16-18 23:40	Feb-16-18 23:59	Feb-17-18 00:18	Feb-17-18 00:36
	<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	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00202 0.00202	0.00243 0.00199	<0.00200 0.00200	<0.00198 0.00198	0.00228 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00404 0.00404	<0.00398 0.00398	<0.00399 0.00399	<0.00396 0.00396	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00202 0.00202	0.00287 0.00199	0.00225 0.00200	0.00239 0.00198	0.00282 0.00200
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202	0.00287 0.00199	0.00225 0.00200	0.00239 0.00198	0.00282 0.00200
Total BTEX		<0.00200 0.00200	<0.00202 0.00202	0.00530 0.00199	0.00225 0.00200	0.00239 0.00198	0.00510 0.00200
Inorganic Anions by EPA 300	<i>Extracted:</i>	Feb-21-18 17:00	Feb-21-18 17:00	Feb-22-18 12:55	Feb-22-18 12:55	Feb-22-18 12:55	Feb-22-18 12:55
	<i>Analyzed:</i>	Feb-22-18 02:54	Feb-22-18 02:59	Feb-22-18 12:55	Feb-22-18 14:19	Feb-22-18 13:13	Feb-22-18 13:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		50.6 4.99	29.9 4.92	66.2 4.87	42.3 5.04	49.1 4.89	36.3 5.04
TPH by SW8015 Mod	<i>Extracted:</i>	Feb-18-18 14:00	Feb-18-18 14:00	Feb-18-18 14:00	Feb-18-18 14:00	Feb-18-18 14:00	Feb-18-18 14:00
	<i>Analyzed:</i>	Feb-19-18 06:58	Feb-19-18 07:18	Feb-19-18 07:38	Feb-19-18 07:58	Feb-19-18 08:18	Feb-19-18 08:38
	<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)		<74.9 74.9	<74.9 74.9	<74.7 74.7	107 74.8	<74.7 74.7	<74.9 74.9
Diesel Range Organics (DRO)		4180 74.9	4320 74.9	4260 74.7	3680 74.8	3990 74.7	3400 74.9
Oil Range Hydrocarbons (ORO)		697 74.9	699 74.9	705 74.7	593 74.8	663 74.7	562 74.9
Total TPH		4880 74.9	5020 74.9	4970 74.7	4380 74.8	4650 74.7	3960 74.9

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

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Version: 1.9%

Jessica Kramer

Jessica Kramer
Odessa Laboratory Director



Certificate of Analysis Summary 576503

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal



Project Id:

Contact: Adrian Baker

Project Location: NM

Date Received in Lab: Wed Feb-14-18 06:00 pm

Report Date: 23-FEB-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	576503-007	576503-008				
	Field Id:	SS07	SS08				
	Depth:	6- In	6- In				
	Matrix:	SOIL	SOIL				
	Sampled:	Feb-13-18 17:10	Feb-13-18 17:20				
BTEX by EPA 8021B	Extracted:	Feb-16-18 15:30	Feb-16-18 15:30				
	Analyzed:	Feb-17-18 00:59	Feb-17-18 01:17				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00201 0.00201	<0.00202 0.00202				
	Toluene	<0.00201 0.00201	<0.00202 0.00202				
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202				
m,p-Xylenes		<0.00402 0.00402	<0.00404 0.00404				
o-Xylene		<0.00201 0.00201	<0.00202 0.00202				
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202				
Total BTEX		<0.00201 0.00201	<0.00202 0.00202				
Inorganic Anions by EPA 300	Extracted:	Feb-22-18 12:55	Feb-22-18 12:55				
	Analyzed:	Feb-22-18 13:31	Feb-22-18 13:37				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	148 4.93	118 4.93				
TPH by SW8015 Mod	Extracted:	Feb-18-18 14:00	Feb-18-18 14:00				
	Analyzed:	Feb-19-18 08:57	Feb-19-18 09:17				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<74.9 74.9	<74.8 74.8				
	Diesel Range Organics (DRO)	3520 74.9	3600 74.8				
Oil Range Hydrocarbons (ORO)		544 74.9	599 74.8				
Total TPH		4060 74.9	4200 74.8				

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

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Version: 1.0%

Jessica Kramer

Jessica Kramer
Odessa Laboratory Director



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS01**
 Lab Sample Id: 576503-001

Matrix: Soil
 Date Collected: 02.13.18 16.10

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3041790

Date Prep: 02.21.18 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	50.6	4.99	mg/kg	02.22.18 02.54		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.9	74.9	mg/kg	02.19.18 06.58	U	5
Diesel Range Organics (DRO)	C10C28DRO	4180	74.9	mg/kg	02.19.18 06.58		5
Oil Range Hydrocarbons (ORO)	PHCG2835	697	74.9	mg/kg	02.19.18 06.58		5
Total TPH	PHC635	4880	74.9	mg/kg	02.19.18 06.58		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	02.19.18 06.58	
o-Terphenyl	84-15-1	96	%	70-135	02.19.18 06.58	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS01**
 Lab Sample Id: 576503-001

Matrix: Soil
 Date Collected: 02.13.18 16.10

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.16.18 23.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.16.18 23.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	88	%	80-120	02.16.18 23.02		
4-Bromofluorobenzene	460-00-4	102	%	80-120	02.16.18 23.02		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS02**
 Lab Sample Id: 576503-002

Matrix: Soil
 Date Collected: 02.13.18 16.20

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3041790

Date Prep: 02.21.18 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.9	4.92	mg/kg	02.22.18 02.59		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.9	74.9	mg/kg	02.19.18 07.18	U	5
Diesel Range Organics (DRO)	C10C28DRO	4320	74.9	mg/kg	02.19.18 07.18		5
Oil Range Hydrocarbons (ORO)	PHCG2835	699	74.9	mg/kg	02.19.18 07.18		5
Total TPH	PHC635	5020	74.9	mg/kg	02.19.18 07.18		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	02.19.18 07.18	
o-Terphenyl	84-15-1	90	%	70-135	02.19.18 07.18	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS02**
 Lab Sample Id: 576503-002

Matrix: Soil
 Date Collected: 02.13.18 16.20

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3041453

Date Prep: 02.16.18 15.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	02.16.18 23.21	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.16.18 23.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	80-120	02.16.18 23.21		
1,4-Difluorobenzene	540-36-3	81	%	80-120	02.16.18 23.21		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS03**
 Lab Sample Id: 576503-003

Matrix: Soil
 Date Collected: 02.13.18 16.30

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: LRI

Analyst: OJS

Seq Number: 3041865

Date Prep: 02.22.18 12.55

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	66.2	4.87	mg/kg	02.22.18 12.55		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.7	74.7	mg/kg	02.19.18 07.38	U	5
Diesel Range Organics (DRO)	C10C28DRO	4260	74.7	mg/kg	02.19.18 07.38		5
Oil Range Hydrocarbons (ORO)	PHCG2835	705	74.7	mg/kg	02.19.18 07.38		5
Total TPH	PHC635	4970	74.7	mg/kg	02.19.18 07.38		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	02.19.18 07.38	
o-Terphenyl	84-15-1	97	%	70-135	02.19.18 07.38	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS03**
 Lab Sample Id: 576503-003

Matrix: Soil
 Date Collected: 02.13.18 16.30

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.16.18 23.40	U	1
Toluene	108-88-3	0.00243	0.00199	mg/kg	02.16.18 23.40		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.16.18 23.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.16.18 23.40	U	1
o-Xylene	95-47-6	0.00287	0.00199	mg/kg	02.16.18 23.40		1
Total Xylenes	1330-20-7	0.00287	0.00199	mg/kg	02.16.18 23.40		1
Total BTEX		0.00530	0.00199	mg/kg	02.16.18 23.40		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	80-120	02.16.18 23.40		
1,4-Difluorobenzene	540-36-3	93	%	80-120	02.16.18 23.40		



Certificate of Analytical Results 576503



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS04** Matrix: Soil Date Received: 02.14.18 18.00
 Lab Sample Id: 576503-004 Date Collected: 02.13.18 16.40 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: LRI % Moisture:
 Analyst: OJS Date Prep: 02.22.18 12.55 Basis: Wet Weight
 Seq Number: 3041865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	42.3	5.04	mg/kg	02.22.18 14.19		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 02.18.18 14.00 Basis: Wet Weight
 Seq Number: 3041598

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	107	74.8	mg/kg	02.19.18 07.58		5
Diesel Range Organics (DRO)	C10C28DRO	3680	74.8	mg/kg	02.19.18 07.58		5
Oil Range Hydrocarbons (ORO)	PHCG2835	593	74.8	mg/kg	02.19.18 07.58		5
Total TPH	PHC635	4380	74.8	mg/kg	02.19.18 07.58		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	02.19.18 07.58	
o-Terphenyl	84-15-1	95	%	70-135	02.19.18 07.58	



Certificate of Analytical Results 576503



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS04**
Lab Sample Id: 576503-004

Matrix: Soil
Date Collected: 02.13.18 16.40

Date Received: 02.14.18 18.00
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.16.18 23.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.16.18 23.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.16.18 23.59	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.16.18 23.59	U	1
o-Xylene	95-47-6	0.00225	0.00200	mg/kg	02.16.18 23.59		1
Total Xylenes	1330-20-7	0.00225	0.00200	mg/kg	02.16.18 23.59		1
Total BTEX		0.00225	0.00200	mg/kg	02.16.18 23.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	88	%	80-120	02.16.18 23.59		
4-Bromofluorobenzene	460-00-4	100	%	80-120	02.16.18 23.59		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS05**
 Lab Sample Id: 576503-005

Matrix: Soil
 Date Collected: 02.13.18 16.50

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: LRI

Analyst: OJS

Seq Number: 3041865

Date Prep: 02.22.18 12.55

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.1	4.89	mg/kg	02.22.18 13.13		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.7	74.7	mg/kg	02.19.18 08.18	U	5
Diesel Range Organics (DRO)	C10C28DRO	3990	74.7	mg/kg	02.19.18 08.18		5
Oil Range Hydrocarbons (ORO)	PHCG2835	663	74.7	mg/kg	02.19.18 08.18		5
Total TPH	PHC635	4650	74.7	mg/kg	02.19.18 08.18		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	02.19.18 08.18	
o-Terphenyl	84-15-1	100	%	70-135	02.19.18 08.18	



Certificate of Analytical Results 576503



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS05**
Lab Sample Id: 576503-005

Matrix: Soil
Date Collected: 02.13.18 16.50

Date Received: 02.14.18 18.00
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.17.18 00.18	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.17.18 00.18	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.17.18 00.18	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	02.17.18 00.18	U	1
o-Xylene	95-47-6	0.00239	0.00198	mg/kg	02.17.18 00.18		1
Total Xylenes	1330-20-7	0.00239	0.00198	mg/kg	02.17.18 00.18		1
Total BTEX		0.00239	0.00198	mg/kg	02.17.18 00.18		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	88	%	80-120	02.17.18 00.18		
4-Bromofluorobenzene	460-00-4	101	%	80-120	02.17.18 00.18		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS06**
 Lab Sample Id: 576503-006

Matrix: Soil
 Date Collected: 02.13.18 17.00

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: LRI

Analyst: OJS

Seq Number: 3041865

Date Prep: 02.22.18 12.55

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.3	5.04	mg/kg	02.22.18 13.19		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.9	74.9	mg/kg	02.19.18 08.38	U	5
Diesel Range Organics (DRO)	C10C28DRO	3400	74.9	mg/kg	02.19.18 08.38		5
Oil Range Hydrocarbons (ORO)	PHCG2835	562	74.9	mg/kg	02.19.18 08.38		5
Total TPH	PHC635	3960	74.9	mg/kg	02.19.18 08.38		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	02.19.18 08.38	
o-Terphenyl	84-15-1	89	%	70-135	02.19.18 08.38	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS06**
 Lab Sample Id: 576503-006

Matrix: Soil
 Date Collected: 02.13.18 17.00

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.17.18 00.36	U	1
Toluene	108-88-3	0.00228	0.00200	mg/kg	02.17.18 00.36		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.17.18 00.36	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.17.18 00.36	U	1
o-Xylene	95-47-6	0.00282	0.00200	mg/kg	02.17.18 00.36		1
Total Xylenes	1330-20-7	0.00282	0.00200	mg/kg	02.17.18 00.36		1
Total BTEX		0.00510	0.00200	mg/kg	02.17.18 00.36		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	80-120	02.17.18 00.36		
4-Bromofluorobenzene	460-00-4	107	%	80-120	02.17.18 00.36		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS07** Matrix: Soil Date Received: 02.14.18 18.00
 Lab Sample Id: 576503-007 Date Collected: 02.13.18 17.10 Sample Depth: 6 In
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: LRI % Moisture:
 Analyst: OJS Date Prep: 02.22.18 12.55 Basis: Wet Weight
 Seq Number: 3041865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	148	4.93	mg/kg	02.22.18 13.31		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 02.18.18 14.00 Basis: Wet Weight
 Seq Number: 3041598

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.9	74.9	mg/kg	02.19.18 08.57	U	5
Diesel Range Organics (DRO)	C10C28DRO	3520	74.9	mg/kg	02.19.18 08.57		5
Oil Range Hydrocarbons (ORO)	PHCG2835	544	74.9	mg/kg	02.19.18 08.57		5
Total TPH	PHC635	4060	74.9	mg/kg	02.19.18 08.57		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	02.19.18 08.57	
o-Terphenyl	84-15-1	92	%	70-135	02.19.18 08.57	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS07**
 Lab Sample Id: 576503-007

Matrix: Soil
 Date Collected: 02.13.18 17.10

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.17.18 00.59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.17.18 00.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	80-120	02.17.18 00.59		
1,4-Difluorobenzene	540-36-3	96	%	80-120	02.17.18 00.59		



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS08**
 Lab Sample Id: 576503-008

Matrix: Soil
 Date Collected: 02.13.18 17.20

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: Inorganic Anions by EPA 300

Tech: LRI

Analyst: OJS

Seq Number: 3041865

Date Prep: 02.22.18 12.55

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	118	4.93	mg/kg	02.22.18 13.37		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3041598

Date Prep: 02.18.18 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<74.8	74.8	mg/kg	02.19.18 09.17	U	5
Diesel Range Organics (DRO)	C10C28DRO	3600	74.8	mg/kg	02.19.18 09.17		5
Oil Range Hydrocarbons (ORO)	PHCG2835	599	74.8	mg/kg	02.19.18 09.17		5
Total TPH	PHC635	4200	74.8	mg/kg	02.19.18 09.17		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.19.18 09.17	
o-Terphenyl	84-15-1	95	%	70-135	02.19.18 09.17	



Certificate of Analytical Results 576503

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal

Sample Id: **SS08**
 Lab Sample Id: 576503-008

Matrix: Soil
 Date Collected: 02.13.18 17.20

Date Received: 02.14.18 18.00
 Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 02.16.18 15.30

Basis: Wet Weight

Seq Number: 3041453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	02.17.18 01.17	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.17.18 01.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	80-120	02.17.18 01.17		
1,4-Difluorobenzene	540-36-3	86	%	80-120	02.17.18 01.17		



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.

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

+ NELAC certification not offered for this compound.

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

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(602) 437-0330	



LT Environmental, Inc.

PLU Big Sinks 11 Federal

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041790

MB Sample Id: 7639564-1-BLK

Matrix: Solid

LCS Sample Id: 7639564-1-BKS

Prep Method: E300P

Date Prep: 02.21.18

LCSD Sample Id: 7639564-1-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	274	110	273	109	90-110	0	20	mg/kg	02.22.18 00:25	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041865

MB Sample Id: 7639620-1-BLK

Matrix: Solid

LCS Sample Id: 7639620-1-BKS

Prep Method: E300P

Date Prep: 02.22.18

LCSD Sample Id: 7639620-1-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	268	107	258	103	90-110	4	20	mg/kg	02.22.18 12:44	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041790

Parent Sample Id: 576500-005

Matrix: Soil

MS Sample Id: 576500-005 S

Prep Method: E300P

Date Prep: 02.21.18

MSD Sample Id: 576500-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	126	245	369	99	390	108	90-110	6	20	mg/kg	02.22.18 00:41	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041790

Parent Sample Id: 576501-003

Matrix: Soil

MS Sample Id: 576501-003 S

Prep Method: E300P

Date Prep: 02.21.18

MSD Sample Id: 576501-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	277	111	274	110	90-110	1	20	mg/kg	02.22.18 01:55	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041865

Parent Sample Id: 576503-003

Matrix: Soil

MS Sample Id: 576503-003 S

Prep Method: E300P

Date Prep: 02.22.18

MSD Sample Id: 576503-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.2	244	353	118	321	104	90-110	9	20	mg/kg	02.22.18 13:01	X

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

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.

PLU Big Sinks 11 Federal

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3041865

Parent Sample Id: 576503-004

Matrix: Soil

MS Sample Id: 576503-004 S

Prep Method: E300P

Date Prep: 02.22.18

MSD Sample Id: 576503-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	42.3	252	345	120	330	114	90-110	4	20	mg/kg	02.22.18 14:25	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3041598

MB Sample Id: 7639461-1-BLK

Matrix: Solid

LCS Sample Id: 7639461-1-BKS

Prep Method: TX1005P

Date Prep: 02.18.18

LCSD Sample Id: 7639461-1-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	1020	102	1010	101	70-135	1	35	mg/kg	02.19.18 00:05	
Diesel Range Organics (DRO)	<15.0	1000	893	89	866	87	70-135	3	35	mg/kg	02.19.18 00:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		101		103		70-135	%	02.19.18 00:05
o-Terphenyl	105		103		99		70-135	%	02.19.18 00:05

Analytical Method: TPH by SW8015 Mod

Seq Number: 3041598

Parent Sample Id: 576507-002

Matrix: Soil

MS Sample Id: 576507-002 S

Prep Method: TX1005P

Date Prep: 02.18.18

MSD Sample Id: 576507-002 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)	<15.0	997	1070	107	1130	113	70-135	5	35	mg/kg	02.19.18 01:27	
Diesel Range Organics (DRO)	<15.0	997	975	98	1080	108	70-135	10	35	mg/kg	02.19.18 01:27	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		118		70-135	%	02.19.18 01:27
o-Terphenyl	114		117		70-135	%	02.19.18 01:27

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$

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.
PLU Big Sinks 11 Federal

Analytical Method: BTEX by EPA 8021B

Seq Number: 3041453

MB Sample Id: 7639384-1-BLK

Matrix: Solid

LCS Sample Id: 7639384-1-BKS

Prep Method: SW5030B

Date Prep: 02.16.18

LCSD Sample Id: 7639384-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.103	102	0.0823	82	70-130	22	35	mg/kg	02.16.18 16:13	
Toluene	<0.00202	0.101	0.0956	95	0.0854	85	70-130	11	35	mg/kg	02.16.18 16:13	
Ethylbenzene	<0.00202	0.101	0.0993	98	0.0887	89	71-129	11	35	mg/kg	02.16.18 16:13	
m,p-Xylenes	<0.00403	0.202	0.194	96	0.173	86	70-135	11	35	mg/kg	02.16.18 16:13	
o-Xylene	<0.00202	0.101	0.0972	96	0.0873	87	71-133	11	35	mg/kg	02.16.18 16:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	81		92		97		80-120	%	02.16.18 16:13
4-Bromofluorobenzene	115		111		115		80-120	%	02.16.18 16:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3041453

Parent Sample Id: 576500-001

Matrix: Soil

MS Sample Id: 576500-001 S

Prep Method: SW5030B

Date Prep: 02.16.18

MSD Sample Id: 576500-001 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	0.0844	85	0.0807	81	70-130	4	35	mg/kg	02.16.18 17:03	
Toluene	<0.00199	0.0996	0.0913	92	0.0851	85	70-130	7	35	mg/kg	02.16.18 17:03	
Ethylbenzene	<0.00199	0.0996	0.0955	96	0.0882	88	71-129	8	35	mg/kg	02.16.18 17:03	
m,p-Xylenes	<0.00398	0.199	0.187	94	0.172	86	70-135	8	35	mg/kg	02.16.18 17:03	
o-Xylene	<0.00199	0.0996	0.0946	95	0.0865	87	71-133	9	35	mg/kg	02.16.18 17:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		100		80-120	%	02.16.18 17:03
4-Bromofluorobenzene	111		119		80-120	%	02.16.18 17:03

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

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

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



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

CHAIN OF CUSTODY

Page 1 of 1

San Antonio, Texas (210-608-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenco.com

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: LTE / Perimeter				Project Name/Number: PLU Big Sinks II Federal														
Company Address: 3300 N. A Street Bldg 1 Suite 103 Midland TX 79705				Project Location: NM														
Email: Abaker@ltenv.com				Invoice To: XTO Energy - Kyle Little														
Phone No: 432-704-5178																		
Project Contact: Adrian Baker				PO Number: 30-015-37147														
Sampler's Name: Adrian Baker																		
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Btex EPA Method 8021	TPH EPA Method 8015	Chloride EPA Method 300.1	Field Comments
1	SS01	6"	2-13-18	16:10	S	1									X	X	X	
2	SS02			16:20														
3	SS03			16:30														
4	SS04			16:40														
5	SS05			16:50														
6	SS06			17:00														
7	SS07			17:10														
8	SS08			17:20														
9																		
10																		
Turnaround Time (Business days)																		
Data Deliverable Information																		
Nuclei:																		
Same Day TAT ☐ 5 Day TAT ☒ Level II Std QC ☐ Level IV (Full Data Pkg /raw data)																		
Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV																		
2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG 411																		
3 Day EMERGENCY ☒ STANDARD TAT ☐ TRRP Checklist																		
TAT Starts Day received by Lab, if received by 5:00 pm																		
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																		
FED-EX / UPS: Tracking #																		
Relinquished by Sampler: <i>[Signature]</i> Date Time: 2-14-18 Received By: <i>[Signature]</i> Date Time: 2-14-18 18:00																		
Relinquished by: <i>[Signature]</i> Date Time: 2-14-18 Received By: <i>[Signature]</i> Date Time: 2-14-18 18:00																		
Relinquished by: <i>[Signature]</i> Date Time: 2-14-18 Received By: <i>[Signature]</i> Date Time: 2-14-18 18:00																		
Custody Seal # <i>[Signature]</i> Preserved where applicable ☒ On Ice ☐ Cooler Temp. ☐ Thermo. Corr. Factor ☐																		

Temp: 3.9 IR ID: R-8
CF: (0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.7

Sampler: Danny Burns
API: 30-015-37147
TRRP-3887

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



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 02/14/2018 06:00:00 PM

Work Order #: 576503

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

#1 *Temperature of cooler(s)?	3.7
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Date: 02/15/2018

Checklist reviewed by:

Jessica Kramer

Date: 02/15/2018

Analytical Report 619853

for
LT Environmental, Inc.

Project Manager: Adrian Baker
PLU Big Sinks 11 Federal Battery

012918036

08-APR-19

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

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

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

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



08-APR-19

Project Manager: **Adrian Baker**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **619853**

PLU Big Sinks 11 Federal Battery

Project Address: ---

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 619853. 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. 619853 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 'Kalei Stout'.

Kalei Stout

Midland Laboratory Director

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 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW01	S	03-29-19 15:00	0 - 4 ft	619853-001
SW02	S	03-29-19 15:10	0 - 4 ft	619853-002
SW03	S	03-29-19 15:20	0 - 4 ft	619853-003
SW04	S	03-29-19 15:30	0 - 3 ft	619853-004
SW05	S	03-29-19 15:40	0 - 3 ft	619853-005
SW06	S	03-29-19 15:45	0 - 4 ft	619853-006
SW07	S	03-29-19 15:55	0 - 4 ft	619853-007
FS01	S	03-29-19 16:00	3 ft	619853-008
FS02	S	03-29-19 16:10	4 ft	619853-009
FS03	S	03-29-19 16:15	4 ft	619853-010
FS04	S	03-29-19 16:20	4 ft	619853-011
FS05	S	03-29-19 16:30	5 ft	619853-012
FS06	S	03-29-19 16:35	5 ft	619853-013
FS07	S	03-29-19 16:40	5 ft	619853-014
FS08	S	03-29-19 16:45	5 ft	619853-015
FS09	S	03-29-19 16:50	3 ft	619853-016
FS10	S	03-29-19 16:55	3 ft	619853-017
FS11	S	03-29-19 17:00	1 ft	619853-018
FS12	S	03-29-19 17:10	1 ft	619853-019
FS13	S	03-29-19 17:20	1 ft	619853-020

**CASE NARRATIVE****Client Name: LT Environmental, Inc.****Project Name: PLU Big Sinks 11 Federal Battery**Project ID: 012918036
Work Order Number(s): 619853Report Date: 08-APR-19
Date Received: 04/03/2019

Sample receipt non conformances and comments:None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3084841 BTEX by EPA 8021B

Lab Sample ID 619853-001 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: 619853-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

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

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

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

Samples affected are: 619853-004,619853-019,619853-017,619853-008.



Certificate of Analysis Summary 619853

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal Battery



Project Id: 012918036
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Wed Apr-03-19 11:25 am
Report Date: 08-APR-19
Project Manager: Kalei Stout

<i>Analysis Requested</i>	<i>Lab Id:</i>	619853-001	619853-002	619853-003	619853-004	619853-005	619853-006
	<i>Field Id:</i>	SW01	SW02	SW03	SW04	SW05	SW06
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-3 ft	0-3 ft	0-4 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-29-19 15:00	Mar-29-19 15:10	Mar-29-19 15:20	Mar-29-19 15:30	Mar-29-19 15:40	Mar-29-19 15:45
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00
	<i>Analyzed:</i>	Apr-05-19 18:16	Apr-05-19 18:35	Apr-05-19 18:55	Apr-05-19 19:14	Apr-05-19 19:33	Apr-05-19 19:52
	<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	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
Toluene		0.00266 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	0.00286 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		0.00566 0.00398	<0.00402 0.00402	0.00528 0.00398	<0.00403 0.00403	0.0230 0.00399	<0.00399 0.00399
o-Xylene		0.00258 0.00199	<0.00201 0.00201	0.00270 0.00199	<0.00202 0.00202	0.0138 0.00200	<0.00200 0.00200
Total Xylenes		0.00824 0.00199	<0.00201 0.00201	0.00798 0.00199	<0.00202 0.00202	0.0368 0.00200	<0.00200 0.00200
Total BTEX		0.0109 0.00199	<0.00201 0.00201	0.00798 0.00199	<0.00202 0.00202	0.0397 0.00200	<0.00200 0.00200
Inorganic Anions by EPA 300	<i>Extracted:</i>	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 16:30
	<i>Analyzed:</i>	Apr-03-19 23:19	Apr-03-19 23:29	Apr-03-19 23:58	Apr-04-19 00:08	Apr-04-19 10:27	Apr-04-19 10:37
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		64.5 24.8	70.2 49.5	9.58 5.03	44.9 24.8	5.19 4.95	13.6 4.95
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00
	<i>Analyzed:</i>	Apr-04-19 21:10	Apr-04-19 22:09	Apr-04-19 22:29	Apr-04-19 22:49	Apr-04-19 23:09	Apr-04-19 23:28
	<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)		20.0 15.0	<14.9 14.9	19.9 15.0	<15.0 15.0	66.5 15.0	<15.0 15.0
Diesel Range Organics (DRO)		792 15.0	404 14.9	629 15.0	56.6 15.0	838 15.0	221 15.0
Motor Oil Range Hydrocarbons (MRO)		128 15.0	79.2 14.9	92.8 15.0	<15.0 15.0	123 15.0	28.4 15.0
Total TPH		940 15.0	483 14.9	742 15.0	56.6 15.0	1030 15.0	249 15.0
Total GRO-DRO		812 15.0	404 14.9	649 15.0	56.6 15.0	905 15.0	221 15.0

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

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

Kalei Stout
Midland Laboratory Director



Certificate of Analysis Summary 619853

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal Battery



Project Id: 012918036
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Wed Apr-03-19 11:25 am
Report Date: 08-APR-19
Project Manager: Kalei Stout

<i>Analysis Requested</i>	<i>Lab Id:</i>	619853-007	619853-008	619853-009	619853-010	619853-011	619853-012
	<i>Field Id:</i>	SW07	FS01	FS02	FS03	FS04	FS05
	<i>Depth:</i>	0-4 ft	3- ft	4- ft	4- ft	4- ft	5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-29-19 15:55	Mar-29-19 16:00	Mar-29-19 16:10	Mar-29-19 16:15	Mar-29-19 16:20	Mar-29-19 16:30
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00
	<i>Analyzed:</i>	Apr-05-19 20:12	Apr-05-19 20:31	Apr-05-19 20:50	Apr-05-19 21:09	Apr-05-19 22:24	Apr-05-19 22:44
	<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	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
Toluene		0.0108 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
Ethylbenzene		0.00865 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
m,p-Xylenes		0.0808 0.00402	0.0112 0.00401	<0.00398 0.00398	<0.00398 0.00398	<0.00404 0.00404	<0.00397 0.00397
o-Xylene		0.0378 0.00201	0.00497 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
Total Xylenes		0.119 0.00201	0.0162 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
Total BTEX		0.138 0.00201	0.0162 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	<0.00198 0.00198
Inorganic Anions by EPA 300	<i>Extracted:</i>	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 16:30	Apr-03-19 17:00	Apr-03-19 17:00	Apr-03-19 17:00
	<i>Analyzed:</i>	Apr-04-19 10:47	Apr-04-19 10:57	Apr-04-19 11:06	Apr-04-19 11:36	Apr-04-19 02:35	Apr-04-19 02:45
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.8 4.99	16.8 5.00	25.6 4.97	33.0 4.95	70.9 24.9	7.51 4.99
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00
	<i>Analyzed:</i>	Apr-05-19 06:27	Apr-05-19 00:08	Apr-05-19 00:27	Apr-05-19 00:47	Apr-05-19 01:45	Apr-05-19 02:04
	<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)		127 14.9	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		1820 14.9	289 15.0	210 15.0	425 14.9	375 15.0	26.8 15.0
Motor Oil Range Hydrocarbons (MRO)		259 14.9	57.5 15.0	35.1 15.0	67.4 14.9	58.9 15.0	<15.0 15.0
Total TPH		2210 14.9	347 15.0	245 15.0	492 14.9	434 15.0	26.8 15.0
Total GRO-DRO		1950 14.9	289 15.0	210 15.0	425 14.9	375 15.0	26.8 15.0

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

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

Kalei Stout
Midland Laboratory Director



Certificate of Analysis Summary 619853

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal Battery



Project Id: 012918036
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Wed Apr-03-19 11:25 am
Report Date: 08-APR-19
Project Manager: Kalei Stout

<i>Analysis Requested</i>	<i>Lab Id:</i>	619853-013	619853-014	619853-015	619853-016	619853-017	619853-018
	<i>Field Id:</i>	FS06	FS07	FS08	FS09	FS10	FS11
	<i>Depth:</i>	5- ft	5- ft	5- ft	3- ft	3- ft	1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-29-19 16:35	Mar-29-19 16:40	Mar-29-19 16:45	Mar-29-19 16:50	Mar-29-19 16:55	Mar-29-19 17:00
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00	Apr-05-19 15:00
	<i>Analyzed:</i>	Apr-05-19 23:03	Apr-05-19 23:22	Apr-05-19 23:41	Apr-06-19 00:00	Apr-06-19 00:19	Apr-06-19 00:39
	<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	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	0.00816 0.00202	<0.00199 0.00199
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	0.0711 0.00202	<0.00199 0.00199
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00402 0.00402	<0.00398 0.00398	0.314 0.00403	<0.00398 0.00398
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	0.205 0.00202	<0.00199 0.00199
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	0.519 0.00202	<0.00199 0.00199
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	0.598 0.00202	<0.00199 0.00199
Inorganic Anions by EPA 300	<i>Extracted:</i>	Apr-03-19 17:00	Apr-03-19 17:00	Apr-03-19 17:00	Apr-03-19 17:00	Apr-03-19 17:00	Apr-03-19 17:00
	<i>Analyzed:</i>	Apr-04-19 11:46	Apr-04-19 11:55	Apr-04-19 12:05	Apr-04-19 12:15	Apr-04-19 12:25	Apr-04-19 12:35
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		6.85 5.04	7.07 4.96	5.42 5.01	14.0 4.98	7.95 4.97	21.8 4.99
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00	Apr-04-19 14:00
	<i>Analyzed:</i>	Apr-05-19 02:24	Apr-05-19 02:44	Apr-05-19 03:03	Apr-05-19 03:23	Apr-05-19 03:42	Apr-05-19 04:01
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	410 15.0	<14.9 14.9
Diesel Range Organics (DRO)		37.5 15.0	27.3 15.0	28.2 15.0	155 15.0	1620 15.0	34.6 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	19.2 15.0	165 15.0	<14.9 14.9
Total TPH		37.5 15.0	27.3 15.0	28.2 15.0	174 15.0	2200 15.0	34.6 14.9
Total GRO-DRO		37.5 15.0	27.3 15.0	28.2 15.0	155 15.0	2030 15.0	34.6 14.9

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

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

Kalei Stout
Midland Laboratory Director



Certificate of Analysis Summary 619853

LT Environmental, Inc., Arvada, CO

Project Name: PLU Big Sinks 11 Federal Battery



Project Id: 012918036
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Wed Apr-03-19 11:25 am
Report Date: 08-APR-19
Project Manager: Kalei Stout

Analysis Requested	Lab Id:	619853-019	619853-020				
	Field Id:	FS12	FS13				
	Depth:	1- ft	1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Mar-29-19 17:10	Mar-29-19 17:20				
BTEX by EPA 8021B	Extracted:	Apr-05-19 15:00	Apr-05-19 15:00				
	Analyzed:	Apr-06-19 00:58	Apr-06-19 01:17				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00201 0.00201				
Toluene		<0.00200 0.00200	<0.00201 0.00201				
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201				
m,p-Xylenes		<0.00400 0.00400	<0.00402 0.00402				
o-Xylene		<0.00200 0.00200	<0.00201 0.00201				
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201				
Total BTEX		<0.00200 0.00200	<0.00201 0.00201				
Inorganic Anions by EPA 300	Extracted:	Apr-03-19 17:00	Apr-03-19 17:00				
	Analyzed:	Apr-04-19 04:42	Apr-04-19 04:52				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		30.5 25.0	27.3 24.9				
TPH by SW8015 Mod	Extracted:	Apr-04-19 14:00	Apr-04-19 14:00				
	Analyzed:	Apr-05-19 04:21	Apr-05-19 04:40				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0				
Diesel Range Organics (DRO)		60.2 15.0	69.3 15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0				
Total TPH		60.2 15.0	69.3 15.0				
Total GRO-DRO		60.2 15.0	69.3 15.0				

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

Kalei Stout
Midland Laboratory Director



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW01**
 Lab Sample Id: 619853-001

Matrix: Soil
 Date Collected: 03.29.19 15.00

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084528

Date Prep: 04.03.19 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.5	24.8	mg/kg	04.03.19 23.19		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	20.0	15.0	mg/kg	04.04.19 21.10		1
Diesel Range Organics (DRO)	C10C28DRO	792	15.0	mg/kg	04.04.19 21.10		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	128	15.0	mg/kg	04.04.19 21.10		1
Total TPH	PHC635	940	15.0	mg/kg	04.04.19 21.10		1
Total GRO-DRO	PHC628	812	15.0	mg/kg	04.04.19 21.10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.04.19 21.10	
o-Terphenyl	84-15-1	107	%	70-135	04.04.19 21.10	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW01**
 Lab Sample Id: 619853-001

Matrix: Soil
 Date Collected: 03.29.19 15.00

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.05.19 18.16	U	1
Toluene	108-88-3	0.00266	0.00199	mg/kg	04.05.19 18.16		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.05.19 18.16	U	1
m,p-Xylenes	179601-23-1	0.00566	0.00398	mg/kg	04.05.19 18.16		1
o-Xylene	95-47-6	0.00258	0.00199	mg/kg	04.05.19 18.16		1
Total Xylenes	1330-20-7	0.00824	0.00199	mg/kg	04.05.19 18.16		1
Total BTEX		0.0109	0.00199	mg/kg	04.05.19 18.16		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	04.05.19 18.16		
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.05.19 18.16		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW02** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-002 Date Collected: 03.29.19 15.10 Sample Depth: 0 - 4 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 16.30 Basis: Wet Weight
 Seq Number: 3084528

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.2	49.5	mg/kg	04.03.19 23.29		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.04.19 22.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	404	14.9	mg/kg	04.04.19 22.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	79.2	14.9	mg/kg	04.04.19 22.09		1
Total TPH	PHC635	483	14.9	mg/kg	04.04.19 22.09		1
Total GRO-DRO	PHC628	404	14.9	mg/kg	04.04.19 22.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.04.19 22.09	
o-Terphenyl	84-15-1	100	%	70-135	04.04.19 22.09	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW02**
 Lab Sample Id: 619853-002

Matrix: Soil
 Date Collected: 03.29.19 15.10

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.05.19 18.35	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.05.19 18.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.05.19 18.35		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 18.35		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW03** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-003 Date Collected: 03.29.19 15.20 Sample Depth: 0 - 4 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 16.30 Basis: Wet Weight
 Seq Number: 3084528

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.58	5.03	mg/kg	04.03.19 23.58		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	19.9	15.0	mg/kg	04.04.19 22.29		1
Diesel Range Organics (DRO)	C10C28DRO	629	15.0	mg/kg	04.04.19 22.29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	92.8	15.0	mg/kg	04.04.19 22.29		1
Total TPH	PHC635	742	15.0	mg/kg	04.04.19 22.29		1
Total GRO-DRO	PHC628	649	15.0	mg/kg	04.04.19 22.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.04.19 22.29	
o-Terphenyl	84-15-1	113	%	70-135	04.04.19 22.29	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW03**
 Lab Sample Id: 619853-003

Matrix: Soil
 Date Collected: 03.29.19 15.20

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.05.19 18.55	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.05.19 18.55	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.05.19 18.55	U	1
m,p-Xylenes	179601-23-1	0.00528	0.00398	mg/kg	04.05.19 18.55		1
o-Xylene	95-47-6	0.00270	0.00199	mg/kg	04.05.19 18.55		1
Total Xylenes	1330-20-7	0.00798	0.00199	mg/kg	04.05.19 18.55		1
Total BTEX		0.00798	0.00199	mg/kg	04.05.19 18.55		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.05.19 18.55		
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.05.19 18.55		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW04**
 Lab Sample Id: 619853-004

Matrix: Soil
 Date Collected: 03.29.19 15.30

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084528

Date Prep: 04.03.19 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	44.9	24.8	mg/kg	04.04.19 00.08		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.04.19 22.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	56.6	15.0	mg/kg	04.04.19 22.49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.04.19 22.49	U	1
Total TPH	PHC635	56.6	15.0	mg/kg	04.04.19 22.49		1
Total GRO-DRO	PHC628	56.6	15.0	mg/kg	04.04.19 22.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.04.19 22.49	
o-Terphenyl	84-15-1	92	%	70-135	04.04.19 22.49	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW04**
 Lab Sample Id: 619853-004

Matrix: Soil
 Date Collected: 03.29.19 15.30

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.05.19 19.14	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.05.19 19.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	137	%	70-130	04.05.19 19.14	**	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.05.19 19.14		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW05**
 Lab Sample Id: 619853-005

Matrix: Soil
 Date Collected: 03.29.19 15.40

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084528

Date Prep: 04.03.19 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.19	4.95	mg/kg	04.04.19 10.27		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	66.5	15.0	mg/kg	04.04.19 23.09		1
Diesel Range Organics (DRO)	C10C28DRO	838	15.0	mg/kg	04.04.19 23.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	123	15.0	mg/kg	04.04.19 23.09		1
Total TPH	PHC635	1030	15.0	mg/kg	04.04.19 23.09		1
Total GRO-DRO	PHC628	905	15.0	mg/kg	04.04.19 23.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.04.19 23.09	
o-Terphenyl	84-15-1	106	%	70-135	04.04.19 23.09	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW05**
 Lab Sample Id: 619853-005

Matrix: Soil
 Date Collected: 03.29.19 15.40

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.05.19 19.33	U	1
Toluene	108-88-3	0.00286	0.00200	mg/kg	04.05.19 19.33		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.05.19 19.33	U	1
m,p-Xylenes	179601-23-1	0.0230	0.00399	mg/kg	04.05.19 19.33		1
o-Xylene	95-47-6	0.0138	0.00200	mg/kg	04.05.19 19.33		1
Total Xylenes	1330-20-7	0.0368	0.00200	mg/kg	04.05.19 19.33		1
Total BTEX		0.0397	0.00200	mg/kg	04.05.19 19.33		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	70-130	04.05.19 19.33		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.05.19 19.33		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW06** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-006 Date Collected: 03.29.19 15.45 Sample Depth: 0 - 4 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 16.30 Basis: Wet Weight
 Seq Number: 3084528

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.6	4.95	mg/kg	04.04.19 10.37		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.04.19 23.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	221	15.0	mg/kg	04.04.19 23.28		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	28.4	15.0	mg/kg	04.04.19 23.28		1
Total TPH	PHC635	249	15.0	mg/kg	04.04.19 23.28		1
Total GRO-DRO	PHC628	221	15.0	mg/kg	04.04.19 23.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.04.19 23.28	
o-Terphenyl	84-15-1	97	%	70-135	04.04.19 23.28	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW06**
 Lab Sample Id: 619853-006

Matrix: Soil
 Date Collected: 03.29.19 15.45

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.05.19 19.52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.05.19 19.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.05.19 19.52		
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.05.19 19.52		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW07**
 Lab Sample Id: 619853-007

Matrix: Soil
 Date Collected: 03.29.19 15.55

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084528

Date Prep: 04.03.19 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.8	4.99	mg/kg	04.04.19 10.47		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	127	14.9	mg/kg	04.05.19 06.27		1
Diesel Range Organics (DRO)	C10C28DRO	1820	14.9	mg/kg	04.05.19 06.27		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	259	14.9	mg/kg	04.05.19 06.27		1
Total TPH	PHC635	2210	14.9	mg/kg	04.05.19 06.27		1
Total GRO-DRO	PHC628	1950	14.9	mg/kg	04.05.19 06.27		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.05.19 06.27	
o-Terphenyl	84-15-1	125	%	70-135	04.05.19 06.27	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **SW07**
 Lab Sample Id: 619853-007

Matrix: Soil
 Date Collected: 03.29.19 15.55

Date Received: 04.03.19 11.25
 Sample Depth: 0 - 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.05.19 20.12	U	1
Toluene	108-88-3	0.0108	0.00201	mg/kg	04.05.19 20.12		1
Ethylbenzene	100-41-4	0.00865	0.00201	mg/kg	04.05.19 20.12		1
m,p-Xylenes	179601-23-1	0.0808	0.00402	mg/kg	04.05.19 20.12		1
o-Xylene	95-47-6	0.0378	0.00201	mg/kg	04.05.19 20.12		1
Total Xylenes	1330-20-7	0.119	0.00201	mg/kg	04.05.19 20.12		1
Total BTEX		0.138	0.00201	mg/kg	04.05.19 20.12		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.05.19 20.12		
4-Bromofluorobenzene	460-00-4	120	%	70-130	04.05.19 20.12		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS01** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-008 Date Collected: 03.29.19 16.00 Sample Depth: 3 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 16.30 Basis: Wet Weight
 Seq Number: 3084528

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.8	5.00	mg/kg	04.04.19 10.57		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 00.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	289	15.0	mg/kg	04.05.19 00.08		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	57.5	15.0	mg/kg	04.05.19 00.08		1
Total TPH	PHC635	347	15.0	mg/kg	04.05.19 00.08		1
Total GRO-DRO	PHC628	289	15.0	mg/kg	04.05.19 00.08		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 00.08	
o-Terphenyl	84-15-1	95	%	70-135	04.05.19 00.08	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS01**
 Lab Sample Id: 619853-008

Matrix: Soil
 Date Collected: 03.29.19 16.00

Date Received: 04.03.19 11.25
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.05.19 20.31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.05.19 20.31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.05.19 20.31	U	1
m,p-Xylenes	179601-23-1	0.0112	0.00401	mg/kg	04.05.19 20.31		1
o-Xylene	95-47-6	0.00497	0.00200	mg/kg	04.05.19 20.31		1
Total Xylenes	1330-20-7	0.0162	0.00200	mg/kg	04.05.19 20.31		1
Total BTEX		0.0162	0.00200	mg/kg	04.05.19 20.31		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	132	%	70-130	04.05.19 20.31	**	
1,4-Difluorobenzene	540-36-3	116	%	70-130	04.05.19 20.31		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS02** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-009 Date Collected: 03.29.19 16.10 Sample Depth: 4 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 16.30 Basis: Wet Weight
 Seq Number: 3084528

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	25.6	4.97	mg/kg	04.04.19 11.06		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 00.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	210	15.0	mg/kg	04.05.19 00.27		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	35.1	15.0	mg/kg	04.05.19 00.27		1
Total TPH	PHC635	245	15.0	mg/kg	04.05.19 00.27		1
Total GRO-DRO	PHC628	210	15.0	mg/kg	04.05.19 00.27		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 00.27	
o-Terphenyl	84-15-1	96	%	70-135	04.05.19 00.27	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS02**
 Lab Sample Id: 619853-009

Matrix: Soil
 Date Collected: 03.29.19 16.10

Date Received: 04.03.19 11.25
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.05.19 20.50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.05.19 20.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.05.19 20.50		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 20.50		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS03**
 Lab Sample Id: 619853-010

Matrix: Soil
 Date Collected: 03.29.19 16.15

Date Received: 04.03.19 11.25
 Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.0	4.95	mg/kg	04.04.19 11.36		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.05.19 00.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	425	14.9	mg/kg	04.05.19 00.47		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	67.4	14.9	mg/kg	04.05.19 00.47		1
Total TPH	PHC635	492	14.9	mg/kg	04.05.19 00.47		1
Total GRO-DRO	PHC628	425	14.9	mg/kg	04.05.19 00.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 00.47	
o-Terphenyl	84-15-1	100	%	70-135	04.05.19 00.47	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS03**
 Lab Sample Id: 619853-010

Matrix: Soil
 Date Collected: 03.29.19 16.15

Date Received: 04.03.19 11.25
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.05.19 21.09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.05.19 21.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 21.09		
4-Bromofluorobenzene	460-00-4	104	%	70-130	04.05.19 21.09		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS04** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-011 Date Collected: 03.29.19 16.20 Sample Depth: 4 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 17.00 Basis: Wet Weight
 Seq Number: 3084530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.9	24.9	mg/kg	04.04.19 02.35		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 01.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	375	15.0	mg/kg	04.05.19 01.45		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	58.9	15.0	mg/kg	04.05.19 01.45		1
Total TPH	PHC635	434	15.0	mg/kg	04.05.19 01.45		1
Total GRO-DRO	PHC628	375	15.0	mg/kg	04.05.19 01.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 01.45	
o-Terphenyl	84-15-1	100	%	70-135	04.05.19 01.45	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS04**
 Lab Sample Id: 619853-011

Matrix: Soil
 Date Collected: 03.29.19 16.20

Date Received: 04.03.19 11.25
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.05.19 22.24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.05.19 22.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	122	%	70-130	04.05.19 22.24		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.05.19 22.24		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS05** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-012 Date Collected: 03.29.19 16.30 Sample Depth: 5 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 17.00 Basis: Wet Weight
 Seq Number: 3084530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.51	4.99	mg/kg	04.04.19 02.45		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 02.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	26.8	15.0	mg/kg	04.05.19 02.04		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 02.04	U	1
Total TPH	PHC635	26.8	15.0	mg/kg	04.05.19 02.04		1
Total GRO-DRO	PHC628	26.8	15.0	mg/kg	04.05.19 02.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.05.19 02.04	
o-Terphenyl	84-15-1	91	%	70-135	04.05.19 02.04	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS05**
 Lab Sample Id: 619853-012

Matrix: Soil
 Date Collected: 03.29.19 16.30

Date Received: 04.03.19 11.25
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.05.19 22.44	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.05.19 22.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 22.44		
4-Bromofluorobenzene	460-00-4	104	%	70-130	04.05.19 22.44		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS06** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-013 Date Collected: 03.29.19 16.35 Sample Depth: 5 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 17.00 Basis: Wet Weight
 Seq Number: 3084530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.85	5.04	mg/kg	04.04.19 11.46		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 02.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	37.5	15.0	mg/kg	04.05.19 02.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 02.24	U	1
Total TPH	PHC635	37.5	15.0	mg/kg	04.05.19 02.24		1
Total GRO-DRO	PHC628	37.5	15.0	mg/kg	04.05.19 02.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.05.19 02.24	
o-Terphenyl	84-15-1	93	%	70-135	04.05.19 02.24	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS06**
 Lab Sample Id: 619853-013

Matrix: Soil
 Date Collected: 03.29.19 16.35

Date Received: 04.03.19 11.25
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.05.19 23.03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.05.19 23.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	04.05.19 23.03		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.05.19 23.03		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS07** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-014 Date Collected: 03.29.19 16.40 Sample Depth: 5 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 17.00 Basis: Wet Weight
 Seq Number: 3084530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.07	4.96	mg/kg	04.04.19 11.55		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 02.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	27.3	15.0	mg/kg	04.05.19 02.44		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 02.44	U	1
Total TPH	PHC635	27.3	15.0	mg/kg	04.05.19 02.44		1
Total GRO-DRO	PHC628	27.3	15.0	mg/kg	04.05.19 02.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.05.19 02.44	
o-Terphenyl	84-15-1	92	%	70-135	04.05.19 02.44	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS07**
 Lab Sample Id: 619853-014

Matrix: Soil
 Date Collected: 03.29.19 16.40

Date Received: 04.03.19 11.25
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.05.19 23.22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.05.19 23.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 23.22		
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.05.19 23.22		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS08**
 Lab Sample Id: 619853-015

Matrix: Soil
 Date Collected: 03.29.19 16.45

Date Received: 04.03.19 11.25
 Sample Depth: 5 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.42	5.01	mg/kg	04.04.19 12.05		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 03.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	28.2	15.0	mg/kg	04.05.19 03.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 03.03	U	1
Total TPH	PHC635	28.2	15.0	mg/kg	04.05.19 03.03		1
Total GRO-DRO	PHC628	28.2	15.0	mg/kg	04.05.19 03.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 03.03	
o-Terphenyl	84-15-1	93	%	70-135	04.05.19 03.03	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS08**
 Lab Sample Id: 619853-015

Matrix: Soil
 Date Collected: 03.29.19 16.45

Date Received: 04.03.19 11.25
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.05.19 23.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.05.19 23.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	04.05.19 23.41		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.05.19 23.41		



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS09** Matrix: Soil Date Received: 04.03.19 11.25
 Lab Sample Id: 619853-016 Date Collected: 03.29.19 16.50 Sample Depth: 3 ft
 Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.03.19 17.00 Basis: Wet Weight
 Seq Number: 3084530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.0	4.98	mg/kg	04.04.19 12.15		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.04.19 14.00 Basis: Wet Weight
 Seq Number: 3084705

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 03.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	155	15.0	mg/kg	04.05.19 03.23		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	19.2	15.0	mg/kg	04.05.19 03.23		1
Total TPH	PHC635	174	15.0	mg/kg	04.05.19 03.23		1
Total GRO-DRO	PHC628	155	15.0	mg/kg	04.05.19 03.23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.05.19 03.23	
o-Terphenyl	84-15-1	93	%	70-135	04.05.19 03.23	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS09**
 Lab Sample Id: 619853-016

Matrix: Soil
 Date Collected: 03.29.19 16.50

Date Received: 04.03.19 11.25
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.06.19 00.00	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.06.19 00.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	04.06.19 00.00		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.06.19 00.00		



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS10**
Lab Sample Id: 619853-017

Matrix: Soil
Date Collected: 03.29.19 16.55

Date Received: 04.03.19 11.25
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.95	4.97	mg/kg	04.04.19 12.25		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	410	15.0	mg/kg	04.05.19 03.42		1
Diesel Range Organics (DRO)	C10C28DRO	1620	15.0	mg/kg	04.05.19 03.42		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	165	15.0	mg/kg	04.05.19 03.42		1
Total TPH	PHC635	2200	15.0	mg/kg	04.05.19 03.42		1
Total GRO-DRO	PHC628	2030	15.0	mg/kg	04.05.19 03.42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	04.05.19 03.42	
o-Terphenyl	84-15-1	120	%	70-135	04.05.19 03.42	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS10**
Lab Sample Id: 619853-017

Matrix: Soil
Date Collected: 03.29.19 16.55

Date Received: 04.03.19 11.25
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.06.19 00.19	U	1
Toluene	108-88-3	0.00816	0.00202	mg/kg	04.06.19 00.19		1
Ethylbenzene	100-41-4	0.0711	0.00202	mg/kg	04.06.19 00.19		1
m,p-Xylenes	179601-23-1	0.314	0.00403	mg/kg	04.06.19 00.19		1
o-Xylene	95-47-6	0.205	0.00202	mg/kg	04.06.19 00.19		1
Total Xylenes	1330-20-7	0.519	0.00202	mg/kg	04.06.19 00.19		1
Total BTEX		0.598	0.00202	mg/kg	04.06.19 00.19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.06.19 00.19		
4-Bromofluorobenzene	460-00-4	209	%	70-130	04.06.19 00.19	**	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS11**
Lab Sample Id: 619853-018

Matrix: Soil
Date Collected: 03.29.19 17.00

Date Received: 04.03.19 11.25
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.8	4.99	mg/kg	04.04.19 12.35		1

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.05.19 04.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	34.6	14.9	mg/kg	04.05.19 04.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.05.19 04.01	U	1
Total TPH	PHC635	34.6	14.9	mg/kg	04.05.19 04.01		1
Total GRO-DRO	PHC628	34.6	14.9	mg/kg	04.05.19 04.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.05.19 04.01	
o-Terphenyl	84-15-1	92	%	70-135	04.05.19 04.01	



Certificate of Analytical Results 619853

LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS11**
 Lab Sample Id: 619853-018

Matrix: Soil
 Date Collected: 03.29.19 17.00

Date Received: 04.03.19 11.25
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3084841

Date Prep: 04.05.19 15.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.06.19 00.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.06.19 00.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	04.06.19 00.39		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.06.19 00.39		



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS12**
Lab Sample Id: 619853-019

Matrix: Soil
Date Collected: 03.29.19 17.10

Date Received: 04.03.19 11.25
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.5	25.0	mg/kg	04.04.19 04.42		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 04.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	60.2	15.0	mg/kg	04.05.19 04.21		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 04.21	U	1
Total TPH	PHC635	60.2	15.0	mg/kg	04.05.19 04.21		1
Total GRO-DRO	PHC628	60.2	15.0	mg/kg	04.05.19 04.21		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.05.19 04.21	
o-Terphenyl	84-15-1	92	%	70-135	04.05.19 04.21	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS12**
 Lab Sample Id: 619853-019

Matrix: Soil
 Date Collected: 03.29.19 17.10

Date Received: 04.03.19 11.25
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.06.19 00.58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.06.19 00.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.06.19 00.58		
4-Bromofluorobenzene	460-00-4	131	%	70-130	04.06.19 00.58	**	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS13**
Lab Sample Id: 619853-020

Matrix: Soil
Date Collected: 03.29.19 17.20

Date Received: 04.03.19 11.25
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3084530

Date Prep: 04.03.19 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.3	24.9	mg/kg	04.04.19 04.52		5

Analytical Method: TPH by SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3084705

Date Prep: 04.04.19 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.05.19 04.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	69.3	15.0	mg/kg	04.05.19 04.40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.05.19 04.40	U	1
Total TPH	PHC635	69.3	15.0	mg/kg	04.05.19 04.40		1
Total GRO-DRO	PHC628	69.3	15.0	mg/kg	04.05.19 04.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.05.19 04.40	
o-Terphenyl	84-15-1	91	%	70-135	04.05.19 04.40	



Certificate of Analytical Results 619853



LT Environmental, Inc., Arvada, CO

PLU Big Sinks 11 Federal Battery

Sample Id: **FS13**
 Lab Sample Id: 619853-020

Matrix: Soil
 Date Collected: 03.29.19 17.20

Date Received: 04.03.19 11.25
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.05.19 15.00

Basis: Wet Weight

Seq Number: 3084841

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.06.19 01.17	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.06.19 01.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	123	%	70-130	04.06.19 01.17		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.06.19 01.17		



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.

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.
PLU Big Sinks 11 Federal Battery

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084528

MB Sample Id: 7674999-1-BLK

Matrix: Solid

LCS Sample Id: 7674999-1-BKS

Prep Method: E300P

Date Prep: 04.03.19

LCSD Sample Id: 7674999-1-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	272	109	272	109	90-110	0	20	mg/kg	04.03.19 20:13	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084530

MB Sample Id: 7675002-1-BLK

Matrix: Solid

LCS Sample Id: 7675002-1-BKS

Prep Method: E300P

Date Prep: 04.03.19

LCSD Sample Id: 7675002-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	0.977	250	267	107	267	107	90-110	0	20	mg/kg	04.04.19 01:36	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084528

Parent Sample Id: 618636-010

Matrix: Soil

MS Sample Id: 618636-010 S

Prep Method: E300P

Date Prep: 04.03.19

MSD Sample Id: 618636-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.3	250	293	111	292	111	90-110	0	20	mg/kg	04.03.19 20:42	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084528

Parent Sample Id: 618636-011

Matrix: Soil

MS Sample Id: 618636-011 S

Prep Method: E300P

Date Prep: 04.03.19

MSD Sample Id: 618636-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.6	250	310	111	309	111	90-110	0	20	mg/kg	04.03.19 22:59	X

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084530

Parent Sample Id: 619598-002

Matrix: Soil

MS Sample Id: 619598-002 S

Prep Method: E300P

Date Prep: 04.03.19

MSD Sample Id: 619598-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.5	252	317	109	317	109	90-110	0	20	mg/kg	04.04.19 02:05	

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

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

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

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



LT Environmental, Inc.
PLU Big Sinks 11 Federal Battery

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3084530

Parent Sample Id: 619598-003

Matrix: Soil

MS Sample Id: 619598-003 S

Prep Method: E300P

Date Prep: 04.03.19

MSD Sample Id: 619598-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	35.1	250	307	109	305	108	90-110	1	20	mg/kg	04.04.19 04:23	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3084705

MB Sample Id: 7675081-1-BLK

Matrix: Solid

LCS Sample Id: 7675081-1-BKS

Prep Method: TX1005P

Date Prep: 04.04.19

LCSD Sample Id: 7675081-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1030	103	998	100	70-135	3	20	mg/kg	04.04.19 20:30	
Diesel Range Organics (DRO)	<8.13	1000	1110	111	1050	105	70-135	6	20	mg/kg	04.04.19 20:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		122		130		70-135	%	04.04.19 20:30
o-Terphenyl	100		124		125		70-135	%	04.04.19 20:30

Analytical Method: TPH by SW8015 Mod

Seq Number: 3084705

Parent Sample Id: 619853-001

Matrix: Soil

MS Sample Id: 619853-001 S

Prep Method: TX1005P

Date Prep: 04.04.19

MSD Sample Id: 619853-001 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)	20.0	997	940	92	952	93	70-135	1	20	mg/kg	04.04.19 21:29	
Diesel Range Organics (DRO)	792	997	1630	84	1620	83	70-135	1	20	mg/kg	04.04.19 21:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		113		70-135	%	04.04.19 21:29
o-Terphenyl	110		109		70-135	%	04.04.19 21:29

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

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

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



LT Environmental, Inc.
PLU Big Sinks 11 Federal Battery

Analytical Method: BTEX by EPA 8021B

Seq Number: 3084841

MB Sample Id: 7675216-1-BLK

Matrix: Solid

LCS Sample Id: 7675216-1-BKS

Prep Method: SW5030B

Date Prep: 04.05.19

LCSD Sample Id: 7675216-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.0975	98	0.0954	96	70-130	2	35	mg/kg	04.05.19 16:23	
Toluene	<0.000457	0.100	0.0923	92	0.0907	91	70-130	2	35	mg/kg	04.05.19 16:23	
Ethylbenzene	<0.00201	0.100	0.0940	94	0.0926	93	70-130	2	35	mg/kg	04.05.19 16:23	
m,p-Xylenes	<0.00102	0.201	0.180	90	0.178	89	70-130	1	35	mg/kg	04.05.19 16:23	
o-Xylene	<0.00201	0.100	0.0900	90	0.0896	90	70-130	0	35	mg/kg	04.05.19 16:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		101		101		70-130	%	04.05.19 16:23
4-Bromofluorobenzene	94		91		93		70-130	%	04.05.19 16:23

Analytical Method: BTEX by EPA 8021B

Seq Number: 3084841

Parent Sample Id: 619853-001

Matrix: Soil

MS Sample Id: 619853-001 S

Prep Method: SW5030B

Date Prep: 04.05.19

MSD Sample Id: 619853-001 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	0.0805	81	0.0813	82	70-130	1	35	mg/kg	04.05.19 17:01	
Toluene	0.00266	0.100	0.0731	70	0.0676	65	70-130	8	35	mg/kg	04.05.19 17:01	X
Ethylbenzene	0.00128	0.100	0.0641	63	0.0562	55	70-130	13	35	mg/kg	04.05.19 17:01	X
m,p-Xylenes	0.00566	0.200	0.125	60	0.107	51	70-130	16	35	mg/kg	04.05.19 17:01	X
o-Xylene	0.00258	0.100	0.0648	62	0.0559	54	70-130	15	35	mg/kg	04.05.19 17:01	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		105		70-130	%	04.05.19 17:01
4-Bromofluorobenzene	107		101		70-130	%	04.05.19 17:01

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

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

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

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



Chain of Custody

Work Order No:

1019853

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440 EL Paso, TX (915) 565-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (602) 382-7550 Atlanta, GA (770) 449-8800 Tampa, FL (813) 281-1111
Hobbs, NM (575) 392-7550

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Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	432.704.5178	Email:	adrian.baker@xtoenergy.com

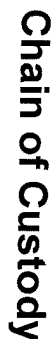
Work Order Comments	
Program: UST/RST ☐ PRP ☐ brownfields ☐ RC ☐ superfund ☐ State of Project:	
Reporting Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other:	

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		04/01/2019 12:17			04/01/19 11:25



Work Order No:

201053

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

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

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Page 2 of 2

Work Order Comments	
Program: UST/PST	☐ RRP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:	
Reporting Level II	☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD	☐ ADAPT ☐ Other:

[illegible][illegible][illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA	13PPM	Texas	11	Al	Sh	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U	Zn	Fe	Ag	Se	Mo	Cr	Co	Cu	Fe	Mn	Ni	Pb	Sn	Th	U	Y	Zr	Al	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Ec	Pb	Mn	M	M	Ni	V	C	A	Si	U
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Circle Method(s) and Metal(s) to be analyzed

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

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		04/01/2019 12:12			04/01/2019



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04/03/2019 11:25:00 AM

Work Order #: 619853

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 04/03/2019

Checklist reviewed by:

Kalei Stout

Date: 04/03/2019

Analytical Report 644983

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLUBS11 Federal Battery

012918036

09-DEC-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)



09-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **644983**

PLUBS11 Federal Battery

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) 644983. 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. 644983 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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**Sample Cross Reference 644983****LT Environmental, Inc., Arvada, CO**

PLUBS11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS09A	S	12-03-19 16:45	5 ft	644983-001
FS10A	S	12-03-19 16:23	5 ft	644983-002
SW08	S	12-03-19 14:37	0 - 5 ft	644983-003
SW09	S	12-03-19 16:58	0 - 5 ft	644983-004



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *PLUBS11 Federal Battery*

Project ID: 012918036

Work Order Number(s): 644983

Report Date: 09-DEC-19

Date Received: 12/04/2019

Sample receipt non conformances and comments:

CORRECTED SAMPLE NAMES PER CLIENT EMAIL, SEE BELOW. NEW VERSION
GENERATED. JK 12/09/19

FS09B --> FS09A

FS10B --> FS10A

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3109451 BTEX by EPA 8021B

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



Certificate of Analysis Summary 644983

LT Environmental, Inc., Arvada, CO

Project Name: PLUBS11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Dec-04-19 08:45 am

Report Date: 09-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	644983-001	644983-002	644983-003	644983-004		
	<i>Field Id:</i>	FS09A	FS10A	SW08	SW09		
	<i>Depth:</i>	5- ft	5- ft	0-5 ft	0-5 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Dec-03-19 16:45	Dec-03-19 16:23	Dec-03-19 14:37	Dec-03-19 16:58		
Chloride by EPA 300	<i>Extracted:</i>	Dec-04-19 13:00	Dec-04-19 13:00	Dec-04-19 13:00	Dec-04-19 13:00		
	<i>Analyzed:</i>	Dec-04-19 16:51	Dec-04-19 16:57	Dec-04-19 17:03	Dec-04-19 17:20		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		<9.98 9.98	<10.1 10.1	<10.1 10.1	<10.0 10.0		

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

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Version: 1.9%

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 644983

LT Environmental, Inc., Arvada, CO

Project Name: PLUBS11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Dec-04-19 08:45 am

Report Date: 09-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	644983-001	644983-002	644983-003	644983-004		
	<i>Field Id:</i>	FS09A	FS10A	SW08	SW09		
	<i>Depth:</i>	5- ft	5- ft	0-5 ft	0-5 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Dec-03-19 16:45	Dec-03-19 16:23	Dec-03-19 14:37	Dec-03-19 16:58		
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-04-19 10:00	Dec-04-19 10:00	Dec-04-19 10:00	Dec-04-19 10:00		
	<i>Analyzed:</i>	Dec-04-19 18:50	Dec-04-19 19:07	Dec-04-19 19:24	Dec-04-19 19:42		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
Toluene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
m,p-Xylenes		<0.00400 0.00400	<0.00403 0.00403	<0.00401 0.00401	<0.00397 0.00397		
o-Xylene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
Total BTEX		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198		
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-04-19 13:30	Dec-04-19 13:30	Dec-04-19 13:30	Dec-04-19 13:30		
	<i>Analyzed:</i>	Dec-04-19 15:57	Dec-04-19 16:16	Dec-04-19 16:36	Dec-04-19 16:36		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.3 50.3	<50.1 50.1	<50.3 50.3	<49.9 49.9		
Diesel Range Organics (DRO)		62.4 50.3	139 50.1	<50.3 50.3	180 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.1 50.1	<50.3 50.3	<49.9 49.9		
Total GRO-DRO		62.4 50.3	139 50.1	<50.3 50.3	180 49.9		
Total TPH		62.4 50.3	139 50.1	<50.3 50.3	180 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.

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Version: 1.0%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **FS09A**
Lab Sample Id: 644983-001

Matrix: Soil
Date Collected: 12.03.19 16.45

Date Received: 12.04.19 08.45
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109466

Date Prep: 12.04.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.04.19 16.51	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109453

Date Prep: 12.04.19 13.30

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	12.04.19 15.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	62.4	50.3	mg/kg	12.04.19 15.57		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.04.19 15.57	U	1
Total GRO-DRO	PHC628	62.4	50.3	mg/kg	12.04.19 15.57		1
Total TPH	PHC635	62.4	50.3	mg/kg	12.04.19 15.57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	132	%	70-135	12.04.19 15.57	
o-Terphenyl	84-15-1	134	%	70-135	12.04.19 15.57	



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **FS09A**
 Lab Sample Id: 644983-001

Matrix: Soil
 Date Collected: 12.03.19 16.45

Date Received: 12.04.19 08.45
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.04.19 10.00

Basis: Wet Weight

Seq Number: 3109451

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.04.19 18.50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.19 18.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	12.04.19 18.50		
1,4-Difluorobenzene	540-36-3	104	%	70-130	12.04.19 18.50		



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **FS10A**
 Lab Sample Id: 644983-002

Matrix: Soil
 Date Collected: 12.03.19 16.23

Date Received: 12.04.19 08.45
 Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109466

Date Prep: 12.04.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.04.19 16.57	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109453

Date Prep: 12.04.19 13.30

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	12.04.19 16.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	139	50.1	mg/kg	12.04.19 16.16		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.04.19 16.16	U	1
Total GRO-DRO	PHC628	139	50.1	mg/kg	12.04.19 16.16		1
Total TPH	PHC635	139	50.1	mg/kg	12.04.19 16.16		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	12.04.19 16.16	
o-Terphenyl	84-15-1	121	%	70-135	12.04.19 16.16	



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **FS10A**
 Lab Sample Id: 644983-002

Matrix: Soil
 Date Collected: 12.03.19 16.23

Date Received: 12.04.19 08.45
 Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.04.19 10.00

Basis: Wet Weight

Seq Number: 3109451

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.04.19 19.07	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.04.19 19.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	12.04.19 19.07		
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.04.19 19.07		



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **SW08**
Lab Sample Id: 644983-003

Matrix: Soil
Date Collected: 12.03.19 14.37

Date Received: 12.04.19 08.45
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109466

Date Prep: 12.04.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.04.19 17.03	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109453

Date Prep: 12.04.19 13.30

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	12.04.19 16.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	12.04.19 16.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.04.19 16.36	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	12.04.19 16.36	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	12.04.19 16.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	12.04.19 16.36	
o-Terphenyl	84-15-1	125	%	70-135	12.04.19 16.36	



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **SW08**
 Lab Sample Id: 644983-003

Matrix: Soil
 Date Collected: 12.03.19 14.37

Date Received: 12.04.19 08.45
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.04.19 10.00

Basis: Wet Weight

Seq Number: 3109451

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.04.19 19.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.19 19.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	12.04.19 19.24		
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.04.19 19.24		



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **SW09**
Lab Sample Id: 644983-004

Matrix: Soil
Date Collected: 12.03.19 16.58

Date Received: 12.04.19 08.45
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109466

Date Prep: 12.04.19 13.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.04.19 17.20	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109453

Date Prep: 12.04.19 13.30

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	12.04.19 16.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	180	49.9	mg/kg	12.04.19 16.36		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.04.19 16.36	U	1
Total GRO-DRO	PHC628	180	49.9	mg/kg	12.04.19 16.36		1
Total TPH	PHC635	180	49.9	mg/kg	12.04.19 16.36		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	12.04.19 16.36	
o-Terphenyl	84-15-1	121	%	70-135	12.04.19 16.36	



Certificate of Analytical Results 644983

LT Environmental, Inc., Arvada, CO

PLUBS11 Federal Battery

Sample Id: **SW09**
 Lab Sample Id: 644983-004

Matrix: Soil
 Date Collected: 12.03.19 16.58

Date Received: 12.04.19 08.45
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.04.19 10.00

Basis: Wet Weight

Seq Number: 3109451

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	12.04.19 19.42	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.04.19 19.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	12.04.19 19.42		
1,4-Difluorobenzene	540-36-3	99	%	70-130	12.04.19 19.42		



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.
PLUBS11 Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3109466

MB Sample Id: 7691688-1-BLK

Matrix: Solid

LCS Sample Id: 7691688-1-BKS

Prep Method: E300P

Date Prep: 12.04.19

LCSD Sample Id: 7691688-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	262	105	266	106	90-110	2	20	mg/kg	12.04.19 15:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3109466

Parent Sample Id: 644979-001

Matrix: Soil

MS Sample Id: 644979-001 S

Prep Method: E300P

Date Prep: 12.04.19

MSD Sample Id: 644979-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.5	202	219	103	217	103	90-110	1	20	mg/kg	12.04.19 16:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3109466

Parent Sample Id: 644985-005

Matrix: Soil

MS Sample Id: 644985-005 S

Prep Method: E300P

Date Prep: 12.04.19

MSD Sample Id: 644985-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	942	198	1140	100	1160	109	90-110	2	20	mg/kg	12.04.19 17:57	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109453

MB Sample Id: 7691711-1-BLK

Matrix: Solid

LCS Sample Id: 7691711-1-BKS

Prep Method: SW8015P

Date Prep: 12.04.19

LCSD Sample Id: 7691711-1-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	914	91	940	94	70-135	3	35	mg/kg	12.04.19 15:37	
Diesel Range Organics (DRO)	<50.0	1000	1040	104	1140	114	70-135	9	35	mg/kg	12.04.19 15:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		124		130		70-135	%	12.04.19 15:37
o-Terphenyl	108		123		128		70-135	%	12.04.19 15:37

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109453

Matrix: Solid

MB Sample Id: 7691711-1-BLK

Prep Method: SW8015P

Date Prep: 12.04.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.04.19 15:17	

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.

PLUBS11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109453

Parent Sample Id: 644983-001

Matrix: Soil

MS Sample Id: 644983-001 S

Prep Method: SW8015P

Date Prep: 12.04.19

MSD Sample Id: 644983-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.2	1000	902	90	916	91	70-135	2	35	mg/kg	12.04.19 15:57	
Diesel Range Organics (DRO)	62.4	1000	1090	103	1080	101	70-135	1	35	mg/kg	12.04.19 15:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		126		70-135	%	12.04.19 15:57
o-Terphenyl	132		126		70-135	%	12.04.19 15:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109451

MB Sample Id: 7691693-1-BLK

Matrix: Solid

LCS Sample Id: 7691693-1-BKS

Prep Method: SW5030B

Date Prep: 12.04.19

LCSD Sample Id: 7691693-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.106	106	0.0940	94	70-130	12	35	mg/kg	12.04.19 10:40	
Toluene	<0.00200	0.100	0.106	106	0.0922	92	70-130	14	35	mg/kg	12.04.19 10:40	
Ethylbenzene	<0.00200	0.100	0.104	104	0.0900	90	71-129	14	35	mg/kg	12.04.19 10:40	
m,p-Xylenes	<0.000754	0.200	0.216	108	0.185	93	70-135	15	35	mg/kg	12.04.19 10:40	
o-Xylene	<0.00200	0.100	0.104	104	0.0896	90	71-133	15	35	mg/kg	12.04.19 10:40	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		101		99		70-130	%	12.04.19 10:40
4-Bromofluorobenzene	95		97		97		70-130	%	12.04.19 10:40

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109451

Parent Sample Id: 644967-001

Matrix: Soil

MS Sample Id: 644967-001 S

Prep Method: SW5030B

Date Prep: 12.04.19

MSD Sample Id: 644967-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.0911	92	0.0851	86	70-130	7	35	mg/kg	12.04.19 11:14	
Toluene	<0.00198	0.0992	0.0876	88	0.0825	83	70-130	6	35	mg/kg	12.04.19 11:14	
Ethylbenzene	0.000640	0.0992	0.0827	83	0.0782	78	71-129	6	35	mg/kg	12.04.19 11:14	
m,p-Xylenes	<0.000748	0.198	0.170	86	0.161	81	70-135	5	35	mg/kg	12.04.19 11:14	
o-Xylene	0.000950	0.0992	0.0825	82	0.0783	78	71-133	5	35	mg/kg	12.04.19 11:14	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		100		70-130	%	12.04.19 11:14
4-Bromofluorobenzene	100		96		70-130	%	12.04.19 11:14

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

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

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

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



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 505-3334
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)

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Page 01

Chain of Custody

Work Order No: 644983

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E. Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	ideval@ltenv.com

Work Order Comments									
Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐									
State of Project:									
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RP ☐ Level IV ☐									
Deliverables: EDD ☐ ADAPT ☐ Other: _____									

[illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xencio, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xencio 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 Xencio, A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xencio, but not analyzed. These terms will be enforced unless previously negotiated.

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>W. M. M. M.</i>	<i>W. M. M. M.</i>	12-4-2014	2 <i>W. M. M. M.</i>	<i>W. M. M. M.</i>	12/4/19 08:40
3			4		
5			6		

Revised 05/4/18 Rev. 2018 1



Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 12/04/2019 08:45:00 AM

Work Order #: 644983

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : tnm 007

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	Yes
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Martha Castro

Date: 12/04/2019

Checklist reviewed by:

Jessica Kramer

Date: 12/05/2019

Analytical Report 645171

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS 11 Federal Battery

012918035

06-DEC-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)



06-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **645171**

PLU BS 11 Federal Battery

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) 645171. 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. 645171 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

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

**Sample Cross Reference 645171****LT Environmental, Inc., Arvada, CO**

PLU BS 11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS14	S	12-04-19 16:10	5 ft	645171-001
FS15	S	12-04-19 16:40	5 ft	645171-002
FS16	S	12-04-19 16:50	5 ft	645171-003
SW10	S	12-04-19 15:46	0 - 5 ft	645171-004
SW11	S	12-04-19 17:10	0 - 5 ft	645171-005



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS 11 Federal Battery

Project ID: 012918035
Work Order Number(s): 645171

Report Date: 06-DEC-19
Date Received: 12/05/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3109607 BTEX by EPA 8021B

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

Batch: LBA-3109615 TPH by SW8015 Mod

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

Samples affected are: 645167-003 SD.



Certificate of Analysis Summary 645171

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS 11 Federal Battery

Project Id: 012918035

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu Dec-05-19 08:20 am

Report Date: 06-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	645171-001	645171-002	645171-003	645171-004	645171-005	
	<i>Field Id:</i>	FS14	FS15	FS16	SW10	SW11	
	<i>Depth:</i>	5- ft	5- ft	5- ft	0-5 ft	0-5 ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	Dec-04-19 16:10	Dec-04-19 16:40	Dec-04-19 16:50	Dec-04-19 15:46	Dec-04-19 17:10	
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-05-19 11:18	Dec-05-19 11:18	Dec-05-19 11:18	Dec-05-19 11:18	Dec-05-19 11:18	
	<i>Analyzed:</i>	Dec-05-19 15:56	Dec-05-19 16:14	Dec-05-19 17:23	Dec-05-19 17:41	Dec-05-19 15:39	
	<i>Units/RL:</i>	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	<0.00199 0.00199	<0.00198 0.00198	
Toluene		<0.00202 0.00202	<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	<0.00199 0.00199	<0.00198 0.00198	
m,p-Xylenes		<0.00403 0.00403	<0.00401 0.00401	<0.00399 0.00399	<0.00398 0.00398	<0.00397 0.00397	
o-Xylene		<0.00202 0.00202	<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	<0.00199 0.00199	<0.00198 0.00198	
Total BTEX		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	
Chloride by EPA 300	<i>Extracted:</i>	Dec-05-19 10:32	Dec-05-19 10:32	Dec-05-19 10:32	Dec-05-19 10:32	Dec-05-19 10:32	
	<i>Analyzed:</i>	Dec-05-19 17:18	Dec-05-19 17:25	Dec-05-19 17:44	Dec-05-19 17:50	Dec-05-19 17:56	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		<10.0 10.0	<10.0 10.0	<10.0 10.0	<9.98 9.98	<10.0 10.0	
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-05-19 15:00	Dec-05-19 15:00	Dec-05-19 15:00	Dec-05-19 15:00	Dec-05-19 15:00	
	<i>Analyzed:</i>	Dec-05-19 18:09	Dec-05-19 18:09	Dec-05-19 18:29	Dec-05-19 18:29	Dec-05-19 18:48	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.1 50.1	
Diesel Range Organics (DRO)		99.4 50.0	169 50.2	320 50.1	<50.0 50.0	58.9 50.1	
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.1 50.1	
Total GRO-DRO		99.4 50.0	169 50.2	320 50.1	<50.0 50.0	58.9 50.1	
Total TPH		99.4 50.0	169 50.2	320 50.1	<50.0 50.0	58.9 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 Assistant



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS14**
Lab Sample Id: 645171-001

Matrix: Soil
Date Collected: 12.04.19 16.10

Date Received: 12.05.19 08.20
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109602

Date Prep: 12.05.19 10.32

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.05.19 17.18	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109615

Date Prep: 12.05.19 15.00

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	12.05.19 18.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	99.4	50.0	mg/kg	12.05.19 18.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.05.19 18.09	U	1
Total GRO-DRO	PHC628	99.4	50.0	mg/kg	12.05.19 18.09		1
Total TPH	PHC635	99.4	50.0	mg/kg	12.05.19 18.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	131	%	70-135	12.05.19 18.09	
o-Terphenyl	84-15-1	133	%	70-135	12.05.19 18.09	



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS14**
Lab Sample Id: 645171-001

Matrix: Soil
Date Collected: 12.04.19 16.10

Date Received: 12.05.19 08.20
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.05.19 11.18

Basis: Wet Weight

Seq Number: 3109607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.05.19 15.56	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.05.19 15.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	12.05.19 15.56		
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.05.19 15.56		



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS15** Matrix: Soil Date Received: 12.05.19 08.20
 Lab Sample Id: 645171-002 Date Collected: 12.04.19 16.40 Sample Depth: 5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 12.05.19 10.32 Basis: Wet Weight
 Seq Number: 3109602

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.05.19 17.25	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 12.05.19 15.00 Basis: Wet Weight
 Seq Number: 3109615

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	12.05.19 18.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	169	50.2	mg/kg	12.05.19 18.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.05.19 18.09	U	1
Total GRO-DRO	PHC628	169	50.2	mg/kg	12.05.19 18.09		1
Total TPH	PHC635	169	50.2	mg/kg	12.05.19 18.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	12.05.19 18.09	
o-Terphenyl	84-15-1	133	%	70-135	12.05.19 18.09	



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS15**
Lab Sample Id: 645171-002

Matrix: Soil
Date Collected: 12.04.19 16.40

Date Received: 12.05.19 08.20
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.05.19 11.18

Basis: Wet Weight

Seq Number: 3109607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.05.19 16.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.05.19 16.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.05.19 16.14		
4-Bromofluorobenzene	460-00-4	102	%	70-130	12.05.19 16.14		



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS16**
Lab Sample Id: 645171-003

Matrix: Soil
Date Collected: 12.04.19 16.50

Date Received: 12.05.19 08.20
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109602

Date Prep: 12.05.19 10.32

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.05.19 17.44	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109615

Date Prep: 12.05.19 15.00

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	12.05.19 18.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	320	50.1	mg/kg	12.05.19 18.29		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.05.19 18.29	U	1
Total GRO-DRO	PHC628	320	50.1	mg/kg	12.05.19 18.29		1
Total TPH	PHC635	320	50.1	mg/kg	12.05.19 18.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	12.05.19 18.29	
o-Terphenyl	84-15-1	128	%	70-135	12.05.19 18.29	



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS16**
Lab Sample Id: 645171-003

Matrix: Soil
Date Collected: 12.04.19 16.50

Date Received: 12.05.19 08.20
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.05.19 11.18

Basis: Wet Weight

Seq Number: 3109607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.05.19 17.23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.05.19 17.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	12.05.19 17.23		
1,4-Difluorobenzene	540-36-3	100	%	70-130	12.05.19 17.23		



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW10**
Lab Sample Id: 645171-004

Matrix: Soil
Date Collected: 12.04.19 15.46

Date Received: 12.05.19 08.20
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109602

Date Prep: 12.05.19 10.32

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.05.19 17.50	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109615

Date Prep: 12.05.19 15.00

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	12.05.19 18.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.05.19 18.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.05.19 18.29	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.05.19 18.29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.05.19 18.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	12.05.19 18.29	
o-Terphenyl	84-15-1	129	%	70-135	12.05.19 18.29	



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW10**
 Lab Sample Id: 645171-004

Matrix: Soil
 Date Collected: 12.04.19 15.46

Date Received: 12.05.19 08.20
 Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.05.19 11.18

Basis: Wet Weight

Seq Number: 3109607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.05.19 17.41	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.05.19 17.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	12.05.19 17.41		
4-Bromofluorobenzene	460-00-4	101	%	70-130	12.05.19 17.41		



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW11**
Lab Sample Id: 645171-005

Matrix: Soil
Date Collected: 12.04.19 17.10

Date Received: 12.05.19 08.20
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109602

Date Prep: 12.05.19 10.32

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.05.19 17.56	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109615

Date Prep: 12.05.19 15.00

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	12.05.19 18.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	58.9	50.1	mg/kg	12.05.19 18.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.05.19 18.48	U	1
Total GRO-DRO	PHC628	58.9	50.1	mg/kg	12.05.19 18.48		1
Total TPH	PHC635	58.9	50.1	mg/kg	12.05.19 18.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-135	12.05.19 18.48	
o-Terphenyl	84-15-1	127	%	70-135	12.05.19 18.48	



Certificate of Analytical Results 645171

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW11**
Lab Sample Id: 645171-005

Matrix: Soil
Date Collected: 12.04.19 17.10

Date Received: 12.05.19 08.20
Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.05.19 11.18

Basis: Wet Weight

Seq Number: 3109607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	12.05.19 15.39	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.05.19 15.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	12.05.19 15.39		
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.05.19 15.39		



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.

PLU BS 11 Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3109602

MB Sample Id: 7691787-1-BLK

Matrix: Solid

LCS Sample Id: 7691787-1-BKS

Prep Method: E300P

Date Prep: 12.05.19

LCSD Sample Id: 7691787-1-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	264	106	264	106	90-110	0	20	mg/kg	12.05.19 16:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3109602

Parent Sample Id: 645164-001

Matrix: Soil

MS Sample Id: 645164-001 S

Prep Method: E300P

Date Prep: 12.05.19

MSD Sample Id: 645164-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	175	200	391	108	393	109	90-110	1	20	mg/kg	12.05.19 16:53	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109615

MB Sample Id: 7691802-1-BLK

Matrix: Solid

LCS Sample Id: 7691802-1-BKS

Prep Method: SW8015P

Date Prep: 12.05.19

LCSD Sample Id: 7691802-1-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	873	87	945	95	70-135	8	35	mg/kg	12.05.19 17:06	
Diesel Range Organics (DRO)	<50.0	1000	1070	107	1100	110	70-135	3	35	mg/kg	12.05.19 17:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		124		126		70-135	%	12.05.19 17:06
o-Terphenyl	108		129		130		70-135	%	12.05.19 17:06

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109615

Matrix: Solid

MB Sample Id: 7691802-1-BLK

Prep Method: SW8015P

Date Prep: 12.05.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.05.19 17:06	

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

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

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

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



LT Environmental, Inc.
PLU BS 11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109615

Parent Sample Id: 645167-003

Matrix: Soil

MS Sample Id: 645167-003 S

Prep Method: SW8015P

Date Prep: 12.05.19

MSD Sample Id: 645167-003 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)	<50.1	1000	927	93	852	85	70-135	8	35	mg/kg	12.05.19 17:49	
Diesel Range Organics (DRO)	<50.1	1000	1070	107	1100	110	70-135	3	35	mg/kg	12.05.19 17:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	133		135		70-135	%	12.05.19 17:49
o-Terphenyl	133		139	**	70-135	%	12.05.19 17:49

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109607

MB Sample Id: 7691785-1-BLK

Matrix: Solid

LCS Sample Id: 7691785-1-BKS

Prep Method: SW5030B

Date Prep: 12.05.19

LCSD Sample Id: 7691785-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0971	97	0.0896	90	70-130	8	35	mg/kg	12.05.19 12:28	
Toluene	<0.00200	0.100	0.0972	97	0.0895	90	70-130	8	35	mg/kg	12.05.19 12:28	
Ethylbenzene	<0.00200	0.100	0.0962	96	0.0883	88	71-129	9	35	mg/kg	12.05.19 12:28	
m,p-Xylenes	<0.00400	0.200	0.200	100	0.183	92	70-135	9	35	mg/kg	12.05.19 12:28	
o-Xylene	<0.00200	0.100	0.0970	97	0.0900	90	71-133	7	35	mg/kg	12.05.19 12:28	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		99		98		70-130	%	12.05.19 12:28
4-Bromofluorobenzene	98		97		97		70-130	%	12.05.19 12:28

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109607

Parent Sample Id: 645171-003

Matrix: Soil

MS Sample Id: 645171-003 S

Prep Method: SW5030B

Date Prep: 12.05.19

MSD Sample Id: 645171-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0900	90	0.0834	84	70-130	8	35	mg/kg	12.05.19 21:09	
Toluene	<0.00200	0.0998	0.0850	85	0.0789	80	70-130	7	35	mg/kg	12.05.19 21:09	
Ethylbenzene	<0.00200	0.0998	0.0767	77	0.0726	73	71-129	5	35	mg/kg	12.05.19 21:09	
m,p-Xylenes	<0.00399	0.200	0.157	79	0.148	75	70-135	6	35	mg/kg	12.05.19 21:09	
o-Xylene	<0.00200	0.0998	0.0772	77	0.0728	74	71-133	6	35	mg/kg	12.05.19 21:09	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		70-130	%	12.05.19 21:09
4-Bromofluorobenzene	99		100		70-130	%	12.05.19 21:09

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

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

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

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



Chain of Custody

Work Order No:

445171

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

www.xenco.com

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	idelval@xenv.com

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

Project Name:	PLU BS 11 Federal Battery	Turn Around	☐ Routine ☐
Project Number:	012919036	Rush:	24 hr
P.O. Number:		Due Date:	
Sampler's Name:	Benjamin Bettler Luis Del Val		

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	1.2	Thermometer ID	T-PM-002				
Received Intact:	Yes	Correction Factor:	-0.2				
Cooler Custody Seals:	Yes	Total Containers:	15				
Sample Custody Seals:	Yes						

Sample Identification					Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA)	BTEX (EPA)	Chloride	Sample Comments															
FS14					S	12/14/2019	1610	5'	1	X	X	X																
FS15								5'																				
8FS16								5'																				
SW1210								0-5'																				
SW1311								0-5'																				
										</																		

Total 200.7 / 6010 200.8 / 6020:
 Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Benjamin Bettler</i>	<i>Luis Del Val</i>	12/15/19 08:24			

Analytical Report 645361

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS 11 Federal Battery

012918036

09-DEC-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)



09-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **645361**

PLU BS 11 Federal Battery

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) 645361. 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. 645361 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 645361****LT Environmental, Inc., Arvada, CO**

PLU BS 11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS17	S	12-05-19 11:25	5 ft	645361-001
FS18	S	12-05-19 11:56	5 ft	645361-002
FS19	S	12-05-19 12:10	5 ft	645361-003
FS20	S	12-05-19 16:50	5 ft	645361-004
SW12	S	12-05-19 15:50	0 - 5 ft	645361-005
SW13	S	12-05-19 16:17	0 - 5 ft	645361-006



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS 11 Federal Battery

Project ID: 012918036
Work Order Number(s): 645361

Report Date: 09-DEC-19
Date Received: 12/06/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3109696 BTEX by EPA 8021B

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

Batch: LBA-3109699 Chloride by EPA 300

Lab Sample ID 645363-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 645361-001, -002, -003, -004, -005, -006.

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



Certificate of Analysis Summary 645361

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS 11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Dec-06-19 08:30 am

Report Date: 09-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	645361-001	645361-002	645361-003	645361-004	645361-005	645361-006
	<i>Field Id:</i>	FS17	FS18	FS19	FS20	SW12	SW13
	<i>Depth:</i>	5- ft	5- ft	5- ft	5- ft	0-5 ft	0-5 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-05-19 11:25	Dec-05-19 11:56	Dec-05-19 12:10	Dec-05-19 16:50	Dec-05-19 15:50	Dec-05-19 16:17
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00
	<i>Analyzed:</i>	Dec-06-19 15:05	Dec-06-19 15:24	Dec-06-19 15:43	Dec-06-19 16:02	Dec-06-19 17:06	Dec-06-19 17:25
	<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	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
m,p-Xylenes		<0.00399 0.00399	<0.00398 0.00398	<0.00403 0.00403	<0.00399 0.00399	<0.00402 0.00402	<0.00404 0.00404
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00	Dec-06-19 11:00
	<i>Analyzed:</i>	Dec-06-19 12:42	Dec-06-19 12:59	Dec-06-19 13:05	Dec-06-19 13:11	Dec-06-19 13:17	Dec-06-19 13:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		11.6 10.0	<9.98 9.98	<9.92 9.92	<10.1 10.1	42.4 10.1	82.4 9.88
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-06-19 13:00	Dec-06-19 13:00	Dec-06-19 13:00	Dec-06-19 15:50	Dec-06-19 15:50	Dec-06-19 15:50
	<i>Analyzed:</i>	Dec-06-19 17:46	Dec-06-19 17:46	Dec-06-19 18:05	Dec-07-19 01:27	Dec-07-19 01:47	Dec-07-19 02:07
	<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	<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.0 50.0
Diesel Range Organics (DRO)		100 50.2	184 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.0 50.0
Total GRO-DRO		100 50.2	184 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<50.0 50.0
Total TPH		100 50.2	184 50.2	<50.2 50.2	<50.2 50.2	<50.3 50.3	<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 Assistant



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS17**
Lab Sample Id: 645361-001

Matrix: Soil
Date Collected: 12.05.19 11.25

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.6	10.0	mg/kg	12.07.19 13.11		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109762

Date Prep: 12.06.19 13.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	12.06.19 17.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	100	50.2	mg/kg	12.06.19 17.46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.06.19 17.46	U	1
Total GRO-DRO	PHC628	100	50.2	mg/kg	12.06.19 17.46		1
Total TPH	PHC635	100	50.2	mg/kg	12.06.19 17.46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	12.06.19 17.46	
o-Terphenyl	84-15-1	92	%	70-135	12.06.19 17.46	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS17**
Lab Sample Id: 645361-001

Matrix: Soil
Date Collected: 12.05.19 11.25

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Seq Number: 3109696

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.06.19 15.05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.06.19 15.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	70-130	12.06.19 15.05		
4-Bromofluorobenzene	460-00-4	100	%	70-130	12.06.19 15.05		



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS18**
Lab Sample Id: 645361-002

Matrix: Soil
Date Collected: 12.05.19 11.56

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.06.19 12.59	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109762

Date Prep: 12.06.19 13.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	12.06.19 17.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	184	50.2	mg/kg	12.06.19 17.46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.06.19 17.46	U	1
Total GRO-DRO	PHC628	184	50.2	mg/kg	12.06.19 17.46		1
Total TPH	PHC635	184	50.2	mg/kg	12.06.19 17.46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	12.06.19 17.46	
o-Terphenyl	84-15-1	102	%	70-135	12.06.19 17.46	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS18**
Lab Sample Id: 645361-002

Matrix: Soil
Date Collected: 12.05.19 11.56

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Seq Number: 3109696

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.06.19 15.24	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.06.19 15.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	12.06.19 15.24		
1,4-Difluorobenzene	540-36-3	107	%	70-130	12.06.19 15.24		



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS19**
Lab Sample Id: 645361-003

Matrix: Soil
Date Collected: 12.05.19 12.10

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	12.06.19 13.05	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109762

Date Prep: 12.06.19 13.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	12.06.19 18.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.06.19 18.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.06.19 18.05	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	12.06.19 18.05	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	12.06.19 18.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	12.06.19 18.05	
o-Terphenyl	84-15-1	93	%	70-135	12.06.19 18.05	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS19**
Lab Sample Id: 645361-003

Matrix: Soil
Date Collected: 12.05.19 12.10

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Seq Number: 3109696

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.06.19 15.43	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.06.19 15.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	95	%	70-130	12.06.19 15.43		
4-Bromofluorobenzene	460-00-4	111	%	70-130	12.06.19 15.43		



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS20**
Lab Sample Id: 645361-004

Matrix: Soil
Date Collected: 12.05.19 16.50

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.06.19 13.11	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109776

Date Prep: 12.06.19 15.50

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	12.07.19 01.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.07.19 01.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.07.19 01.27	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	12.07.19 01.27	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	12.07.19 01.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.07.19 01.27	
o-Terphenyl	84-15-1	89	%	70-135	12.07.19 01.27	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS20**
Lab Sample Id: 645361-004

Matrix: Soil
Date Collected: 12.05.19 16.50

Date Received: 12.06.19 08.30
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Seq Number: 3109696

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.06.19 16.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.06.19 16.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	70-130	12.06.19 16.02		
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.06.19 16.02		



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW12**
Lab Sample Id: 645361-005

Matrix: Soil
Date Collected: 12.05.19 15.50

Date Received: 12.06.19 08.30
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	42.4	10.1	mg/kg	12.06.19 13.17		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109776

Date Prep: 12.06.19 15.50

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	12.07.19 01.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	12.07.19 01.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.07.19 01.47	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	12.07.19 01.47	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	12.07.19 01.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	12.07.19 01.47	
o-Terphenyl	84-15-1	92	%	70-135	12.07.19 01.47	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW12**
Lab Sample Id: 645361-005

Matrix: Soil
Date Collected: 12.05.19 15.50

Date Received: 12.06.19 08.30
Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Seq Number: 3109696

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.06.19 17.06	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.06.19 17.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	12.06.19 17.06		
1,4-Difluorobenzene	540-36-3	85	%	70-130	12.06.19 17.06		



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW13**
Lab Sample Id: 645361-006

Matrix: Soil
Date Collected: 12.05.19 16.17

Date Received: 12.06.19 08.30
Sample Depth: 0 - 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109699

Date Prep: 12.06.19 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	82.4	9.88	mg/kg	12.06.19 13.34		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109776

Date Prep: 12.06.19 15.50

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	12.07.19 02.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.07.19 02.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.07.19 02.07	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.07.19 02.07	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.07.19 02.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	12.07.19 02.07	
o-Terphenyl	84-15-1	85	%	70-135	12.07.19 02.07	



Certificate of Analytical Results 645361

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW13**
Lab Sample Id: 645361-006

Matrix: Soil
Date Collected: 12.05.19 16.17

Date Received: 12.06.19 08.30
Sample Depth: 0 - 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3109696

Prep Method: SW5030B

% Moisture:

Date Prep: 12.06.19 11.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	12.06.19 17.25	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.06.19 17.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	12.06.19 17.25		
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.06.19 17.25		



Flagging Criteria

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

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

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



LT Environmental, Inc.
PLU BS 11 Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3109699

MB Sample Id: 7691886-1-BLK

Matrix: Solid

LCS Sample Id: 7691886-1-BKS

Prep Method: E300P

Date Prep: 12.06.19

LCSD Sample Id: 7691886-1-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	12.06.19 12:36	

Analytical Method: Chloride by EPA 300

Seq Number: 3109699

Parent Sample Id: 645361-001

Matrix: Soil

MS Sample Id: 645361-001 S

Prep Method: E300P

Date Prep: 12.06.19

MSD Sample Id: 645361-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.6	201	185	86	184	86	90-110	1	20	mg/kg	12.06.19 12:48	X

Analytical Method: Chloride by EPA 300

Seq Number: 3109699

Parent Sample Id: 645363-011

Matrix: Soil

MS Sample Id: 645363-011 S

Prep Method: E300P

Date Prep: 12.06.19

MSD Sample Id: 645363-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	250	291	116	293	118	90-110	1	20	mg/kg	12.06.19 14:09	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109762

MB Sample Id: 7691873-1-BLK

Matrix: Solid

LCS Sample Id: 7691873-1-BKS

Prep Method: SW8015P

Date Prep: 12.06.19

LCSD Sample Id: 7691873-1-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	882	88	835	84	70-135	5	35	mg/kg	12.06.19 16:06	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1030	103	70-135	3	35	mg/kg	12.06.19 16:06	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		134		132		70-135	%	12.06.19 16:06
o-Terphenyl	134		124		128		70-135	%	12.06.19 16:06

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

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

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



LT Environmental, Inc.
PLU BS 11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109776

MB Sample Id: 7691883-1-BLK

Matrix: Solid

LCS Sample Id: 7691883-1-BKS

Prep Method: SW8015P

Date Prep: 12.06.19

LCSD Sample Id: 7691883-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	913	91	879	88	70-135	4	35	mg/kg	12.07.19 01:07	
Diesel Range Organics (DRO)	<50.0	1000	1110	111	1120	112	70-135	1	35	mg/kg	12.07.19 01:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		123		108		70-135	%	12.07.19 01:07
o-Terphenyl	135		123		135		70-135	%	12.07.19 01:07

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109762

Matrix: Solid

Prep Method: SW8015P

Date Prep: 12.06.19

MB Sample Id: 7691873-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.06.19 15:46	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109776

Matrix: Solid

Prep Method: SW8015P

Date Prep: 12.06.19

MB Sample Id: 7691883-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.07.19 00:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109762

Matrix: Soil

Prep Method: SW8015P

Date Prep: 12.06.19

Parent Sample Id: 645345-001

MS Sample Id: 645345-001 S

MSD Sample Id: 645345-001 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	834	84	1040	104	70-135	22	35	mg/kg	12.06.19 16:26	
Diesel Range Organics (DRO)	<49.9	998	1020	102	1240	124	70-135	19	35	mg/kg	12.06.19 16:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		130		70-135	%	12.06.19 16:26
o-Terphenyl	107		122		70-135	%	12.06.19 16:26

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

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

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

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



LT Environmental, Inc.

PLU BS 11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109776

Parent Sample Id: 645361-004

Matrix: Soil

MS Sample Id: 645361-004 S

Prep Method: SW8015P

Date Prep: 12.06.19

MSD Sample Id: 645361-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.3	1010	961	95	1000	101	70-135	4	35	mg/kg	12.07.19 01:27	
Diesel Range Organics (DRO)	<50.3	1010	1180	117	1170	118	70-135	1	35	mg/kg	12.07.19 01:27	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		131		70-135	%	12.07.19 01:27
o-Terphenyl	123		120		70-135	%	12.07.19 01:27

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109696

MB Sample Id: 7691892-1-BLK

Matrix: Solid

LCS Sample Id: 7691892-1-BKS

Prep Method: SW5030B

Date Prep: 12.06.19

LCSD Sample Id: 7691892-1-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	0.0980	98	0.0912	91	70-130	7	35	mg/kg	12.06.19 11:29	
Toluene	<0.00200	0.100	0.0989	99	0.0940	94	70-130	5	35	mg/kg	12.06.19 11:29	
Ethylbenzene	<0.00200	0.100	0.0984	98	0.0939	94	71-129	5	35	mg/kg	12.06.19 11:29	
m,p-Xylenes	<0.00400	0.200	0.207	104	0.199	100	70-135	4	35	mg/kg	12.06.19 11:29	
o-Xylene	<0.00200	0.100	0.104	104	0.0997	100	71-133	4	35	mg/kg	12.06.19 11:29	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		103		101		70-130	%	12.06.19 11:29
4-Bromofluorobenzene	105		114		117		70-130	%	12.06.19 11:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109696

Parent Sample Id: 645345-001

Matrix: Soil

MS Sample Id: 645345-001 S

Prep Method: SW5030B

Date Prep: 12.06.19

MSD Sample Id: 645345-001 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	0.100	0.104	104	0.0986	99	70-130	5	35	mg/kg	12.06.19 12:07	
Toluene	<0.00201	0.100	0.106	106	0.0994	100	70-130	6	35	mg/kg	12.06.19 12:07	
Ethylbenzene	<0.00201	0.100	0.104	104	0.0978	98	71-129	6	35	mg/kg	12.06.19 12:07	
m,p-Xylenes	<0.00402	0.201	0.221	110	0.206	104	70-135	7	35	mg/kg	12.06.19 12:07	
o-Xylene	<0.00201	0.100	0.112	112	0.104	104	71-133	7	35	mg/kg	12.06.19 12:07	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		103		70-130	%	12.06.19 12:07
4-Bromofluorobenzene	120		117		70-130	%	12.06.19 12:07

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

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

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

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



Chain of Custody

Work Order No:

645361

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

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

www.xenco.com

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	lidelval@ltenv.com

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

Project Name:	PLY BS 11 Federal Bakery	Turn Around	☐ Routine ☐ Rush: 24 hr
Project Number:	012919036	Rush:	24 hr
P.O. Number:		Due Date:	
Sampler's Name:	Benjamin Beilitt Luis Del Val	Due Date:	

SAMPLE RECEIPT		Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	2.5	Thermometer ID			
Received In tact:	☒ Yes ☐ No	Correction Factor:	-0.2		
Cooler Custody Seals:	☒ Yes ☐ No	Total Containers:	6		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
FS17	S	12/5/2009	11:25	5'	1	X	X	X		
FS18			11:56	5'						
FS19			12:10	5'						
FS20			1:50	5'						
SW12			1:50	0-5'						
SW13			1:17	0-5'						

Total 200.7 / 6010 200.8 / 6020:

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

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SIO2 Na Sr Ti Sn U V Zn
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
As Paul	As Paul	12/6/19 08:20	As Paul	As Paul	12/6/19 08:30

Analytical Report 645537

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS 11 Federal Battery

012918036

10-DEC-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)



10-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **645537**

PLU BS 11 Federal Battery

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) 645537. 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. 645537 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 645537****LT Environmental, Inc., Arvada, CO**

PLU BS 11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	12-06-19 12:45	6 ft	645537-001
PH01A	S	12-06-19 13:25	8 ft	645537-002
PH01B	S	12-06-19 15:27	3 ft	645537-003
PH02	S	12-06-19 14:48	2 ft	645537-004
PH02A	S	12-06-19 14:50	4 ft	645537-005
PH02B	S	12-06-19 15:05	8 ft	645537-006



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS 11 Federal Battery

Project ID: 012918036

Work Order Number(s): 645537

Report Date: 10-DEC-19

Date Received: 12/09/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3109891 BTEX by EPA 8021B

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



Certificate of Analysis Summary 645537

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS 11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Mon Dec-09-19 10:15 am

Report Date: 10-DEC-19

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	645537-001	645537-002	645537-003	645537-004	645537-005	645537-006
	Field Id:	PH01	PH01A	PH01B	PH02	PH02A	PH02B
	Depth:	6- ft	8- ft	3- ft	2- ft	4- ft	8- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-06-19 12:45	Dec-06-19 13:25	Dec-06-19 15:27	Dec-06-19 14:48	Dec-06-19 14:50	Dec-06-19 15:05
BTEX by EPA 8021B	Extracted:	*** ** *	*** ** *	*** ** *	*** ** *	*** ** *	*** ** *
	Analyzed:	Dec-09-19 17:42	Dec-09-19 18:01	Dec-09-19 18:20	Dec-09-19 18:39	Dec-09-19 18:58	Dec-09-19 19:18
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
m,p-Xylenes		<0.00398 0.00398	<0.00397 0.00397	<0.00397 0.00397	<0.00396 0.00396	<0.00400 0.00400	<0.00396 0.00396
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198
Chloride by EPA 300	Extracted:	Dec-09-19 16:10	Dec-09-19 16:10	Dec-09-19 16:10	Dec-09-19 16:10	Dec-09-19 16:10	Dec-09-19 16:10
	Analyzed:	Dec-09-19 19:20	Dec-09-19 19:26	Dec-09-19 19:32	Dec-09-19 19:49	Dec-09-19 19:55	Dec-09-19 20:01
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		71.3 9.88	304 10.0	110 9.98	157 9.96	303 9.98	397 9.88
TPH by SW8015 Mod	Extracted:	Dec-09-19 15:30	Dec-09-19 15:30	Dec-09-19 15:30	Dec-09-19 15:30	Dec-09-19 15:30	Dec-09-19 15:30
	Analyzed:	Dec-09-19 21:30	Dec-09-19 21:50	Dec-09-19 21:50	Dec-09-19 22:11	Dec-09-19 22:31	Dec-09-19 22:31
	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	<49.9 49.9	<50.0 50.0	<50.1 50.1	<50.3 50.3
Diesel Range Organics (DRO)		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<50.3 50.3
Total GRO-DRO		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<50.3 50.3
Total TPH		<50.2 50.2	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<50.3 50.3

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

Jessica Kramer
Project Assistant



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01**
Lab Sample Id: 645537-001

Matrix: Soil
Date Collected: 12.06.19 12.45

Date Received: 12.09.19 10.15
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	71.3	9.88	mg/kg	12.09.19 19.20		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 21.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.09.19 21.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.09.19 21.30	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	12.09.19 21.30	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	12.09.19 21.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	12.09.19 21.30	
o-Terphenyl	84-15-1	110	%	70-135	12.09.19 21.30	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01**
 Lab Sample Id: 645537-001

Matrix: Soil
 Date Collected: 12.06.19 12.45

Date Received: 12.09.19 10.15
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.09.19 17.42	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.09.19 17.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	12.09.19 17.42		
1,4-Difluorobenzene	540-36-3	97	%	70-130	12.09.19 17.42		



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01A**
Lab Sample Id: 645537-002

Matrix: Soil
Date Collected: 12.06.19 13.25

Date Received: 12.09.19 10.15
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	304	10.0	mg/kg	12.09.19 19.26		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 21.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.09.19 21.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.09.19 21.50	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.09.19 21.50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.09.19 21.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	12.09.19 21.50	
o-Terphenyl	84-15-1	104	%	70-135	12.09.19 21.50	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01A**
Lab Sample Id: 645537-002

Matrix: Soil
Date Collected: 12.06.19 13.25

Date Received: 12.09.19 10.15
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	12.09.19 18.01	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.09.19 18.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	12.09.19 18.01		
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.09.19 18.01		



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01B**
Lab Sample Id: 645537-003

Matrix: Soil
Date Collected: 12.06.19 15.27

Date Received: 12.09.19 10.15
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	110	9.98	mg/kg	12.09.19 19.32		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 21.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.09.19 21.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.09.19 21.50	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	12.09.19 21.50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.09.19 21.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	12.09.19 21.50	
o-Terphenyl	84-15-1	107	%	70-135	12.09.19 21.50	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH01B**
Lab Sample Id: 645537-003

Matrix: Soil
Date Collected: 12.06.19 15.27

Date Received: 12.09.19 10.15
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	12.09.19 18.20	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.09.19 18.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.09.19 18.20		
4-Bromofluorobenzene	460-00-4	119	%	70-130	12.09.19 18.20		



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02**
Lab Sample Id: 645537-004

Matrix: Soil
Date Collected: 12.06.19 14.48

Date Received: 12.09.19 10.15
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	157	9.96	mg/kg	12.09.19 19.49		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 22.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.09.19 22.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.09.19 22.11	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.09.19 22.11	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.09.19 22.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	12.09.19 22.11	
o-Terphenyl	84-15-1	101	%	70-135	12.09.19 22.11	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02**
Lab Sample Id: 645537-004

Matrix: Soil
Date Collected: 12.06.19 14.48

Date Received: 12.09.19 10.15
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	12.09.19 18.39	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.09.19 18.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	12.09.19 18.39		
4-Bromofluorobenzene	460-00-4	122	%	70-130	12.09.19 18.39		



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02A**
Lab Sample Id: 645537-005

Matrix: Soil
Date Collected: 12.06.19 14.50

Date Received: 12.09.19 10.15
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	303	9.98	mg/kg	12.09.19 19.55		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 22.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	12.09.19 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.09.19 22.31	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	12.09.19 22.31	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	12.09.19 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	12.09.19 22.31	
o-Terphenyl	84-15-1	104	%	70-135	12.09.19 22.31	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02A**
Lab Sample Id: 645537-005

Matrix: Soil
Date Collected: 12.06.19 14.50

Date Received: 12.09.19 10.15
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.09.19 18.58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.09.19 18.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.09.19 18.58		
4-Bromofluorobenzene	460-00-4	115	%	70-130	12.09.19 18.58		



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02B**
Lab Sample Id: 645537-006

Matrix: Soil
Date Collected: 12.06.19 15.05

Date Received: 12.09.19 10.15
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3109906

Date Prep: 12.09.19 16.10

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	397	9.88	mg/kg	12.09.19 20.01		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3109933

Date Prep: 12.09.19 15.30

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	12.09.19 22.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	12.09.19 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.09.19 22.31	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	12.09.19 22.31	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	12.09.19 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	12.09.19 22.31	
o-Terphenyl	84-15-1	106	%	70-135	12.09.19 22.31	



Certificate of Analytical Results 645537

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **PH02B**
Lab Sample Id: 645537-006

Matrix: Soil
Date Collected: 12.06.19 15.05

Date Received: 12.09.19 10.15
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.09.19 08.50

Basis: Wet Weight

Seq Number: 3109891

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	12.09.19 19.18	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.09.19 19.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.09.19 19.18		
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.09.19 19.18		



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.

PLU BS 11 Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3109906

MB Sample Id: 7692026-1-BLK

Matrix: Solid

LCS Sample Id: 7692026-1-BKS

Prep Method: E300P

Date Prep: 12.09.19

LCSD Sample Id: 7692026-1-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	260	104	263	105	90-110	1	20	mg/kg	12.09.19 18:00	

Analytical Method: Chloride by EPA 300

Seq Number: 3109906

Parent Sample Id: 645522-001

Matrix: Soil

MS Sample Id: 645522-001 S

Prep Method: E300P

Date Prep: 12.09.19

MSD Sample Id: 645522-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.14	199	210	102	209	102	90-110	0	20	mg/kg	12.09.19 18:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3109906

Parent Sample Id: 645537-003

Matrix: Soil

MS Sample Id: 645537-003 S

Prep Method: E300P

Date Prep: 12.09.19

MSD Sample Id: 645537-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	110	199	327	109	328	110	90-110	0	20	mg/kg	12.09.19 19:38	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109933

MB Sample Id: 7692045-1-BLK

Matrix: Solid

LCS Sample Id: 7692045-1-BKS

Prep Method: SW8015P

Date Prep: 12.09.19

LCSD Sample Id: 7692045-1-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)	<13.9	1000	996	100	999	100	70-135	0	35	mg/kg	12.09.19 19:49	
Diesel Range Organics (DRO)	<11.5	1000	1110	111	1050	105	70-135	6	35	mg/kg	12.09.19 19:49	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		121		119		70-135	%	12.09.19 19:49
o-Terphenyl	108		124		112		70-135	%	12.09.19 19:49

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109933

Matrix: Solid

MB Sample Id: 7692045-1-BLK

Prep Method: SW8015P

Date Prep: 12.09.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.09.19 19:49	

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

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

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

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



LT Environmental, Inc.

PLU BS 11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3109933

Parent Sample Id: 645527-020

Matrix: Soil

MS Sample Id: 645527-020 S

Prep Method: SW8015P

Date Prep: 12.09.19

MSD Sample Id: 645527-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<13.9	1000	985	99	957	96	70-135	3	35	mg/kg	12.09.19 20:29	
Diesel Range Organics (DRO)	<11.5	1000	1020	102	1060	106	70-135	4	35	mg/kg	12.09.19 20:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		116		70-135	%	12.09.19 20:29
o-Terphenyl	115		118		70-135	%	12.09.19 20:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109891

MB Sample Id: 7692016-1-BLK

Matrix: Solid

LCS Sample Id: 7692016-1-BKS

Prep Method: SW5030B

Date Prep: 12.09.19

LCSD Sample Id: 7692016-1-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	0.102	102	0.0914	91	70-130	11	35	mg/kg	12.09.19 10:47	
Toluene	<0.00200	0.100	0.104	104	0.0922	92	70-130	12	35	mg/kg	12.09.19 10:47	
Ethylbenzene	<0.00200	0.100	0.104	104	0.0913	91	71-129	13	35	mg/kg	12.09.19 10:47	
m,p-Xylenes	<0.00400	0.200	0.220	110	0.194	97	70-135	13	35	mg/kg	12.09.19 10:47	
o-Xylene	<0.00200	0.100	0.111	111	0.0975	98	71-133	13	35	mg/kg	12.09.19 10:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		103		101		70-130	%	12.09.19 10:47
4-Bromofluorobenzene	107		116		115		70-130	%	12.09.19 10:47

Analytical Method: BTEX by EPA 8021B

Seq Number: 3109891

Parent Sample Id: 645473-001

Matrix: Soil

MS Sample Id: 645473-001 S

Prep Method: SW5030B

Date Prep: 12.09.19

MSD Sample Id: 645473-001 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	0.0936	94	0.0775	78	70-130	19	35	mg/kg	12.09.19 11:25	
Toluene	<0.00200	0.100	0.0987	99	0.0768	77	70-130	25	35	mg/kg	12.09.19 11:25	
Ethylbenzene	<0.00200	0.100	0.0988	99	0.0740	74	71-129	29	35	mg/kg	12.09.19 11:25	
m,p-Xylenes	<0.00400	0.200	0.206	103	0.151	76	70-135	31	35	mg/kg	12.09.19 11:25	
o-Xylene	<0.00200	0.100	0.106	106	0.0784	79	71-133	30	35	mg/kg	12.09.19 11:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		102		70-130	%	12.09.19 11:25
4-Bromofluorobenzene	121		118		70-130	%	12.09.19 11:25

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



Chain of Custody

Work Order No: 645537

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3333
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)

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Page ____ of ____

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 E Green Street
City, State ZIP:		Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:		432.236.3849	Email:	ldelval@ltenv.com

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

[illegible]

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$76.00 will be applied to each project and a charge of \$8 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>h. J. Bell</i>	<i>Wint</i>	12/9/2019	2 <i>Christy</i>	<i>[Signature]</i>	12/9/19 10:15
3			4		
5			6		

Analytical Report 645892

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS 11 Federal Battery

012918036

08-JAN-20

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

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

Xenco-Tampa: Florida (E87429), North Carolina (483)



08-JAN-20

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **645892**

PLU BS 11 Federal Battery

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) 645892. 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. 645892 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 645892****LT Environmental, Inc., Arvada, CO**

PLU BS 11 Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS15A	S	12-10-19 10:26	7 ft	645892-001
FS16A	S	12-10-19 10:42	7 ft	645892-002
FS18A	S	12-10-19 11:26	7 ft	645892-003
FS21	S	12-10-19 15:28	6 ft	645892-004
FS22	S	12-10-19 15:59	6 ft	645892-005
FS23	S	12-10-19 16:15	6 ft	645892-006
FS24	S	12-10-19 16:20	6 ft	645892-007
FS25	S	12-10-19 16:30	6 ft	645892-008
FS26	S	12-10-19 16:45	6 ft	645892-009
SW14	S	12-10-19 14:59	0 - 6 ft	645892-010
SW15	S	12-10-19 15:10	0 - 6 ft	645892-011



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS 11 Federal Battery

Project ID: 012918036
Work Order Number(s): 645892

Report Date: 08-JAN-20
Date Received: 12/11/2019

Sample receipt non conformances and comments:

Per clients email, corrected sample names as follows below. JK 01/08/2020

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3110217 BTEX by EPA 8021B

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



Certificate of Analysis Summary 645892

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS 11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Dec-11-19 12:20 pm

Report Date: 08-JAN-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	645892-001	645892-002	645892-003	645892-004	645892-005	645892-006
	Field Id:	FS15A	FS16A	FS18A	FS21	FS22	FS23
	Depth:	7- ft	7- ft	7- ft	6- ft	6- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-10-19 10:26	Dec-10-19 10:42	Dec-10-19 11:26	Dec-10-19 15:28	Dec-10-19 15:59	Dec-10-19 16:15
BTEX by EPA 8021B	Extracted:	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00
	Analyzed:	Dec-11-19 18:04	Dec-11-19 18:23	Dec-11-19 18:42	Dec-11-19 19:01	Dec-11-19 19:20	Dec-11-19 20:24
	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	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Ethylbenzene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00403 0.00403	<0.00399 0.00399	<0.00401 0.00401	<0.00401 0.00401	<0.00403 0.00403	<0.00399 0.00399
o-Xylene		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Chloride by EPA 300	Extracted:	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40
	Analyzed:	Dec-12-19 09:21	Dec-12-19 09:27	Dec-12-19 09:32	Dec-12-19 09:38	Dec-12-19 09:44	Dec-12-19 09:50
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		13.1 9.98	10.5 9.96	<9.98 9.98	<9.92 9.92	<9.94 9.94	<9.96 9.96
TPH by SW8015 Mod	Extracted:	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40
	Analyzed:	Dec-12-19 10:25	Dec-11-19 19:01	Dec-12-19 10:25	Dec-11-19 19:21	Dec-11-19 19:21	Dec-11-19 19:41
	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	<50.3 50.3	<50.1 50.1	<50.1 50.1	<49.8 49.8	<50.0 50.0
Diesel Range Organics (DRO)		95.9 50.2	<50.3 50.3	84.7 50.1	<50.1 50.1	<49.8 49.8	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.1 50.1	<49.8 49.8	<50.0 50.0
Total GRO-DRO		95.9 50.2	<50.3 50.3	84.7 50.1	<50.1 50.1	<49.8 49.8	<50.0 50.0
Total TPH		95.9 50.2	<50.3 50.3	84.7 50.1	<50.1 50.1	<49.8 49.8	<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

Version: 1.9%

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 645892

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS 11 Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed Dec-11-19 12:20 pm

Report Date: 08-JAN-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	645892-007	645892-008	645892-009	645892-010	645892-011	
	<i>Field Id:</i>	FS24	FS25	FS26	SW14	SW15	
	<i>Depth:</i>	6- ft	6- ft	6- ft	0-6 ft	0-6 ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	Dec-10-19 16:20	Dec-10-19 16:30	Dec-10-19 16:45	Dec-10-19 14:59	Dec-10-19 15:10	
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	Dec-11-19 13:00	
	<i>Analyzed:</i>	Dec-11-19 20:43	Dec-11-19 21:02	Dec-11-19 21:21	Dec-11-19 21:40	Dec-11-19 22:00	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
Toluene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
m,p-Xylenes		<0.00401 0.00401	<0.00403 0.00403	<0.00400 0.00400	<0.00404 0.00404	<0.00402 0.00402	
o-Xylene		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
Total BTEX		<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	
Chloride by EPA 300	<i>Extracted:</i>	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	Dec-12-19 08:40	
	<i>Analyzed:</i>	Dec-12-19 10:19	Dec-12-19 10:35	Dec-12-19 10:41	Dec-12-19 10:47	Dec-12-19 10:53	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		<9.96 9.96	<9.98 9.98	<9.92 9.92	13.0 9.88	<9.88 9.88	
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	Dec-11-19 16:40	
	<i>Analyzed:</i>	Dec-11-19 20:01	Dec-11-19 20:01	Dec-11-19 20:21	Dec-11-19 20:21	Dec-11-19 20:41	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<49.8 49.8	<49.9 49.9	<50.3 50.3	<49.8 49.8	
Diesel Range Organics (DRO)		<49.9 49.9	<49.8 49.8	<49.9 49.9	<50.3 50.3	58.4 49.8	
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.8 49.8	<49.9 49.9	<50.3 50.3	<49.8 49.8	
Total GRO-DRO		<49.9 49.9	<49.8 49.8	<49.9 49.9	<50.3 50.3	58.4 49.8	
Total TPH		<49.9 49.9	<49.8 49.8	<49.9 49.9	<50.3 50.3	58.4 49.8	

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

Version: 1.9%

Jessica Kramer
Project Assistant



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS15A**
Lab Sample Id: 645892-001

Matrix: Soil
Date Collected: 12.10.19 10.26

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.1	9.98	mg/kg	12.12.19 09.21		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.12.19 10.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	95.9	50.2	mg/kg	12.12.19 13.35		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.12.19 10.25	U	1
Total GRO-DRO	PHC628	95.9	50.2	mg/kg	12.12.19 13.35		1
Total TPH	PHC635	95.9	50.2	mg/kg	12.12.19 13.35		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	12.12.19 10.25	
o-Terphenyl	84-15-1	113	%	70-135	12.12.19 10.25	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS15A**
Lab Sample Id: 645892-001

Matrix: Soil
Date Collected: 12.10.19 10.26

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.11.19 18.04	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.11.19 18.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	12.11.19 18.04		
1,4-Difluorobenzene	540-36-3	106	%	70-130	12.11.19 18.04		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS16A**
Lab Sample Id: 645892-002

Matrix: Soil
Date Collected: 12.10.19 10.42

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.5	9.96	mg/kg	12.12.19 09.27		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 19.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	12.11.19 19.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.11.19 19.01	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	12.11.19 19.01	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	12.11.19 19.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	12.11.19 19.01	
o-Terphenyl	84-15-1	89	%	70-135	12.11.19 19.01	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS16A**
Lab Sample Id: 645892-002

Matrix: Soil
Date Collected: 12.10.19 10.42

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.11.19 18.23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 18.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.11.19 18.23		
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.11.19 18.23		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS18A**
Lab Sample Id: 645892-003

Matrix: Soil
Date Collected: 12.10.19 11.26

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.12.19 09.32	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.12.19 10.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	84.7	50.1	mg/kg	12.12.19 10.25		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.12.19 10.25	U	1
Total GRO-DRO	PHC628	84.7	50.1	mg/kg	12.12.19 10.25		1
Total TPH	PHC635	84.7	50.1	mg/kg	12.12.19 10.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	12.12.19 10.25	
o-Terphenyl	84-15-1	104	%	70-135	12.12.19 10.25	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS18A**
Lab Sample Id: 645892-003

Matrix: Soil
Date Collected: 12.10.19 11.26

Date Received: 12.11.19 12.20
Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.11.19 18.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 18.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	12.11.19 18.42		
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.11.19 18.42		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS21**
Lab Sample Id: 645892-004

Matrix: Soil
Date Collected: 12.10.19 15.28

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	12.12.19 09.38	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 19.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	12.11.19 19.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.11.19 19.21	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	12.11.19 19.21	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	12.11.19 19.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	12.11.19 19.21	
o-Terphenyl	84-15-1	114	%	70-135	12.11.19 19.21	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS21**
Lab Sample Id: 645892-004

Matrix: Soil
Date Collected: 12.10.19 15.28

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.11.19 19.01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 19.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	12.11.19 19.01		
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.11.19 19.01		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: FS22
Lab Sample Id: 645892-005

Matrix: Soil
Date Collected: 12.10.19 15.59

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

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	12.12.19 09.44	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 19.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	12.11.19 19.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.11.19 19.21	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	12.11.19 19.21	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.11.19 19.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	76	%	70-135	12.11.19 19.21	
o-Terphenyl	84-15-1	83	%	70-135	12.11.19 19.21	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS22**
 Lab Sample Id: 645892-005

Matrix: Soil
 Date Collected: 12.10.19 15.59

Date Received: 12.11.19 12.20
 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.11.19 19.20	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.11.19 19.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.11.19 19.20		
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.11.19 19.20		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS23**
Lab Sample Id: 645892-006

Matrix: Soil
Date Collected: 12.10.19 16.15

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	12.12.19 09.50	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 19.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.11.19 19.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.11.19 19.41	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.11.19 19.41	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.11.19 19.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	12.11.19 19.41	
o-Terphenyl	84-15-1	91	%	70-135	12.11.19 19.41	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS23**
Lab Sample Id: 645892-006

Matrix: Soil
Date Collected: 12.10.19 16.15

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.11.19 20.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 20.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	12.11.19 20.24		
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.11.19 20.24		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS24**
Lab Sample Id: 645892-007

Matrix: Soil
Date Collected: 12.10.19 16.20

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	12.12.19 10.19	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 20.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.11.19 20.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.11.19 20.01	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	12.11.19 20.01	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.11.19 20.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	72	%	70-135	12.11.19 20.01	
o-Terphenyl	84-15-1	75	%	70-135	12.11.19 20.01	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS24**
Lab Sample Id: 645892-007

Matrix: Soil
Date Collected: 12.10.19 16.20

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.11.19 20.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 20.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	12.11.19 20.43		
4-Bromofluorobenzene	460-00-4	120	%	70-130	12.11.19 20.43		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: FS25
Lab Sample Id: 645892-008

Matrix: Soil
Date Collected: 12.10.19 16.30

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.12.19 10.35	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 20.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	12.11.19 20.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.11.19 20.01	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	12.11.19 20.01	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.11.19 20.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	12.11.19 20.01	
o-Terphenyl	84-15-1	89	%	70-135	12.11.19 20.01	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS25**
Lab Sample Id: 645892-008

Matrix: Soil
Date Collected: 12.10.19 16.30

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.11.19 21.02	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.11.19 21.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	12.11.19 21.02		
4-Bromofluorobenzene	460-00-4	116	%	70-130	12.11.19 21.02		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS26**
Lab Sample Id: 645892-009

Matrix: Soil
Date Collected: 12.10.19 16.45

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	12.12.19 10.41	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 20.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.11.19 20.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.11.19 20.21	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	12.11.19 20.21	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.11.19 20.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	12.11.19 20.21	
o-Terphenyl	84-15-1	96	%	70-135	12.11.19 20.21	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **FS26**
Lab Sample Id: 645892-009

Matrix: Soil
Date Collected: 12.10.19 16.45

Date Received: 12.11.19 12.20
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.11.19 21.21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.11.19 21.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.11.19 21.21		
4-Bromofluorobenzene	460-00-4	116	%	70-130	12.11.19 21.21		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW14**
Lab Sample Id: 645892-010

Matrix: Soil
Date Collected: 12.10.19 14.59

Date Received: 12.11.19 12.20
Sample Depth: 0 - 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.0	9.88	mg/kg	12.12.19 10.47		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 20.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	12.11.19 20.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	12.11.19 20.21	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	12.11.19 20.21	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	12.11.19 20.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	12.11.19 20.21	
o-Terphenyl	84-15-1	89	%	70-135	12.11.19 20.21	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW14**
Lab Sample Id: 645892-010

Matrix: Soil
Date Collected: 12.10.19 14.59

Date Received: 12.11.19 12.20
Sample Depth: 0 - 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	12.11.19 21.40	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.11.19 21.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.11.19 21.40		
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.11.19 21.40		



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW15**
Lab Sample Id: 645892-011

Matrix: Soil
Date Collected: 12.10.19 15.10

Date Received: 12.11.19 12.20
Sample Depth: 0 - 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110256

Date Prep: 12.12.19 08.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.88	9.88	mg/kg	12.12.19 10.53	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110222

Date Prep: 12.11.19 16.40

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	12.11.19 20.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	58.4	49.8	mg/kg	12.11.19 20.41		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.11.19 20.41	U	1
Total GRO-DRO	PHC628	58.4	49.8	mg/kg	12.11.19 20.41		1
Total TPH	PHC635	58.4	49.8	mg/kg	12.11.19 20.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-135	12.11.19 20.41	
o-Terphenyl	84-15-1	81	%	70-135	12.11.19 20.41	



Certificate of Analytical Results 645892

LT Environmental, Inc., Arvada, CO

PLU BS 11 Federal Battery

Sample Id: **SW15**
Lab Sample Id: 645892-011

Matrix: Soil
Date Collected: 12.10.19 15.10

Date Received: 12.11.19 12.20
Sample Depth: 0 - 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.11.19 13.00

Basis: Wet Weight

Seq Number: 3110217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.11.19 22.00	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.11.19 22.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	12.11.19 22.00		
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.11.19 22.00		



Flagging Criteria

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

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

BRL Below Reporting Limit.

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.
PLU BS 11 Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3110256

MB Sample Id: 7692243-1-BLK

Matrix: Solid

LCS Sample Id: 7692243-1-BKS

Prep Method: E300P

Date Prep: 12.12.19

LCSD Sample Id: 7692243-1-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	260	104	265	106	90-110	2	20	mg/kg	12.12.19 09:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3110256

Parent Sample Id: 645892-006

Matrix: Soil

MS Sample Id: 645892-006 S

Prep Method: E300P

Date Prep: 12.12.19

MSD Sample Id: 645892-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9.14	200	214	102	214	103	90-110	0	20	mg/kg	12.12.19 10:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3110256

Parent Sample Id: 645892-011

Matrix: Soil

MS Sample Id: 645892-011 S

Prep Method: E300P

Date Prep: 12.12.19

MSD Sample Id: 645892-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.60	198	211	103	211	103	90-110	0	20	mg/kg	12.12.19 10:59	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110222

MB Sample Id: 7692253-1-BLK

Matrix: Solid

LCS Sample Id: 7692253-1-BKS

Prep Method: SW8015P

Date Prep: 12.11.19

LCSD Sample Id: 7692253-1-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	973	97	923	92	70-135	5	35	mg/kg	12.11.19 17:18	
Diesel Range Organics (DRO)	<50.0	1000	823	82	807	81	70-135	2	35	mg/kg	12.11.19 17:18	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	71		100		95		70-135	%	12.11.19 17:18
o-Terphenyl	74		93		91		70-135	%	12.11.19 17:18

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110222

Matrix: Solid

MB Sample Id: 7692253-1-BLK

Prep Method: SW8015P

Date Prep: 12.11.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.11.19 16:58	

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.

PLU BS 11 Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110222

Parent Sample Id: 645890-001

Matrix: Soil

MS Sample Id: 645890-001 S

Prep Method: SW8015P

Date Prep: 12.11.19

MSD Sample Id: 645890-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	925	93	869	86	70-135	6	35	mg/kg	12.11.19 17:41	
Diesel Range Organics (DRO)	<50.0	1000	832	83	772	76	70-135	7	35	mg/kg	12.11.19 17:41	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		91		70-135	%	12.11.19 17:41
o-Terphenyl	99		86		70-135	%	12.11.19 17:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110217

MB Sample Id: 7692204-1-BLK

Matrix: Solid

LCS Sample Id: 7692204-1-BKS

Prep Method: SW5030B

Date Prep: 12.11.19

LCSD Sample Id: 7692204-1-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	0.0954	95	0.0930	93	70-130	3	35	mg/kg	12.11.19 14:53	
Toluene	<0.00200	0.100	0.0966	97	0.0956	96	70-130	1	35	mg/kg	12.11.19 14:53	
Ethylbenzene	<0.00200	0.100	0.0953	95	0.0950	95	71-129	0	35	mg/kg	12.11.19 14:53	
m,p-Xylenes	<0.00400	0.200	0.201	101	0.201	101	70-135	0	35	mg/kg	12.11.19 14:53	
o-Xylene	<0.00200	0.100	0.101	101	0.102	102	71-133	1	35	mg/kg	12.11.19 14:53	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		104		103		70-130	%	12.11.19 14:53
4-Bromofluorobenzene	108		115		116		70-130	%	12.11.19 14:53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110217

Parent Sample Id: 645890-001

Matrix: Soil

MS Sample Id: 645890-001 S

Prep Method: SW5030B

Date Prep: 12.11.19

MSD Sample Id: 645890-001 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	0.106	105	0.0782	77	70-130	30	35	mg/kg	12.11.19 15:24	
Toluene	<0.00201	0.101	0.104	103	0.0866	86	70-130	18	35	mg/kg	12.11.19 15:24	
Ethylbenzene	<0.00201	0.101	0.0978	97	0.0816	81	71-129	18	35	mg/kg	12.11.19 15:24	
m,p-Xylenes	<0.00402	0.201	0.205	102	0.173	86	70-135	17	35	mg/kg	12.11.19 15:24	
o-Xylene	<0.00201	0.101	0.104	103	0.0864	86	71-133	18	35	mg/kg	12.11.19 15:24	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		99		70-130	%	12.11.19 15:24
4-Bromofluorobenzene	122		123		70-130	%	12.11.19 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



Chain of Custody

Work Order No: 445892

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

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Page 1 of 2

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 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	lidelval@ltenv.com

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

Project Name:	PLU B311 Federal Battery	Turn Around	☐ Routine ☐ Rush: 24 hr
Project Number:	018918036		
P.O. Number:			
Sampler's Name:	Benjamin Beilf	Due Date:	

SAMPLE RECEIPT		Temp Blank:		Yes	No	Wet Ice:	Yes	No
Temperature (°C):	8.4							
Received Inact:	No							
Cooler Custody Seals:	Yes	NO	N/A					
Sample Custody Seals:	Yes	NO	N/A					
Thermometer ID		T-222-004						
Correction Factor:		-0.2						
Total Containers:		11						

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers			ANALYSIS REQUEST										Work Order Notes
					TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)											
FS15A	S	12/14/2019	10:06	7'	X	X	X											
FS16A			10:42	7'	X	X	X											
FS18A			11:26	7'	X	X	X											
FS22			15:28	6'	X	X	X											
FS23			15:59	6'	X	X	X											
FS24			16:15	6'	X	X	X											
FS25			16:20	6'	X	X	X											
FS26			16:30	6'	X	X	X											
FS27			16:45	6'	X	X	X											
SW14			14:59	0-6'	X	X	X											

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>dan moir</i>	<i>[Signature]</i>	12/11/19 12:20			



Chain of Custody

Work Order No: 645092

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3333
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)

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Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	ldelval@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund ☐

State of Project:

Reporting Level: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐

Deliverables: EDD ☐ ADAPT ☐ Other: _____

Project Name:	WU BS 12 Federal Battery				Turn Around
Project Number:	0129 M036				Routine ☐
P.O. Number:					Rush: 24hr
Sampler's Name:	Benjamin Beilfr Luis Del Val				Due Date:

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

ANALYSIS REQUEST						Work Order Notes
r of Containers						
A 8015)						
PA 0=8021)						
(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 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 245.1/7470 / 74

1631 / 245.1 / 7470 / 7471 : Hg

notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenoco, its affiliates and subcontractors. It assigns standard terms and conditions of 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 Xenoco. 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. Those terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		12/11/19 12:20			

Printed Name: David J. Williams



Client: LT Environmental, Inc.

Date/ Time Received: 12/11/2019 12:20:00 PM

Work Order #: 645892

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)?	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: 12/11/2019

Checklist reviewed by:

Jessica Kramer

Date: 12/12/2019

Analytical Report 646243

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS II Federal Battery

012918036

16-DEC-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)



16-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **646243**

PLU BS II Federal Battery

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) 646243. 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. 646243 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 646243****LT Environmental, Inc., Arvada, CO**

PLU BS II Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH03	S	12-12-19 12:20	2 ft	646243-001
PH03A	S	12-12-19 12:40	5 ft	646243-002
PH03B	S	12-12-19 13:00	8 ft	646243-003
PH04	S	12-12-19 13:25	2 ft	646243-004
PH04A	S	12-12-19 13:45	5 ft	646243-005
PH04B	S	12-12-19 14:00	8 ft	646243-006
PH05	S	12-12-19 14:20	2 ft	646243-007
PH05A	S	12-12-19 14:35	5 ft	646243-008
PH05B	S	12-12-19 14:45	8 ft	646243-009



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS II Federal Battery

Project ID: 012918036

Work Order Number(s): 646243

Report Date: 16-DEC-19

Date Received: 12/13/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3110527 BTEX by EPA 8021B

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



Certificate of Analysis Summary 646243

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS II Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Dec-13-19 09:05 am

Report Date: 16-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646243-001	646243-002	646243-003	646243-004	646243-005	646243-006
	<i>Field Id:</i>	PH03	PH03A	PH03B	PH04	PH04A	PH04B
	<i>Depth:</i>	2- ft	5- ft	8- ft	2- ft	5- ft	8- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-12-19 12:20	Dec-12-19 12:40	Dec-12-19 13:00	Dec-12-19 13:25	Dec-12-19 13:45	Dec-12-19 14:00
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06
	<i>Analyzed:</i>	Dec-13-19 12:43	Dec-13-19 13:02	Dec-13-19 13:22	Dec-13-19 13:41	Dec-13-19 14:00	Dec-13-19 14:19
	<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	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
m,p-Xylenes		<0.00401 0.00401	<0.00399 0.00399	<0.00403 0.00403	<0.00402 0.00402	<0.00396 0.00396	<0.00404 0.00404
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02
	<i>Analyzed:</i>	Dec-13-19 13:45	Dec-13-19 14:02	Dec-13-19 14:08	Dec-13-19 14:14	Dec-13-19 14:20	Dec-13-19 14:37
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		79.8 10.1	46.9 10.0	85.6 10.0	<10.1 10.1	38.0 10.0	219 10.0
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30
	<i>Analyzed:</i>	Dec-13-19 11:50	Dec-13-19 12:10	Dec-13-19 12:30	Dec-13-19 12:30	Dec-13-19 12:50	Dec-13-19 12:50
	<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	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.8 49.8
Diesel Range Organics (DRO)		<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.8 49.8
Total GRO-DRO		<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.8 49.8
Total TPH		<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.8 49.8

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 646243

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS II Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Dec-13-19 09:05 am

Report Date: 16-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646243-007	646243-008	646243-009			
	<i>Field Id:</i>	PH05	PH05A	PH05B			
	<i>Depth:</i>	2- ft	5- ft	8- ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Dec-12-19 14:20	Dec-12-19 14:35	Dec-12-19 14:45			
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06			
	<i>Analyzed:</i>	Dec-13-19 14:38	Dec-13-19 14:57	Dec-13-19 15:16			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
m,p-Xylenes		<0.00398 0.00398	<0.00396 0.00396	<0.00402 0.00402			
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201			
Chloride by EPA 300	<i>Extracted:</i>	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02			
	<i>Analyzed:</i>	Dec-13-19 14:43	Dec-13-19 14:49	Dec-13-19 14:54			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		13.5 10.1	134 9.90	120 10.1			
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30			
	<i>Analyzed:</i>	Dec-13-19 13:10	Dec-13-19 13:10	Dec-13-19 13:30			
	<i>Units/RL:</i>	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			
Diesel Range Organics (DRO)		<50.2 50.2	<50.2 50.2	<50.0 50.0			
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<50.0 50.0			
Total GRO-DRO		<50.2 50.2	<50.2 50.2	<50.0 50.0			
Total TPH		<50.2 50.2	<50.2 50.2	<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.

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Jessica Kramer
Project Assistant



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03**
Lab Sample Id: 646243-001

Matrix: Soil
Date Collected: 12.12.19 12.20

Date Received: 12.13.19 09.05
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	79.8	10.1	mg/kg	12.13.19 13.45		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 11.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	12.13.19 11.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.13.19 11.50	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	12.13.19 11.50	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.13.19 11.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	12.13.19 11.50	
o-Terphenyl	84-15-1	117	%	70-135	12.13.19 11.50	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03**
Lab Sample Id: 646243-001

Matrix: Soil
Date Collected: 12.12.19 12.20

Date Received: 12.13.19 09.05
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.13.19 12.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.13.19 12.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.13.19 12.43		
4-Bromofluorobenzene	460-00-4	114	%	70-130	12.13.19 12.43		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03A**
Lab Sample Id: 646243-002

Matrix: Soil
Date Collected: 12.12.19 12.40

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.9	10.0	mg/kg	12.13.19 14.02		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 12.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.13.19 12.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.13.19 12.10	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	12.13.19 12.10	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.13.19 12.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	12.13.19 12.10	
o-Terphenyl	84-15-1	111	%	70-135	12.13.19 12.10	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03A**
Lab Sample Id: 646243-002

Matrix: Soil
Date Collected: 12.12.19 12.40

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.13.19 13.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.13.19 13.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.13.19 13.02		
4-Bromofluorobenzene	460-00-4	126	%	70-130	12.13.19 13.02		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03B**
Lab Sample Id: 646243-003

Matrix: Soil
Date Collected: 12.12.19 13.00

Date Received: 12.13.19 09.05
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	85.6	10.0	mg/kg	12.13.19 14.08		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 12.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.13.19 12.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.13.19 12.30	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	12.13.19 12.30	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.13.19 12.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	12.13.19 12.30	
o-Terphenyl	84-15-1	112	%	70-135	12.13.19 12.30	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH03B**
Lab Sample Id: 646243-003

Matrix: Soil
Date Collected: 12.12.19 13.00

Date Received: 12.13.19 09.05
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.13.19 13.22	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.13.19 13.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	126	%	70-130	12.13.19 13.22		
1,4-Difluorobenzene	540-36-3	106	%	70-130	12.13.19 13.22		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04**
Lab Sample Id: 646243-004

Matrix: Soil
Date Collected: 12.12.19 13.25

Date Received: 12.13.19 09.05
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.13.19 14.14	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 12.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.13.19 12.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.13.19 12.30	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.13.19 12.30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.13.19 12.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	12.13.19 12.30	
o-Terphenyl	84-15-1	112	%	70-135	12.13.19 12.30	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04**
 Lab Sample Id: 646243-004

Matrix: Soil
 Date Collected: 12.12.19 13.25

Date Received: 12.13.19 09.05
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.13.19 13.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.13.19 13.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	12.13.19 13.41		
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.13.19 13.41		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04A**
Lab Sample Id: 646243-005

Matrix: Soil
Date Collected: 12.12.19 13.45

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.0	10.0	mg/kg	12.13.19 14.20		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 12.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	12.13.19 12.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	12.13.19 12.50	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	12.13.19 12.50	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	12.13.19 12.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	12.13.19 12.50	
o-Terphenyl	84-15-1	114	%	70-135	12.13.19 12.50	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04A**
Lab Sample Id: 646243-005

Matrix: Soil
Date Collected: 12.12.19 13.45

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3110527

Date Prep: 12.13.19 10.06

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	12.13.19 14.00	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.13.19 14.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.13.19 14.00		
4-Bromofluorobenzene	460-00-4	120	%	70-130	12.13.19 14.00		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04B**
Lab Sample Id: 646243-006

Matrix: Soil
Date Collected: 12.12.19 14.00

Date Received: 12.13.19 09.05
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	219	10.0	mg/kg	12.13.19 14.37		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 12.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	12.13.19 12.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.13.19 12.50	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	12.13.19 12.50	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.13.19 12.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	12.13.19 12.50	
o-Terphenyl	84-15-1	111	%	70-135	12.13.19 12.50	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH04B**
Lab Sample Id: 646243-006

Matrix: Soil
Date Collected: 12.12.19 14.00

Date Received: 12.13.19 09.05
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3110527

Date Prep: 12.13.19 10.06

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	12.13.19 14.19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.13.19 14.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.13.19 14.19		
4-Bromofluorobenzene	460-00-4	124	%	70-130	12.13.19 14.19		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05**
Lab Sample Id: 646243-007

Matrix: Soil
Date Collected: 12.12.19 14.20

Date Received: 12.13.19 09.05
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.5	10.1	mg/kg	12.13.19 14.43		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 13.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	12.13.19 13.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.13.19 13.10	
o-Terphenyl	84-15-1	111	%	70-135	12.13.19 13.10	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05**
Lab Sample Id: 646243-007

Matrix: Soil
Date Collected: 12.12.19 14.20

Date Received: 12.13.19 09.05
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.13.19 14.38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.13.19 14.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.13.19 14.38		
4-Bromofluorobenzene	460-00-4	120	%	70-130	12.13.19 14.38		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05A**
Lab Sample Id: 646243-008

Matrix: Soil
Date Collected: 12.12.19 14.35

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	134	9.90	mg/kg	12.13.19 14.49		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 13.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	12.13.19 13.10	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	12.13.19 13.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.13.19 13.10	
o-Terphenyl	84-15-1	109	%	70-135	12.13.19 13.10	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05A**
Lab Sample Id: 646243-008

Matrix: Soil
Date Collected: 12.12.19 14.35

Date Received: 12.13.19 09.05
Sample Depth: 5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3110527

Date Prep: 12.13.19 10.06

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	12.13.19 14.57	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.13.19 14.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	102	%	70-130	12.13.19 14.57		
4-Bromofluorobenzene	460-00-4	128	%	70-130	12.13.19 14.57		



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05B**
Lab Sample Id: 646243-009

Matrix: Soil
Date Collected: 12.12.19 14.45

Date Received: 12.13.19 09.05
Sample Depth: 8 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	120	10.1	mg/kg	12.13.19 14.54		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 13.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.13.19 13.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.13.19 13.30	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	12.13.19 13.30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.13.19 13.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	12.13.19 13.30	
o-Terphenyl	84-15-1	112	%	70-135	12.13.19 13.30	



Certificate of Analytical Results 646243

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **PH05B**
 Lab Sample Id: 646243-009

Matrix: Soil
 Date Collected: 12.12.19 14.45

Date Received: 12.13.19 09.05
 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3110527

Date Prep: 12.13.19 10.06

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.13.19 15.16	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.13.19 15.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	12.13.19 15.16		
4-Bromofluorobenzene	460-00-4	125	%	70-130	12.13.19 15.16		



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.

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.

PLU BS II Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

MB Sample Id: 7692368-1-BLK

Matrix: Solid

LCS Sample Id: 7692368-1-BKS

Prep Method: E300P

Date Prep: 12.13.19

LCSD Sample Id: 7692368-1-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	262	105	90-110	1	20	mg/kg	12.13.19 13:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: E300P

Date Prep: 12.13.19

MSD Sample Id: 646243-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	79.8	200	295	108	297	108	90-110	1	20	mg/kg	12.13.19 13:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

Parent Sample Id: 646256-002

Matrix: Soil

MS Sample Id: 646256-002 S

Prep Method: E300P

Date Prep: 12.13.19

MSD Sample Id: 646256-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.93	199	213	105	220	109	90-110	3	20	mg/kg	12.13.19 15:12	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

MB Sample Id: 7692406-1-BLK

Matrix: Solid

LCS Sample Id: 7692406-1-BKS

Prep Method: SW8015P

Date Prep: 12.13.19

LCSD Sample Id: 7692406-1-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	1210	121	1010	101	70-135	18	35	mg/kg	12.13.19 11:30	
Diesel Range Organics (DRO)	<50.0	1000	1240	124	1050	105	70-135	17	35	mg/kg	12.13.19 11:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		132		123		70-135	%	12.13.19 11:30
o-Terphenyl	107		133		122		70-135	%	12.13.19 11:30

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

Matrix: Solid

MB Sample Id: 7692406-1-BLK

Prep Method: SW8015P

Date Prep: 12.13.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.13.19 11:10	

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

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

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

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



LT Environmental, Inc.

PLU BS II Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: SW8015P

Date Prep: 12.13.19

MSD Sample Id: 646243-001 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	1090	109	1080	108	70-135	1	35	mg/kg	12.13.19 11:50	
Diesel Range Organics (DRO)	<49.8	996	1120	112	1100	110	70-135	2	35	mg/kg	12.13.19 11:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		129		70-135	%	12.13.19 11:50
o-Terphenyl	123		124		70-135	%	12.13.19 11:50

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110527

MB Sample Id: 7692369-1-BLK

Matrix: Solid

LCS Sample Id: 7692369-1-BKS

Prep Method: SW5030B

Date Prep: 12.13.19

LCSD Sample Id: 7692369-1-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	0.0897	90	0.0913	91	70-130	2	35	mg/kg	12.13.19 11:01	
Toluene	<0.00200	0.100	0.0913	91	0.0929	93	70-130	2	35	mg/kg	12.13.19 11:01	
Ethylbenzene	<0.00200	0.100	0.0905	91	0.0923	92	71-129	2	35	mg/kg	12.13.19 11:01	
m,p-Xylenes	<0.00400	0.200	0.192	96	0.196	98	70-135	2	35	mg/kg	12.13.19 11:01	
o-Xylene	<0.00200	0.100	0.0964	96	0.0985	99	71-133	2	35	mg/kg	12.13.19 11:01	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		102		102		70-130	%	12.13.19 11:01
4-Bromofluorobenzene	110		116		117		70-130	%	12.13.19 11:01

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110527

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: SW5030B

Date Prep: 12.13.19

MSD Sample Id: 646243-001 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	0.0903	90	0.0894	89	70-130	1	35	mg/kg	12.13.19 11:40	
Toluene	<0.00200	0.100	0.0903	90	0.0892	88	70-130	1	35	mg/kg	12.13.19 11:40	
Ethylbenzene	<0.00200	0.100	0.0865	87	0.0837	83	71-129	3	35	mg/kg	12.13.19 11:40	
m,p-Xylenes	<0.00401	0.200	0.182	91	0.176	88	70-135	3	35	mg/kg	12.13.19 11:40	
o-Xylene	<0.00200	0.100	0.0927	93	0.0900	89	71-133	3	35	mg/kg	12.13.19 11:40	

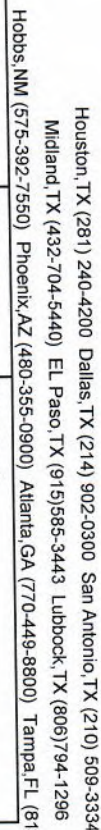
Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	12.13.19 11:40
4-Bromofluorobenzene	123		123		70-130	%	12.13.19 11:40

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



Work Order No:

cell 243

3

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:									

SAMPLE RECEIPT			
Temp Blank:	☒ Yes	☐ No	Wet Ice: ☒ Yes ☐ No
Temperature (°C):	Thermometer ID		
Received Intact:	☒ Yes ☐ No	T-Nu-007	
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor:	
Sample Custody Seals:	Yes ☒ No ☐ N/A	Total Containers:	9

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (%)	BTEX	Chlorides	Sample Comments
P103	S	12.12.19	1220	2	1	X	X	X	
P103A			1240	5					
P103B			1300	8					
P104			1325	2					
P104A			1345	5					
P104B			1400	8					
P105			1420	2					
P105A			1435	5					
P105B			1445	8					

Total	200.7 / 6010	200.8 / 6020:
8RCRA	13PPM	
Texas 11	Al Sb As Ba Be B Cd Ca Cl Cu Pb Cr Ni Se Ag Ti V Zn	
As Ba Be B Cd Ca Cl Cu Pb Cr Ni Se Ag Ti V Zn		
1631/245.1 / 7470 / 7471 : Hg		

Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010:
Sb	8KCR4
As	
Ba	
Be	
Cd	
Cr	
Cu	
Pb	
Mn	
Mo	
Ni	
Se	
Vg	
Zn	

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 responsibilities 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.

of Xencro. A minimum charge of \$75.00 will be applied to each project with a charge of \$25.00 for each additional project.						
	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	<i>[Signature]</i>	<i>[Signature]</i>	0830 12/13/19	<i>[Signature]</i>	<i>[Signature]</i>	12/13/19 0905
2						
3						
4						
5						

Revised Date 05/14/18 Rev. 2018



Client: LT Environmental, Inc.

Date/ Time Received: 12/13/2019 09:05:00 AM

Work Order #: 646243

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	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: 12/13/2019

Checklist reviewed by:

Jessica Kramer

Date: 12/13/2019

Analytical Report 646256

for
LT Environmental, Inc.

Project Manager: Dan Moir

PLU BS II Federal Battery

012918036

16-DEC-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)



16-DEC-19

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **646256**

PLU BS II Federal Battery

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) 646256. 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. 646256 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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

**Sample Cross Reference 646256****LT Environmental, Inc., Arvada, CO**

PLU BS II Federal Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW16	S	12-12-19 11:15	0 - 6 ft	646256-001
SW17	S	12-12-19 11:15	0 - 6 ft	646256-002
SW18	S	12-12-19 11:15	0 - 6 ft	646256-003



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: PLU BS II Federal Battery

Project ID: 012918036
Work Order Number(s): 646256

Report Date: 16-DEC-19
Date Received: 12/13/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3110527 BTEX by EPA 8021B

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



Certificate of Analysis Summary 646256

LT Environmental, Inc., Arvada, CO

Project Name: PLU BS II Federal Battery

Project Id: 012918036

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri Dec-13-19 09:05 am

Report Date: 16-DEC-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646256-001	646256-002	646256-003			
	<i>Field Id:</i>	SW16	SW17	SW18			
	<i>Depth:</i>	0-6 ft	0-6 ft	0-6 ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Dec-12-19 11:15	Dec-12-19 11:15	Dec-12-19 11:15			
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-13-19 10:06	Dec-13-19 10:06	Dec-13-19 10:06			
	<i>Analyzed:</i>	Dec-13-19 15:35	Dec-13-19 16:39	Dec-13-19 16:58			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199			
m,p-Xylenes		<0.00399 0.00399	<0.00400 0.00400	<0.00398 0.00398			
o-Xylene		0.00201 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Total Xylenes		0.00201 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Total BTEX		0.00201 0.00200	<0.00200 0.00200	<0.00199 0.00199			
Chloride by EPA 300	<i>Extracted:</i>	Dec-13-19 11:02	Dec-13-19 11:02	Dec-13-19 11:02			
	<i>Analyzed:</i>	Dec-13-19 15:00	Dec-13-19 15:06	Dec-13-19 15:23			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		<9.98 9.98	<9.94 9.94	<9.92 9.92			
TPH by SW8015 Mod	<i>Extracted:</i>	Dec-13-19 11:30	Dec-13-19 11:30	Dec-13-19 11:30			
	<i>Analyzed:</i>	Dec-13-19 13:30	Dec-13-19 13:50	Dec-13-19 14:10			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1			
Diesel Range Organics (DRO)		2060 50.0	685 50.2	741 50.1			
Motor Oil Range Hydrocarbons (MRO)		211 50.0	122 50.2	81.5 50.1			
Total GRO-DRO		2060 50.0	685 50.2	741 50.1			
Total TPH		2270 50.0	807 50.2	823 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

Jessica Kramer
Project Assistant



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW16**
Lab Sample Id: 646256-001

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.13.19 15.00	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 13.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	2060	50.0	mg/kg	12.13.19 13.30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	211	50.0	mg/kg	12.13.19 13.30		1
Total GRO-DRO	PHC628	2060	50.0	mg/kg	12.13.19 13.30		1
Total TPH	PHC635	2270	50.0	mg/kg	12.13.19 13.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	12.13.19 13.30	
o-Terphenyl	84-15-1	122	%	70-135	12.13.19 13.30	



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW16**
Lab Sample Id: 646256-001

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.13.19 15.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.13.19 15.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.13.19 15.35	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.13.19 15.35	U	1
o-Xylene	95-47-6	0.00201	0.00200	mg/kg	12.13.19 15.35		1
Total Xylenes	1330-20-7	0.00201	0.00200	mg/kg	12.13.19 15.35		1
Total BTEX		0.00201	0.00200	mg/kg	12.13.19 15.35		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	12.13.19 15.35		
4-Bromofluorobenzene	460-00-4	113	%	70-130	12.13.19 15.35		



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW17**
Lab Sample Id: 646256-002

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

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	12.13.19 15.06	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 13.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	685	50.2	mg/kg	12.13.19 13.50		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	122	50.2	mg/kg	12.13.19 13.50		1
Total GRO-DRO	PHC628	685	50.2	mg/kg	12.13.19 13.50		1
Total TPH	PHC635	807	50.2	mg/kg	12.13.19 13.50		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	12.13.19 13.50	
o-Terphenyl	84-15-1	114	%	70-135	12.13.19 13.50	



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW17**
Lab Sample Id: 646256-002

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 12.13.19 10.06

Basis: Wet Weight

Seq Number: 3110527

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.13.19 16.39	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.13.19 16.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	12.13.19 16.39		
4-Bromofluorobenzene	460-00-4	105	%	70-130	12.13.19 16.39		



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW18**
Lab Sample Id: 646256-003

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3110529

Date Prep: 12.13.19 11.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	12.13.19 15.23	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3110481

Date Prep: 12.13.19 11.30

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	12.13.19 14.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	741	50.1	mg/kg	12.13.19 14.10		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	81.5	50.1	mg/kg	12.13.19 14.10		1
Total GRO-DRO	PHC628	741	50.1	mg/kg	12.13.19 14.10		1
Total TPH	PHC635	823	50.1	mg/kg	12.13.19 14.10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	12.13.19 14.10	
o-Terphenyl	84-15-1	126	%	70-135	12.13.19 14.10	



Certificate of Analytical Results 646256

LT Environmental, Inc., Arvada, CO

PLU BS II Federal Battery

Sample Id: **SW18**
Lab Sample Id: 646256-003

Matrix: Soil
Date Collected: 12.12.19 11.15

Date Received: 12.13.19 09.05
Sample Depth: 0 - 6 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3110527

Date Prep: 12.13.19 10.06

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.13.19 16.58	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.13.19 16.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	12.13.19 16.58		
1,4-Difluorobenzene	540-36-3	101	%	70-130	12.13.19 16.58		



Flagging Criteria

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

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

BRL Below Reporting Limit.

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.

PLU BS II Federal Battery

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

MB Sample Id: 7692368-1-BLK

Matrix: Solid

LCS Sample Id: 7692368-1-BKS

Prep Method: E300P

Date Prep: 12.13.19

LCSD Sample Id: 7692368-1-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	262	105	90-110	1	20	mg/kg	12.13.19 13:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: E300P

Date Prep: 12.13.19

MSD Sample Id: 646243-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	79.8	200	295	108	297	108	90-110	1	20	mg/kg	12.13.19 13:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3110529

Parent Sample Id: 646256-002

Matrix: Soil

MS Sample Id: 646256-002 S

Prep Method: E300P

Date Prep: 12.13.19

MSD Sample Id: 646256-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.93	199	213	105	220	109	90-110	3	20	mg/kg	12.13.19 15:12	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

MB Sample Id: 7692406-1-BLK

Matrix: Solid

LCS Sample Id: 7692406-1-BKS

Prep Method: SW8015P

Date Prep: 12.13.19

LCSD Sample Id: 7692406-1-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	1210	121	1010	101	70-135	18	35	mg/kg	12.13.19 11:30	
Diesel Range Organics (DRO)	<50.0	1000	1240	124	1050	105	70-135	17	35	mg/kg	12.13.19 11:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		132		123		70-135	%	12.13.19 11:30
o-Terphenyl	107		133		122		70-135	%	12.13.19 11:30

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

Matrix: Solid

MB Sample Id: 7692406-1-BLK

Prep Method: SW8015P

Date Prep: 12.13.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.13.19 11:10	

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

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

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

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



LT Environmental, Inc.

PLU BS II Federal Battery

Analytical Method: TPH by SW8015 Mod

Seq Number: 3110481

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: SW8015P

Date Prep: 12.13.19

MSD Sample Id: 646243-001 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	1090	109	1080	108	70-135	1	35	mg/kg	12.13.19 11:50	
Diesel Range Organics (DRO)	<49.8	996	1120	112	1100	110	70-135	2	35	mg/kg	12.13.19 11:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		129		70-135	%	12.13.19 11:50
o-Terphenyl	123		124		70-135	%	12.13.19 11:50

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110527

MB Sample Id: 7692369-1-BLK

Matrix: Solid

LCS Sample Id: 7692369-1-BKS

Prep Method: SW5030B

Date Prep: 12.13.19

LCSD Sample Id: 7692369-1-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	0.0897	90	0.0913	91	70-130	2	35	mg/kg	12.13.19 11:01	
Toluene	<0.00200	0.100	0.0913	91	0.0929	93	70-130	2	35	mg/kg	12.13.19 11:01	
Ethylbenzene	<0.00200	0.100	0.0905	91	0.0923	92	71-129	2	35	mg/kg	12.13.19 11:01	
m,p-Xylenes	<0.00400	0.200	0.192	96	0.196	98	70-135	2	35	mg/kg	12.13.19 11:01	
o-Xylene	<0.00200	0.100	0.0964	96	0.0985	99	71-133	2	35	mg/kg	12.13.19 11:01	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		102		102		70-130	%	12.13.19 11:01
4-Bromofluorobenzene	110		116		117		70-130	%	12.13.19 11:01

Analytical Method: BTEX by EPA 8021B

Seq Number: 3110527

Parent Sample Id: 646243-001

Matrix: Soil

MS Sample Id: 646243-001 S

Prep Method: SW5030B

Date Prep: 12.13.19

MSD Sample Id: 646243-001 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	0.0903	90	0.0894	89	70-130	1	35	mg/kg	12.13.19 11:40	
Toluene	<0.00200	0.100	0.0903	90	0.0892	88	70-130	1	35	mg/kg	12.13.19 11:40	
Ethylbenzene	<0.00200	0.100	0.0865	87	0.0837	83	71-129	3	35	mg/kg	12.13.19 11:40	
m,p-Xylenes	<0.00401	0.200	0.182	91	0.176	88	70-135	3	35	mg/kg	12.13.19 11:40	
o-Xylene	<0.00200	0.100	0.0927	93	0.0900	89	71-133	3	35	mg/kg	12.13.19 11:40	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		70-130	%	12.13.19 11:40
4-Bromofluorobenzene	123		123		70-130	%	12.13.19 11:40

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

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

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

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



Chain of Custody

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

Work Order No: 10410250

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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:	slc@ltenv.com, dmoir@ltenv.com
Project Name:	PLU 05 11 Federal Battery	Turn Around	
Project Number:	012918036	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):	8.2	Thermometer ID					
Received Intact:	☒ Yes	T-NM-007					
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor: -0.2					
Sample Custody Seals:	Yes ☒ No ☐ N/A	Total Containers: 3					

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers				ANALYSIS REQUEST										Work Order Notes	
					TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)													
Sw16	S	12-12-19	1115	0-6	1	X	X													
Sw17	S	12-12-19	1130	0-6	1	X	X													
Sw18	S	12-12-19	1145	0-6	1	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

Relinquished by: (Signature) [Signature] **Received by: (Signature)** [Signature] **Date/Time** 0850 12/13/19

Relinquished by: (Signature) [Signature] **Received by: (Signature)** [Signature] **Date/Time** 12/13/19 0905



Client: LT Environmental, Inc.

Date/ Time Received: 12/13/2019 09:05:00 AM

Work Order #: 646256

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	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: 12/13/2019

Checklist reviewed by:

Jessica Kramer

Date: 12/13/2019