

3300 North A Street, Building 1, #103 Midland, Texas 79705 T 432.704.5178



March 16, 2020

Mr. Mike Bratcher New Mexico Oil Conservation Division 811 South First Street Artesia, New Mexico 8821

#### RE: Containment Liner Inspection and Subsequent Delineation C 17 State #001H Incident ID: NRM2003533617 Eddy County, New Mexico

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE) is pleased to present the following letter report to WPX Energy Production, LLC (WPX) summarizing the response efforts and secondary containment liner inspection associated with a produced water release at the C 17 STATE #001H well pad (Site) in Unit A, Section 17, Township 23 South, Range 27 East, in Eddy County, New Mexico (Figure 1). On December 19, 2019, there was a failure in the produced water dump line causing the release of approximately 35 barrels (bbls) of produced water in the lined steel containment at the site. All fluids were contained within the lined secondary containment, recovered immediately, and returned to production. WPX reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on December 30, 2019, and was subsequently assigned Incident ID NRM2003533617 (Attachment 1).

#### **INITIAL LINER INSPECTION**

On January 14, 2020, LTE personnel competent in the inspection of on-site equipment and facilities visited the Site to visually inspect the liner. During the inspection, seven tears approximately 1 inch in size were noted in the northeast and southwest areas of the secondary containment liner. Based on this observation, additional assessment and soil sampling activities were warranted. Repair of the liner was arranged after access and sampling of the underlying soil was complete. Photographs taken during the liner inspection and follow-up liner repair are included as Attachment 2.

#### SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is C 04044 Pod 1, located approximately 4,195 feet northeast of the Site. The water well has a depth to groundwater of 150 feet and a total depth of 290 feet bgs. Ground surface elevation at the water well location is 3,148 feet above mean sea level (AMSL), which is approximately 12 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is a drainage located approximately





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1,045 feet east 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. The Site is greater than 300 feet from a 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 medium potential karst area. Based on these criteria, the following NMOCD Table 1 Closure Criteria apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 1,000 mg/kg for the sum of total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) and TPH – diesel range organics (DRO); 2,500 mg/kg TPH; and 20,000 mg/kg chloride.

#### SOIL SAMPLING

On January 30, 2020, LTE was onsite to conduct soil sampling associated with the observed tears in the tank battery secondary containment liner. Soil samples were collected beneath each of the observed tares from surface level to 0.3 feet bgs at each location (SS01 through SS07). Soil samples were field screened for volatile aromatic hydrocarbons using a photo-ionization detector (PID) and chloride using Hach<sup>®</sup> chloride QuanTab<sup>®</sup> test strips. The soil samples were placed directly into a pre-cleaned glass jar, 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 State Environmental Protection Agency (USEPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-motor oil range organics (MRO) following USEPA Method 8015M/D; and chloride following USEPA Method 300.0. Soil sample locations are depicted on the attached Figure 2.

#### **ANALYTICAL RESULTS**

Laboratory analytical results of soil samples indicated that BTEX, TPH, and chloride concentrations were either below the laboratory detection limit or compliant with the NMOCD Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

WPX repaired the observed tears as depicted in the attached Photographic Log (Attachment 2). LTE recommends that WPX request no further action for Incident ID NRM2003533617. An updated NMOCD Form C-141 is included as Attachment 1.





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If you have any questions or comments, please do not hesitate to contact Chris McKisson at (970) 285-9985 or cmckisson@ltenv.com.

Sincerely, LT ENVIRONMENTAL, INC.

Chris McKisson Project Environmental Scientist

Ashley L. Ager, M.S., P.G.

Senior Geologist

Attachments:

Figure 1 Site Location Map

Figure 2 Site Map

Table 1 Soil Analytical Results

Attachment 1 Initial/Final NMOCD Form C-141

Attachment 2 Photographic Log

Attachment 3 Laboratory Analytical Reports



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## FIGURES







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### TABLES



#### TABLE 1 SOIL ANALYTICAL RESULTS

#### C 17 STATE #001H NMOCD INCIDENT ID: NRM2003533617 EDDY COUNTY, NEW MEXICO WPX ENERGY PERMIAN, 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)	MRO (mg/kg)	Sum of GRO + DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS01	0 - 0.3	01/30/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	3,620
SS02	0 - 0.3	01/30/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	4,030
SS03	0 - 0.3	01/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	1,040
SS04	0 - 0.3	01/30/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	3,030
SS05	0 - 0.3	01/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	2,310
SS06	0 - 0.3	01/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	177
SS07	0 - 0.3	01/30/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	8,910
NMOCD Table	e 1 Closure Crit	eria	10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000

Notes:

bgs - below ground surface BTEX - benzene, toluene, ethylbenzene, and total xylenes mg/kg - milligrams per kilogram NE - not established NMOCD - New Mexico Oil Conservation Division DRO - diesel range organics GRO - gasoline range organics MRO - motor oil range organics TPH - total petroleum hydrocarbons < - indicates result is below laboratory reporting limits Bold- indicates result exceeds the applicable regulatory standard

 \* - indicates sample was collected in area to be reclaimed after remediation is complete; closure criteria for chloride concentrationin the top 4 feet of soil is 600 mg/kg
 Table 1 - closure criteria for soils impacted by a release per
 NMAC 19.15.29 August 2018 NMAC -New Mexico Administrative Code



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## ATTACHMENT 1: FORM C-141



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	NRM2003533617
District RP	
Facility ID	
Application ID	

#### **Release Notification**

#### **Responsible Party**

Responsible Party: WPX Energy Permian, LLC.	OGRID: 246289			
Contact Name: Jim Raley	Contact Telephone: 575-689-7597			
Contact email: james.raley@wpxenergy.com	Incident # (assigned by OCD)			
Contact mailing address: 5315 Buena Vista Dr., Carlsbad, NM 88220				

#### **Location of Release Source**

Latitude 32.308862

Longitude -104.205363 (NAD 83 in decimal degrees to 5 decimal places)

Site Name: C 17 STATE #001H	Site Type: Production Facility
Date Release Discovered: 12/19/2019	API# (if applicable): 30-015-44534

Unit Letter	Section	Township	Range	County
А	17	238	27E	Eddy

Surface Owner: State Federal Tribal Private

#### 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)	Volume Recovered (bbls)
Produced Water	Volume Released (bbls) 35	Volume Recovered (bbls) 35
	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: Failure secondary treater contain	of produced water dump line resulted in the release of ment. Volume was estimated by recovered volume as c	approx. 35 bbls of produced water inside lined ontainment is fully lined. Liner to be inspected for

closure.

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Difference       Difference       Initial Response         Was this a major release is defined by 19.152.97(A) NMAC?       If YES, for what reason(s) does the responsible party consider this a major release?         Yes	weatby@CD:13/17/2020	1 <i>0:09:</i> 30 AM			Pageel
ge 2       Oil Conservation Division       District RP         Was this a major       If YES, for what reason(s) does the responsible party consider this a major release?         Volume exceeded 25bbls       Volume exceeded 25bbls         19.15.29.7(A) NMAC?       Volume exceeded 25bbls         If VES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?         District II office notified via email 12/19/2019 at 3.01 PM including Victoria Venegas, Robert Hamlet and Mike Bratcher.         Initial Response         The requestible party most undertake the following actions immediately unless they could create a safety heard that weakl reads in nigary         If The source of the release has been stopped.       The impacted area has been stopped.         If The lequids and recoverable materials have been removed and managed appropriately.       If all the actions described above have agt been undertaken, explain why:         If all the actions described above have agt been undertaken, explain why:       Information given above is the undertaken, explain why:         Thereby certify that the information given above is the undertake the opports they been or discs, absorber to proster their to proto does not relieve the opports have been removed and managed appropriately.         If all the actions described above have agt been undertaken, explain why:       If all the actions described of coloury evaluation there are a three discovery of a release. If remediation has been store 19.15.29.1(A)(S)(a) NMAC (A)(S)(a) NAAC (A)(S)(a) NA	orm C-141	State of New Mexic	co 	Incident ID	NRM2003533617
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If all the actions described above have not been undertaken, explain why:         Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurr 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 heir operations have 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 compliance with any other federal, state, or local laws and/or regulations.         Printed Name:       Jim Raley       Title: Environmental Specialist         Signature:	$\boxtimes$ All free liquids and r	ecoverable materials have been rem	oved and managed app	propriately.	
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Printed Name: Jim Raley       Jin Raley       Title: Environmental Specialist         Signature:        Date: 12/30/2019         email: james.raley@wpxenergy.com       Telephone: 575-689-7597         OCD Only          Received by:       Ramona Marcus       Date: 2/4/2020	I hereby certify that the info regulations all operators are public health or the environ failed to adequately investig addition, OCD acceptance of and/or regulations.	required to report and/or file certain rele- ment. The acceptance of a C-141 report gate and remediate contamination that po of a C-141 report does not relieve the ope	te to the best of my know lease notifications and per t by the OCD does not relose a threat to groundwat erator of responsibility for	vledge and understand that purform corrective actions for r lieve the operator of liability er, surface water, human heal or compliance with any other	ursuant to OCD rules and eleases which may endanger should their operations have th or the environment. In federal, state, or local laws
Signature:        Date: 12/30/2019         email: james.raley@wpxenergy.com       Telephone: 575-689-7597         OCD Only        Date: 2/4/2020         Received by:       Ramona Marcus       Date: 2/4/2020	Printed Name: Jim Rale	In Rold	Title: Environme	ntal Specialist	
email: james.raley@wpxenergy.com       Telephone: 575-689-7597         OCD Only	Signature:	1 1	Date: 12/30/2019		
OCD Only       Received by:     Ramona Marcus       Date:     2/4/2020	email: james.raley@wpx	energy.com	Telephone: 575-6	589-7597	
Received by: Ramona Marcus Date: 2/4/2020	OCD Only				
	Received by: Ramon	a Marcus	Date: 2/4/2	2020	

Oil Conservation Division

	Page 12 of 4.
Incident ID	NRM2003533617
District RP	
Facility ID	
Application ID	

#### Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>&gt;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 <b>not</b> 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
- $\square$  Depth to water determination
- Determination of water sources and significant watercourses within <sup>1</sup>/<sub>2</sub>-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.

Page 4	Form C-141State of New MexicoPage 4Oil Conservation Division		Incident ID District RP Facility ID Application ID	NRM2003533617
I hereby certify that regulations all operar public health or the e failed to adequately addition, OCD accep and/or regulations.	the information given above is true and complete to the tors are required to report and/or file certain release not environment. The acceptance of a C-141 report by the investigate and remediate contamination that pose a thr otance of a C-141 report does not relieve the operator of	best of my knowledge ifications and perform OCD does not relieve t eat to groundwater, sun f responsibility for com	e and understand that pursu corrective actions for relea he operator of liability sho face water, human health apliance with any other fed	ant to OCD rules and ases which may endanger ould their operations have or the environment. In leral, state, or local laws
Printed Name:	Jim Raley	Title:	Environmental Speci	ialist
Signature:	in Cruy	Date:	3/18/2020	
email:	James:Raley@wpxenergy.com	Telephone:	575-689-7597	
OCD Only				
Received by:	Cristina Eads	Date: 03	/17/2020	

SForm C-141 Page 5

State of New Mexico Oil Conservation Division

Incident ID	NRM2003533617
District RP	
Facility ID	
Application ID	

#### Closure

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

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

A scaled site and sampling diagram as described in 19.15.29.11 NMAC

Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

Description of remediation activities

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

Printed Name: Jim Raley	Title:	Environmental Specialist
Signature:	Date:	3/18/2020
email: James.Ratey@wpxenergy.com	Telephone:	575-689-7597

**OCD** Only

Received by OCD:

Received by: Cristina Eads

Date: 03/17/2020

Solution in the second state of the second sta

Closure Approved by:	Denied	Date:	04/08/2020
			En incomental On a siglist
Printed Name: Cristin	ha Eads	Title:	Environmental Specialist

-

# **ATTACHMENT 2: PHOTOGRAPHIC LOG**



Photograph 1: View of tare in liner.



**Photograph 3:** View of tare in liner.

#### PHOTOGRAPHIC LOG



Photograph 2: View of tare in liner.



Photograph 4: View of tare in liner.



C 17 State #001H

Photographs Taken: January 14, 2020

#### PHOTOGRAPHIC LOG



Photograph 5: View east of liner repair.



Photograph 7: View southwest of liner repair.



Photograph 6: View west of liner repair.



Photograph 4: View north of liner repair.



C 17 State #001H

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for LT Environmental, Inc.

**Project Manager: Chris McKisson** 

C 17 State 1H

034820004

#### 31-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)



31-JAN-20

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

Reference: XENCO Report No(s): **650903 C 17 State 1H** Project Address: Rural Eddy County

#### Chris McKisson:

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) 650903. 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. 650903 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Vramer

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 650903

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	01-30-20 09:55	0 - 0.3 ft	650903-001
SS02	S	01-30-20 10:15	0 - 0.3 ft	650903-002
SS03	S	01-30-20 10:35	0 - 0.3 ft	650903-003
SS04	S	01-30-20 11:00	0 - 0.3 ft	650903-004
SS05	S	01-30-20 11:20	0 - 0.3 ft	650903-005
SS06	S	01-30-20 11:40	0 - 0.3 ft	650903-006
SS07	S	01-30-20 11:55	0 - 0.3 ft	650903-007

Version: 1.%

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#### CASE NARRATIVE

*Client Name: LT Environmental, Inc. Project Name: C 17 State 1H* 

 Project ID:
 034820004

 Work Order Number(s):
 650903

ATORIES

Report Date: 31-JAN-20 Date Received: 01/30/2020

#### Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-3115056 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3115060 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3115096 TPH by SW8015 Mod

Surrogate 1-Chlorooctane, Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected.

Samples affected are: 650903-001,650903-003.





Project Id:	034820004
Contact:	Chris McKisson
Project Location:	Rural Eddy County

#### Certificate of Analysis Summary 650903

LT Environmental, Inc., Arvada, CO Project Name: C 17 State 1H

Date Received in Lab: Thu Jan-30-20 01:58 pm **Report Date:** 31-JAN-20 Project Manager: Jessica Kramer

	Lab Id:	650903-0	001	650903-0	002	650903-	003	650903-	004	650903-0	005	650903-	006
Analysis Requested	Field Id:	SS01		SS02		SS03		<b>SS</b> 04	Ļ	SS05		SS06	5
Anutysis Requested	Depth:	0-0.3 f	ì	0-0.3 1	ì	0-0.3	ft	0-0.3	ft	0-0.3 1	ît	0-0.3 1	ft
	Matrix:	SOIL		SOIL		SOIL		SOIL	_	SOIL		SOIL	
	Sampled:	Jan-30-20 (	09:55	Jan-30-20	10:15	Jan-30-20	10:35	Jan-30-20	11:00	Jan-30-20	11:20	Jan-30-20	11:40
BTEX by EPA 8021B	Extracted:	Jan-30-20	15:00	Jan-30-20	15:00	Jan-30-20	15:00	Jan-30-20	16:31	Jan-30-20	16:31	Jan-30-20	16:31
	Analyzed:	Jan-30-20 2	21:02	Jan-30-20	21:23	Jan-30-20	21:43	Jan-31-20	00:47	Jan-31-20	01:07	Jan-31-20	01:28
	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	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
Toluene		< 0.00202	0.00202	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
Ethylbenzene		< 0.00202	0.00202	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
m,p-Xylenes		< 0.00403	0.00403	< 0.00396	0.00396	< 0.00400	0.00400	< 0.00402	0.00402	< 0.00401	0.00401	< 0.00399	0.00399
o-Xylene		< 0.00202	0.00202	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
Xylenes, Total		< 0.00202	0.00202	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
Total BTEX		< 0.00202	0.00202	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00200	0.00200	< 0.00200	0.00200
Chloride by EPA 300	Extracted:	Jan-30-20	16:24	Jan-30-20	16:24	Jan-30-20	16:24	Jan-30-20	16:24	Jan-30-20	16:24	Jan-30-20	16:24
	Analyzed:	Jan-30-20	19:57	Jan-30-20	20:03	Jan-30-20	20:09	Jan-30-20	20:15	Jan-30-20	20:33	Jan-30-20	20:39
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3620	50.4	4030	50.1	1040	50.3	3030	50.3	2310	49.7	177	9.98
TPH by SW8015 Mod	Extracted:	Jan-30-20	16:50	Jan-30-20	16:50	Jan-30-20	16:50	Jan-30-20	17:30	Jan-30-20	17:30	Jan-30-20	17:30
	Analyzed:	Jan-31-20 (	02:41	Jan-31-20	02:41	Jan-31-20	03:00	Jan-31-20	03:59	Jan-31-20	04:19	Jan-31-20	04:38
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<50.1	50.1	<49.9	49.9	<49.9	49.9	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<49.8	49.8	<50.1	50.1	<49.9	49.9	<49.9	49.9	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<50.1	50.1	<49.9	49.9	<49.9	49.9	<49.9	49.9	<50.0	50.0
Total GRO-DRO		<49.8	49.8	<50.1	50.1	<49.9	49.9	<49.9	49.9	<49.9	49.9	<50.0	50.0
Total TPH		<49.8	49.8	<50.1	50.1	<49.9	49.9	<49.9	49.9	<49.9	49.9	<50.0	50.0

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Jessica Kramer Project Assistant

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Project Id:034820004Contact:Chris McKissonProject Location:Rural Eddy County

#### Certificate of Analysis Summary 650903

LT Environmental, Inc., Arvada, CO Project Name: C 17 State 1H

Date Received in Lab:Thu Jan-30-20 01:58 pmReport Date:31-JAN-20Project Manager:Jessica Kramer

Lab Id:	650903-007					
Field Id:	<b>SS</b> 07					
Depth:	0-0.3 ft					
Matrix:	SOIL					
Sampled:	Jan-30-20 11:55					
Extracted:	Jan-30-20 16:31	1		1		
Analyzed:	Jan-31-20 01:48					
Units/RL:	mg/kg RL					
	<0.00201 0.00201					
	<0.00201 0.00201					
	<0.00201 0.00201					
	<0.00402 0.00402					
o-Xylene						
Xylenes, Total						
	<0.00201 0.00201					
Extracted:	Jan-30-20 16:24					
Analyzed:	Jan-30-20 20:45					
Units/RL:	mg/kg RL					
	8910 50.4					
Extracted:	Jan-30-20 17:30					
Analyzed:	Jan-31-20 04:38					
Units/RL:	mg/kg RL					
	<50.0 50.0					
	<50.0 50.0					
	<50.0 50.0					
	<50.0 50.0					
	<50.0 50.0					
	Lab Id: Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL: Extracted: Analyzed: Units/RL: Extracted: Analyzed: Units/RL:	Lab Id: $650903 \cdot 007$ Field Id: $SS07$ Depth: $0 \cdot 0.3$ ft         Matrix: $SOIL$ Sampled: $Jan \cdot 30 \cdot 20$ $1:55$ Extracted: $Jan \cdot 30 \cdot 20$ $1:48$ Units/RL:       mg/kg       RL $0.00201$ Extracted:       Jan $\cdot 30 \cdot 20$ $U.53$ Units/RL:       mg/kg       RL         Malyzed:       Jan $\cdot 30 \cdot 20$ $U.50$ Analyzed:       Jan $\cdot 30 \cdot 20$ $U.53$ Units/RL:       mg/kg       RL         Units/RL: <thmg kg<="" th="">       RL      <t< th=""><th>Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 11:48         Malyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          &lt;0.00201       0.00201          Jan-30-20 20:45          Units/RL:       mg/kg       RL         Manlyzed:       Jan-30-20 17:30         Analyzed:       Jan-31-20 04:38         Units/RL:       mg/kg       RL         Units/RL:       mg/kg       RL</th><th>Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 16:31         Analyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          &lt;0.00201       0.00201               Malyzed:       Jan-30-20 20:45          Units/RL:       mg/kg       RL         Malyzed:       Jan-30-20 17:30          Analyzed:       Jan-31-20 04:38          Units/RL:       mg</th><th>Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 16:31         Analyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          &lt;0.00201       0.00201                              Jan-30-20 15:34          Imalyzet       Jan-31-2</th><th>Lab Id:       650903-007         Field Id:       SS07         Dept:       <math>0-0.3 f</math>         Matrix:       SOU         Sampled:       Jan-30-20 1:55         Extracted:       Jan-30-20 1:63         Mariyze:       Jan-30-20 1:48         Mariyze:       Mariyze:         <math>00020 1 0.0201</math>       Mariyze:         <math>100020 1 0.0201</math>       Mariyze:         <math>100020 1 0.0201</math>       Mariyze:&lt;</th></t<></thmg>	Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 11:48         Malyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          Jan-30-20 20:45          Units/RL:       mg/kg       RL         Manlyzed:       Jan-30-20 17:30         Analyzed:       Jan-31-20 04:38         Units/RL:       mg/kg       RL         Units/RL:       mg/kg       RL	Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 16:31         Analyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201               Malyzed:       Jan-30-20 20:45          Units/RL:       mg/kg       RL         Malyzed:       Jan-30-20 17:30          Analyzed:       Jan-31-20 04:38          Units/RL:       mg	Lab Id:       650903-007         Field Id:       SS07         Depth:       0-0.3 ft         Matrix:       SOIL         Sampled:       Jan-30-20 11:55         Extracted:       Jan-30-20 16:31         Analyzed:       Jan-31-20 01:48         Units/RL:       mg/kg       RL          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201          <0.00201       0.00201                              Jan-30-20 15:34          Imalyzet       Jan-31-2	Lab Id:       650903-007         Field Id:       SS07         Dept: $0-0.3 f$ Matrix:       SOU         Sampled:       Jan-30-20 1:55         Extracted:       Jan-30-20 1:63         Mariyze:       Jan-30-20 1:48         Mariyze:       Mariyze: $00020 1 0.0201$ Mariyze: $100020 1 0.0201$ Mariyze: $100020 1 0.0201$ Mariyze:<

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Jessica Kramer Project Assistant



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS01		Matrix:	Soil	Date Received:01.30.20 13.58 Sample Depth: 0 - 0.3 ft			8
Lab Sample Id.	030903-001		Date Collec	cled: 01.50.20 09.55		Sample Depui: 0 -	0.5 ft	
Analytical Meth	nod: Chloride by EPA	300				Prep Method: E30	00P	
Tech:	MAB					% Moisture:		
Analyst:	MAB		Date Prep:	01.30.20 16.24		Basis: We	t Weight	
Seq Number:	3115083							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	3620	50.4	mg/kg	01.30.20 19.57		5
Analytical Meth	nod: TPH by SW8015 DTH	Mod				Prep Method: SW % Moisture:	8015P	
Analyst:	DTH		Date Prep:	01.30.20 16.50		Basis: We	t Weight	
Seq Number:	3115096							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range H	ydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.31.20 02.41	U	1
Diesel Range Orga	unics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.31.20 02.41	U	1
Motor Oil Range Hyd	drocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.31.20 02.41	U	1
Total GRO-DRO		PHC628	<49.8	49.8	mg/kg	01.31.20 02.41	U	1

Total T	РН	PHC635	<49.8	49.8		mg/kg	01.31.20 02.41	U	1
s	urrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1	-Chlorooctane		111-85-3	136	%	70-135	01.31.20 02.41	**	
0	-Terphenyl		84-15-1	137	%	70-135	01.31.20 02.41	**	



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS01	Matrix:	Soil	Date Received	1:01.30.20 13.58	
Lab Sample Id	: 650903-001	Date Collected	1:01.30.20 09.55	Sample Depth: 0 - 0.3 ft		
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B	
Tech:	MAB			% Moisture:		
Analyst:	MAB	Date Prep:	01.30.20 15.00	Basis:	Wet Weight	
Seq Number:	3115056					

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
Toluene	108-88-3	< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
Ethylbenzene	100-41-4	< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
m,p-Xylenes	179601-23-1	< 0.00403	0.00403		mg/kg	01.30.20 21.02	U	1
o-Xylene	95-47-6	< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
Xylenes, Total	1330-20-7	< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
Total BTEX		< 0.00202	0.00202		mg/kg	01.30.20 21.02	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	111	%	70-130	01.30.20 21.02		
4-Bromofluorobenzene		460-00-4	97	%	70-130	01.30.20 21.02		



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id: <b>SS02</b> Lab Sample Id: 650903-002	2	Matrix: Date Collec	Soil cted: 01.30.20 10.15		Date Received:01. Sample Depth:0 -	30.20 13.58 0.3 ft	3
Analytical Method: Chlorid Tech: MAB Analyst: MAB Seq Number: 3115083	de by EPA 300	Date Prep:	01.30.20 16.24		Prep Method: E30 % Moisture: Basis: We	00P t Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4030	50.1	mg/kg	01.30.20 20.03		5
Analytical Method: TPH b Tech: DTH Analyst: DTH Seq Number: 3115096	y SW8015 Mod	Date Prep:	01.30.20 16.50		Prep Method: SW % Moisture: Basis: We	78015P t Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil

Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1		mg/kg	01.31.20 02.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1		mg/kg	01.31.20 02.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.1	50.1		mg/kg	01.31.20 02.41	U	1
Total GRO-DRO	PHC628	< 50.1	50.1		mg/kg	01.31.20 02.41	U	1
Total TPH	PHC635	< 50.1	50.1		mg/kg	01.31.20 02.41	U	1
			%					
Surrogate		Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	116	%	70-135	01.31.20 02.41		
o-Terphenyl		84-15-1	108	%	70-135	01.31.20 02.41		



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

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Sample Id:	SS02	Matrix:	Soil	Date Received	1:01.30.20 13.58
Lab Sample Id	: 650903-002	Date Collected	Date Collected: 01.30.20 10.15         Sample Depth: 0 - 0.3		
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.30.20 15.00	Basis:	Wet Weight
Seq Number:	3115056				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
Toluene	108-88-3	< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
Ethylbenzene	100-41-4	< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
m,p-Xylenes	179601-23-1	< 0.00396	0.00396		mg/kg	01.30.20 21.23	U	1
o-Xylene	95-47-6	< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
Xylenes, Total	1330-20-7	< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
Total BTEX		< 0.00198	0.00198		mg/kg	01.30.20 21.23	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	96	%	70-130	01.30.20 21.23		
1,4-Difluorobenzene		540-36-3	109	%	70-130	01.30.20 21.23		



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

		icu. 01.30.20 10.35		Sample Depth	:0 - 0.3 ft	
	Date Prep:	01.30.20 16.24		Prep Method: % Moisture: Basis:	E300P Wet Weight	
as Number	Result	RL	Units	Analysis Da	ate Flag	Dil
87-00-6	1040	50.3	mg/kg	01.30.20 20.	.09	5
	Date Prep:	01.30.20 16.50		Prep Method: % Moisture: Basis:	SW8015P Wet Weight	
	<b>as Number</b> 387-00-6	Date Prep: as Number Result 387-00-6 1040	Date Prep:       01.30.20 16.24         as Number       Result       RL         387-00-6       1040       50.3         Date Prep:       01.30.20 16.50	Date Prep:       01.30.20 16.24         as Number       Result       RL       Units         387-00-6       1040       50.3       mg/kg         387-00-6       Date Prep:       01.30.20 16.50	Prep Method: % Moisture: Basis: as Number Result RL Units Analysis D 387-00-6 1040 50.3 mg/kg 01.30.20 20 Prep Method: % Moisture: Date Prep: 01.30.20 16.50 Basis:	Prep Method:E300P % Moisture: Basis:Date Prep:01.30.20 16.24Prep Method:E300P % Moisture: Basis:as NumberResultRLUnitsAnalysis DateFlag387-00-6104050.3mg/kg01.30.20 20.09Flag4.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	01.31.20 03.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9		mg/kg	01.31.20 03.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9		mg/kg	01.31.20 03.00	U	1
Total GRO-DRO	PHC628	<49.9	49.9		mg/kg	01.31.20 03.00	U	1
Total TPH	PHC635	<49.9	49.9		mg/kg	01.31.20 03.00	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	137	%	70-135	01.31.20 03.00	**	
o-Terphenyl		84-15-1	136	%	70-135	01.31.20 03.00	**	



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS03	Matrix:	Soil	Date Received	1:01.30.20 13.58	
Lab Sample Id	: 650903-003	Date Collected	: 01.30.20 10.35	Sample Depth: 0 - 0.3 ft		
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B	
Tech:	MAB			% Moisture:		
Analyst:	MAB	Date Prep:	01.30.20 15.00	Basis:	Wet Weight	
Seq Number:	3115056					

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
m,p-Xylenes	179601-23-1	< 0.00400	0.00400		mg/kg	01.30.20 21.43	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
Xylenes, Total	1330-20-7	< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	01.30.20 21.43	U	1
Surrogate		Cas Number	%	Units	Limits	Analysis Date	Flag	
Surrogate		Cas rumber	Recovery	Omus	Linnts	Analysis Date	1146	
4-Bromofluorobenzene		460-00-4	99	%	70-130	01.30.20 21.43		
1,4-Difluorobenzene		540-36-3	111	%	70-130	01.30.20 21.43		



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id: Lab Sample Id	<b>SS04</b> d: 650903-004		Matrix: Date Collec	Soil ted: 01.30.20 11.00		Date Received: Sample Depth:	01.30.20 13.58 0 - 0.3 ft	
Analytical Me Tech: Analyst: Seq Number:	ethod: Chloride by EPA MAB MAB 3115083	300	Date Prep:	01.30.20 16.24		Prep Method: % Moisture: Basis:	E300P Wet Weight	
Parameter		Cas Number	Result	RL	Units	Analysis Da	te Flag	Dil
Chloride		16887-00-6	3030	50.3	mg/kg	01.30.20 20.1	5	5
Analytical Me Tech:	ethod: TPH by SW8015 DTH	Mod				Prep Method: % Moisture:	SW8015P	
Analyst: Seg Number:	DTH 3115105		Date Prep:	01.30.20 17.30		Basis:	Wet Weight	

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9		mg/kg	01.31.20 03.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9		mg/kg	01.31.20 03.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9		mg/kg	01.31.20 03.59	U	1
Total GRO-DRO	PHC628	<49.9	49.9		mg/kg	01.31.20 03.59	U	1
Total TPH	PHC635	<49.9	49.9		mg/kg	01.31.20 03.59	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	104	%	70-135	01.31.20 03.59		
o-Terphenyl		84-15-1	100	%	70-135	01.31.20 03.59		



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS04	Matrix:	Soil	Date Received	1:01.30.20 13.58
Lab Sample Id	: 650903-004	Date Collected	1:01.30.20 11.00	Sample Depth	:0 - 0.3 ft
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.30.20 16.31	Basis:	Wet Weight
Seq Number:	3115060				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
Toluene	108-88-3	< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
Ethylbenzene	100-41-4	< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
m,p-Xylenes	179601-23-1	< 0.00402	0.00402		mg/kg	01.31.20 00.47	U	1
o-Xylene	95-47-6	< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
Xylenes, Total	1330-20-7	< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
Total BTEX		< 0.00201	0.00201		mg/kg	01.31.20 00.47	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	96	%	70-130	01.31.20 00.47		
1,4-Difluorobenzene		540-36-3	110	%	70-130	01.31.20 00.47		



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS05		Matrix:	Soil		Date Received:01.3	30.20 13.58	, )
Lab Sample I	d: 650903-005		Date Colle	ected: 01.30.20 11.20		Sample Depth: 0 - 0	0.3 ft	
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E30	00P	
Tech:	MAB					% Moisture:		
Analyst:	MAB		Date Prep	: 01.30.20 16.24		Basis: Wet	t Weight	
Seq Number:	3115083							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	2310	49.7	mg/kg	01.30.20 20.33		5

Analytical Method: TPH by SW801	15 Mod				F	Prep Method: SV	V8015P	
Tech: DTH					9	6 Moisture:		
Analyst: DTH		Date Pre	p: 01.30	.20 17.30	E	Basis: We	et Weight	
Seq Number: 3115105								
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9		mg/kg	01.31.20 04.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9		mg/kg	01.31.20 04.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9		mg/kg	01.31.20 04.19	U	1
Total GRO-DRO	PHC628	<49.9	49.9		mg/kg	01.31.20 04.19	U	1
Total TPH	PHC635	<49.9	49.9		mg/kg	01.31.20 04.19	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	118	%	70-135	01.31.20 04.19		
o-Terphenyl		84-15-1	110	%	70-135	01.31.20 04.19		
			110		. 5 100			



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS05	Matrix:	Soil	Date Received	1:01.30.20 13.58
Lab Sample Id	l: 650903-005	Date Collected	llected: 01.30.20 11.20 Sample Depth: 0		:0 - 0.3 ft
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	01.30.20 16.31	Basis:	Wet Weight
Seq Number:	3115060				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
m,p-Xylenes	179601-23-1	< 0.00401	0.00401		mg/kg	01.31.20 01.07	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
Xylenes, Total	1330-20-7	< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	01.31.20 01.07	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	98	%	70-130	01.31.20 01.07		
1,4-Difluorobenzene		540-36-3	111	%	70-130	01.31.20 01.07		



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BORATORIES

#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS06		Matrix:	Soil		Date Received	1:01.30	0.20 13.58	
Lab Sample Id	l: 650903-006		Date Collec	cted: 01.30.20 11.40		Sample Depth: 0 - 0.3 ft			
Analytical Me	thod: Chloride by EPA	300				Prep Method:	E300	Р	
Tech:	MAB					% Moisture:			
Analyst:	MAB		Date Prep:	01.30.20 16.24		Basis:	Wet V	Weight	
Seq Number:	3115083								
Parameter		Cas Number	Result	RL	Units	Analysis D	ate	Flag	Dil
Chloride		16887-00-6	177	9.98	mg/kg	01.30.20 20	.39		1

Analytical Method: TPH by SW801	15 Mod				P	rep Method: SW	/8015P	
Tech: DTH					9	6 Moisture:		
Analyst: DTH		Date Pre	p: 01.30	.20 17.30	E	Basis: We	et Weight	
Seq Number: 3115105								
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.0	50.0		mg/kg	01.31.20 04.38	U	1
Total GRO-DRO	PHC628	< 50.0	50.0		mg/kg	01.31.20 04.38	U	1
Total TPH	PHC635	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	104	%	70-135	01.31.20 04.38		
o-Terphenyl		84-15-1	99	%	70-135	01.31.20 04.38		



BORATORIES

#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS06	Matrix:	Soil	Date Received	1:01.30.20 13.58		
Lab Sample Id	l: 650903-006	Date Collected	: 01.30.20 11.40	Sample Depth: 0 - 0.3 ft			
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B		
Tech:	MAB			% Moisture:			
Analyst:	MAB	Date Prep:	01.30.20 16.31	Basis:	Wet Weight		
Seq Number:	3115060						

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
m,p-Xylenes	179601-23-1	< 0.00399	0.00399		mg/kg	01.31.20 01.28	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
Xylenes, Total	1330-20-7	< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	01.31.20 01.28	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	97	%	70-130	01.31.20 01.28		
1,4-Difluorobenzene		540-36-3	110	%	70-130	01.31.20 01.28		



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#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id: SS07		Matrix:	Soil		Date Received:01	.30.20 13.5	8
Lab Sample Id: 650903-007		Date Collec	cted: 01.30.20 11.55		Sample Depth: 0 -	0.3 ft	
Analytical Method: Chloride by EF	PA 300				Prep Method: E3	00P	
Tech: MAB					% Moisture:		
Analyst: MAB		Date Prep:	01.30.20 16.24		Basis: We	et Weight	
Seq Number: 3115083							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8910	50.4	mg/kg	01.30.20 20.45		5
Analytical Method: TPH by SW80	15 Mod				Prep Method: SV	V8015P	
Tech: DTH					% Moisture:		
Analyst: DTH		Date Prep:	01.30.20 17.30		Basis: We	et Weight	
Seq Number: 3115105		Ĩ					
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.31.20 04.38	U	1

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Total GRO-DRO	PHC628	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Total TPH	PHC635	<50.0	50.0		mg/kg	01.31.20 04.38	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	118	%	70-135	01.31.20 04.38		
o-Terphenyl		84-15-1	110	%	70-135	01.31.20 04.38		



#### **Certificate of Analytical Results 650903**

#### LT Environmental, Inc., Arvada, CO

C 17 State 1H

Sample Id:	SS07	Matrix:	Soil	Date Received	1:01.30.20 13.58	
Lab Sample Id	: 650903-007	Date Collected	Sample Depth	pth:0 - 0.3 ft		
Analytical Me	thod: BTEX by EPA 8021B			Prep Method:	SW5030B	
Tech:	MAB			% Moisture:		
Analyst:	MAB	Date Prep:	01.30.20 16.31	Basis:	Wet Weight	
Seq Number:	3115060					

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
Toluene	108-88-3	< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
Ethylbenzene	100-41-4	< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
m,p-Xylenes	179601-23-1	< 0.00402	0.00402		mg/kg	01.31.20 01.48	U	1
o-Xylene	95-47-6	< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
Xylenes, Total	1330-20-7	< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
Total BTEX		< 0.00201	0.00201		mg/kg	01.31.20 01.48	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	111	%	70-130	01.31.20 01.48		
4-Bromofluorobenzene		460-00-4	97	%	70-130	01.31.20 01.48		



#### **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clier	nt Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	atory Control Sample Duplicate
MD/SD	Method Duplicate/Sample Duplicate	MS	Matrix Spike	MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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





QC Summary 650903

#### LT Environmental, Inc.

C 17 State 1H

Analytical Method:	Chloride by EPA 30	0						Pı	rep Metho	od: E30	0P	
Seq Number:	3115083			Matrix:	Solid				Date Pre	ep: 01.3	30.20	
MB Sample Id:	7695601-1-BLK		LCS San	nple Id:	7695601-	I-BKS		LCS	D Sample	Id: 769	5601-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Chloride	<10.0	250	259	104	261	104	90-110	1	20	mg/kg	01.30.20 19:20	

Analytical Method:	Chloride by I	EPA 30	0						Pr	ep Metho	od: E3	90P	
Seq Number:	3115083			]	Matrix:	Soil				Date Pre	ep: 01.	30.20	
Parent Sample Id:	650883-024			MS San	nple Id:	650883-02	4 S		MSI	D Sample	e Id: 650	0883-024 SD	
Parameter	P	arent	Spike	MS	MS	MSD	MSD	Limits	%RPD	RPD Lim	it Units	Analysis	Flag
	r	lesult	Amount	Result	%Rec	Result	%Rec					Date	

Analytical Method:	TPH by SV	V8015 M	od						F	Prep Method	l: SW	/8015P	
Seq Number:	3115096				Matrix:	Solid				Date Prep	p: 01.	30.20	
MB Sample Id:	7695660-1-	BLK		LCS Sar	nple Id:	7695660-	1-BKS		LCS	SD Sample	ld: 769	95660-1-BSD	
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbo	ns (GRO)	<50.0	1000	1090	109	905	91	70-135	19	35	mg/kg	01.30.20 23:03	
Diesel Range Organics (I	DRO)	<50.0	1000	917	92	1030	103	70-135	12	35	mg/kg	01.30.20 23:03	
Surrogate		MB %Rec	MB Flag	L %	CS Rec	LCS Flag	LCSI %Re	) LCS c Flag	SD Limits Units g			Analysis Date	
1-Chlorooctane		87		1	32		107		7	0-135	%	01.30.20 23:03	
o-Terphenyl 82			1	14		97		7	0-135	%	01.30.20 23:03		

Analytical Method:	TPH by S	W8015 M	od						I	Prep Method	I: SW	/8015P	
Seq Number:	3115105				Matrix:	Solid				Date Prep	p: 01.	30.20	
MB Sample Id:	7695665-1	-BLK		LCS Sar	nple Id:	7695665-	1-BKS		LCS	SD Sample l	ld: 769	95665-1-BSD	
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	) RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	< 50.0	1000	1060	106	1130	113	70-135	6	35	01.31.20 03:40		
Diesel Range Organics	(DRO)	103	1000	1050	105	976	98	70-135	7	01.31.20 03:40			
Surrogate		MB %Rec	MB Flag	L %	CS Rec	LCS Flag	LCSI %Ree	) LCS c Flag	D Limits Units g			Analysis Date	
1-Chlorooctane		105		1	31		134		7	70-135	%	01.31.20 03:40	
o-Terphenyl		98		1	33		122		7	70-135	%	01.31.20 03:40	

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



**QC Summary** 650903

#### LT Environmental, Inc.

C 17 State 1H

Prep Method: SW8015P Analytical Method: TPH by SW8015 Mod Seq Number: 3115096 Matrix: Solid Date Prep: 01.30.20 MB Sample Id: 7695660-1-BLK MB Units Analysis Flag Parameter Date Result Motor Oil Range Hydrocarbons (MRO) < 50.0 01.30.20 23:03 mg/kg

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW80	)15P	
Seq Number:	3115105	Matrix:	Solid	Date Prep:	01.30	.20	
		MB Sample Id:	7695665-1-BLK				
Parameter		MB Result		ι	J <b>nits</b>	Analysis Date	Flag
Motor Oil Range Hydrocarb	ons (MRO)	<50.0		m	ng/kg	01.31.20 03:20	

<b>TPH by SW</b> 3115096	78015 M	od		Matrix:	Soil			P	rep Method Date Prep	l: SW 5: 01.3	8015P 30.20	
650883-009			MS Sar	nple Id:	650883-00	)9 S		MS	D Sample I	ld: 650	883-009 SD	
	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
ns (GRO)	< 50.1	1000	936	94	1010	101	70-135	8	35	mg/kg	01.30.20 23:43	
ORO)	113	1000	850	74	948	84	70-135	11	35	mg/kg	01.30.20 23:43	
Surrogate					MS Flag	MSD %Rec	MSD c Flag	) L ;	imits	Units	Analysis Date	
1-Chlorooctane						122		7	0-135	%	01.30.20 23:43	
o-Terphenyl			1	03		108		7	0-135	%	01.30.20 23:43	
	<b>TPH by SW</b> 3115096 650883-009 ns (GRO) DRO)	TPH by SW8015 M 3115096 650883-009 Parent Result ns (GRO) <50.1 DRO) 113	TPH by SW8015 Mod         3115096         650883-009         Parent Spike         Result Amount         ns (GRO)       <50.1	Parent         Spike Result         MS MS         Sar           050883-009         MS Sar         MS         MS         Sar         Sar         Sar         MS         Sar         MS         Sar         Sar	TPH by SW8015 Mod       Matrix:         3115096       Matrix:         650883-009       MS Sample Id:         Parent       Spike       MS       MS         ns (GRO)       <50.1	Matrix:       Soil         3115096       Matrix:       Soil         650883-009       MS Sample Id:       650883-00         Parent Result       Spike Amount       MS       MS       MSD Result         ns (GRO)       <50.1	Matrix:       Soil         3115096       Matrix:       Soil         650883-009       MS Sample Id:       650883-009 S         Parent Result       Spike Amount       MS       MS       MSD       MSD         ns (GRO)       <50.1	Matrix:       Soil         3115096       Matrix:       Soil         650883-009       MS Sample Id:       650883-009 S         Parent Result Amount       MS Result %Result	Matrix:       Soil       Matrix:       Soil         3115096       Matrix:       Soil       MS       MS       MS         650883-009       MS Sample Id:       650883-009 S       MS       MS       MS         Parent Result Amount       MS Result Messal       MS       MSD Result Messal       MSD MSD MSD       Limits       %RPD         ns (GRO)       <50.1	Prep Method         3115096       Matrix:       Soil       Date Prep         650883-009       MS Sample Id:       650883-009 S       MSD Ample Id:       MSD Sample Id:         Parent Result       Spike Amount       MS       MS       MSD Result       MSD Res	Prep Method: SW         SW8015 Mod       Prep Method: SW         3115096       Matrix:       Soil       Date Prep:       01.3         650883-009       MS Sample Id:       650883-009 S       MSD Sample Id:       6508       MSD Sample Id:       6508         Parent Result       Spike Amount       MS Result       MSD NSD NSD NSD S       MSD NSD Sample Id:       01.3         ns (GR0)       <50.1       1000       936       94       1010       101       70-135       8       35       mg/kg         DRO)       113       1000       850       74       948       84       70-135       11       35       mg/kg         MS NRC       MS Result       MS NRC       MSD NRC       MSD NRC       MSD NRC       Mg/kg         113       1000       936       94       1010       101       70-135       11       35       mg/kg         113       1000       113       122       70-135       %       113         103       108       70-135       %       108       70-135       %	TPH by SW8015 ModePrep Method: SW8015P3115096Matrix:SoilDate Prep: $01.30.20$ 650883-009MS Swmer Ivit: $650883-005$ $MS O = V = V = V = V$ $65083-005$ $MS O = V = V = V = V$ $Analysis DateParent ResultSpikeMSMSMSDMSDMSDV = V = V = V = V = VAnalysis Datens (GRO)<50.1$

Analytical Method:	TPH by SV	V8015 M	od						F	Prep Method	l: SW	8015P	
Seq Number:	3115105				Matrix:	Soil				Date Prep	p: 01.3	30.20	
Parent Sample Id:	650903-004	1		MS Sar	nple Id:	650903-00	04 S		MS	SD Sample	Id: 650	903-004 SD	
Parameter	arameter Parent Spike MS M Result Amount Result %R					MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	< 50.2	1000	1180	118	1100	109	70-135	7	35	mg/kg	01.31.20 11:29	
Diesel Range Organics	(DRO)	< 50.2	1000	1010	101	1010	100	70-135	0	35	mg/kg	01.31.20 11:29	
Surrogate				N %	1S Rec	MS Flag	MSD %Rec	MSE Flag	) I g	Limits	Units	Analysis Date	
1-Chlorooctane				1	35		132		7	0-135	%	01.31.20 11:29	
o-Terphenyl				1	35		128		7	0-135	%	01.31.20 11:29	

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

o-Terphenyl

[D] = 100\*(C-A) / BRPD = 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 AddedD = MSD/LCSD % Rec

135

70-135



#### QC Summary 650903

#### LT Environmental, Inc.

C 17 State 1H

Analytical Method:	BTEX by EPA 8021	B						]	Prep Metho	od: SW	5030B	
Seq Number:	3115056		]	Matrix:	Solid				Date Pre	ep: 01.3	30.20	
MB Sample Id:	7695572-1-BLK		LCS San	nple Id:	7695572-	1-BKS		LC	SD Sample	d: 769	5572-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Benzene	< 0.00200	0.100	0.119	119	0.109	109	70-130	9	35	mg/kg	01.30.20 12:46	
Toluene	< 0.00200	0.100	0.109	109	0.0994	99	70-130	9	35	mg/kg	01.30.20 12:46	
Ethylbenzene	< 0.00200	0.100	0.104	104	0.0946	95	71-129	9	35	mg/kg	01.30.20 12:46	
m,p-Xylenes	< 0.00400	0.200	0.202	101	0.184	92	70-135	9	35	mg/kg	01.30.20 12:46	
o-Xylene	< 0.00200	0.100	0.102	102	0.0938	94	71-133	8	35	mg/kg	01.30.20 12:46	
Surrogate	MB %Rec	MB Flag	L0 %]	CS Rec	LCS Flag	LCSI %Ree	) LCSI c Flag	D ] ;	Limits	Units	Analysis Date	
1,4-Difluorobenzene	108		1	09		109		7	70-130	%	01.30.20 12:46	
4-Bromofluorobenzene	90		8	39		94		7	70-130	%	01.30.20 12:46	

BTEX by EPA 802	lB							Prep Meth	od: SW:	5030B	
3115060			Matrix:	Solid				Date Pr	rep: 01.3	0.20	
7695604-1-BLK		LCS Sar	nple Id:	7695604-	1-BKS		LC	SD Sampl	e Id: 769	5604-1-BSD	
MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPI	) RPD Lin	nit Units	Analysis Date	Flag
< 0.00200	0.100	0.111	111	0.114	114	70-130	3	35	mg/kg	01.30.20 23:05	
< 0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	01.30.20 23:05	
< 0.00200	0.100	0.0978	98	0.101	101	71-129	3	35	mg/kg	01.30.20 23:05	
< 0.00400	0.200	0.192	96	0.198	99	70-135	3	35	mg/kg	01.30.20 23:05	
< 0.00200	0.100	0.0973	97	0.100	100	71-133	3	35	mg/kg	01.30.20 23:05	
MB %Rec	MB Flag	L %	CS Rec	LCS Flag	LCSI %Ree	) LCS c Fla	D :	Limits	Units	Analysis Date	
110		1	08		109			70-130	%	01.30.20 23:05	
93		9	91		92			70-130	%	01.30.20 23:05	
	BTEX by EPA 8021 3115060 7695604-1-BLK MB Result <0.00200 <0.00200 <0.00400 <0.00200 <0.00200 MB %Rec 110 93	BTEX by EPA 8021B         3115060         7695604-1-BLK         MB       Spike         0.00200       0.100         <0.00200	BTEX by EPA 8021B           3115060           7695604-1-BLK         LCS Sar           MB         Spike         LCS           <0.00200	BTEX by EPA 8021B         3115060       Matrix:         7695604-1-BLK       LCS S=  e  ld:         MB       Spike       LCS       LCS         <0.00200	BTEX by EPA 8021B         3115060       Matrix: Solid         7695604-1-BLK       LCS SIMPL Id: 7695604-         MB       Spike       LCS       LCS       LCS Result       CSD Result         <0.00200	BTEX by EPA 8021B         3115060       Matrix: Solid         7695604-1-BLK       LCS Sample Id: 7695604-1-BKS         MB       Spike       LCS       LCS       LCS Result       LCSD       LCSD         <0.00200	BTEX by EPA 8021B         3115060       Matrix:       Solid         7695604-1-BLK       LCS Sample Id:       7695604-1-BKS         MB       Spike       LCS       LCS       LCSD       LCSD       LCSD       LISD         <0.00200	BTEX by EPA 8021B         3115060       Matrix: Solid         7695604-1-BLK       LCS Sample Id: 7695604-1-BKS       LC         MB       Spike       LCS       LCS       LCSD       LCSD       LCSD       LCSD       LCSD       Matrix: Solid         <0.00200	BTEX by EPA 8021B       Prep Meth         3115060       Matrix:       Solid       Date Pi         7695604-1-BLK       LCS Sample Id:       7695604-1-BKS       LCSD Sample         MB       Spike       LCS       LCS       LCSD       LCSD       LCSD       Matrix:       Solid          MB       Spike       LCS       LCS       LCSD       LCSD       LCSD       Matrix:       Solid       LCSD       Solid       S	Prep Method:       SW3         3115060       Matrix:       Solid       Date Prep:       01.3         7695604-1-BLK       LCS Sample Id:       7695604-1-BKS       LCSD Sample Id:       Prep Method:       SW3         MB Spike Result       LCS $\mathbb{Z}$ LCSD $\mathbb{Z}$ LCSD $\mathbb{Z}$ Prep Method:       SW3         Amount       LCS $\mathbb{Z}$ CSD $\mathbb{Z}$ LCSD $\mathbb{Z}$ Prep Method:       %       % $       LCS \mathbb{Z}       LCSD \mathbb{Z}       LCSD \mathbb{Z}       Prep Method:       %       %         \mathbb{Z}       LCSD \mathbb{Z}       LCSD \mathbb{Z}       LCSD \mathbb{Z}       Prep Method:       %       %       %       LCSD \mathbb{Z}       LCSD \mathbb{Z}       Prep Method:       %       %       %       LCSD \mathbb{Z}       LCSD \mathbb{Z}       Prep Method:       %       %       %$	BTEX by EPA 8021B       Prep Method:       SW5030B         3115060       Matrix:       Solid       Date Prep:       01.3.20         7695604-1-BLK       LCS Sample I:       7695604-1-BSD         MB Spike Amount       LCS LCS $kesult$ CSD $kesult$ Network $kesult$ Network $kesult$ Nalysis Date          MB Result       Spike Amount       LCS $kesult$ LCSD $kesult$ LCSD $kesult$ $kesu$

<b>Analytical Method:</b> Seq Number: Parent Sample Id:	<b>BTEX by EPA 802</b> 3115056 650838-001	1B	MS San	Matrix: nple Id:	Soil 650838-00	)1 S		F MS	Prep Metho Date Prej D Sample	d: SW p: 01.3 Id: 650	5030B 60.20 838-001 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	0.0988	0.119	120	0.116	117	70-130	3	35	mg/kg	01.30.20 13:27	
Toluene	< 0.00198	0.0988	0.128	130	0.106	107	70-130	19	35	mg/kg	01.30.20 13:27	
Ethylbenzene	< 0.00198	0.0988	0.123	124	0.102	103	71-129	19	35	mg/kg	01.30.20 13:27	
m,p-Xylenes	< 0.00395	0.198	0.240	121	0.199	101	70-135	19	35	mg/kg	01.30.20 13:27	
o-Xylene	< 0.00198	0.0988	0.120	121	0.0992	100	71-133	19	35	mg/kg	01.30.20 13:27	
Surrogate			N %]	1S Rec	MS Flag	MSD %Rec	MSI Flag	) I ;	limits	Units	Analysis Date	
1,4-Difluorobenzene			1	09		109		7	0-130	%	01.30.20 13:27	
4-Bromofluorobenzene			ç	94		92		7	0-130	%	01.30.20 13:27	

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.

C 17 State 1H

Analytical Method:	BTEX by EPA 8021B

<b>Analytical Method:</b>	BTEX by EPA 802	lB						]	Prep Method	1: SW	5030B	
Seq Number:	3115060		]	Matrix:	Soil				Date Prep	p: 01.3	0.20	
Parent Sample Id:	650903-004		MS San	nple Id:	650903-00	)4 S		Μ	SD Sample	Id: 650	903-004 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPE	ORPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00199	0.0994	0.0848	85	0.101	100	70-130	17	35	mg/kg	01.30.20 23:46	
Toluene	< 0.00199	0.0994	0.0726	73	0.0919	91	70-130	23	35	mg/kg	01.30.20 23:46	
Ethylbenzene	< 0.00199	0.0994	0.0717	72	0.0872	86	71-129	20	35	mg/kg	01.30.20 23:46	
m,p-Xylenes	< 0.00398	0.199	0.177	89	0.170	85	70-135	4	35	mg/kg	01.30.20 23:46	
o-Xylene	< 0.00199	0.0994	0.0802	81	0.0854	85	71-133	6	35	mg/kg	01.30.20 23:46	
Surrogate			N %]	IS Rec	MS Flag	MSD %Ree	MSI c Flag	) ] g	Limits	Units	Analysis Date	
1,4-Difluorobenzene			1	08		109		-	70-130	%	01.30.20 23:46	
4-Bromofluorobenzene			ç	95		95		-	70-130	%	01.30.20 23:46	

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

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Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

MS = Matrix Spike B = Spike AddedD = MSD/LCSD % Rec

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	mna Byers	Relinquished by: (Signature)	votice: Signature of this document and relinquis of service. Xenco will be liable only for the cost of Xenco. A minimum charge of \$75.00 will be a	Total 200.7 / 6010 200.8 / 6 Circle Method(s) and Metal(s)			foss	SSDW	5055	SS 04	802	2025	1055	Sample Identification	Sample Custody Seals: Yes	Cooler Custody Seals: Yes A	Received Intact: (Ves	AMPLE RECEIPT Te	PO #:	Sampler's Name: Anna By	Project Location Rural Ed	Project Number: 0348200	Project Name: C 17 S	Phone: 970 2	City, State ZIP: Rifle, C	Address: 820 Me	Company Name: LT Envi	Project Manager: Chris N	LABORATO
	0		hment of sa of samples a plied to eac	020: to be and			6	S	S	S	S	S	S	Matrix	N/A	AIN	N	np Blank		ens	dy C	004	tate	85 0	8	gan	onno	ickis	RE
	C	Receiv	mples consti and shall not th project and	alyzed			4	-				_	1/30/2	Date Sample		C		: Yes N	Quote		ounta		- #	1985	1650	Ave 1	ental	Son	Pr
	L	ved by: (Signa	itutes a valid purch assume any respo d a charge of \$5 for	8RCRA TCLP / SF			1155	1140	1120	1100	1035	1015	0 0955	Time Sampled	otal Container	orrection Facto	1 - M	Thermomet	9 #:	Due	Rus	Rou		Ema		Anit B	1		Hou Midland,TX (432) penix,AZ (480) 35
	A	iture)	ase order fron nsibility for an · each sample	13PPM LP 6010:			4						6-0.	Dept	s: t	10,1	N - 0	er ID		Date:	h:	tine X	Turn Aroun	il: cmck	City		Com	Bill	iston,TX (281 704-5440 EL 5-0900 Attan
	1		n client corr ny losses or submitted t	Texas 1 8RCRA					-	-	-	-	3	Numh		T t Co	A	No				00	b	issor	/, State Z	Addre	pany Nar	to: (If differ	) 240-4200 . Paso,TX ta,GA (770
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0	58 2		filiates and y the clien lyzed. Thes	a Be E			×	×	×	×	×	×	×	Chi	or	id	e (	EP	A 3	00	.0	)		p uno					02-0300 \$ bbock,TX ( FL (813) (
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		ure)	terms and oces beyond busly negot	Mg Mn Ag Tl																			QUEST	Deli	Rep	(0	Pro		704-5440
		Received by: (Signati	conditions the control iated.	U Mo Ni K Se Ag SiO2 Na																				verables: EDD ADa	orting:Level II Level III P	State of Project:	gram: UST/PST PRP Bro	Work Order	01 WWW.xenco.com
7 <del>2</del>		ure)		Sr TI Sn U V 1631 / 245.1 / 74										Sample	receiv	TAT starts the da	Zn Acetate+ Na	NaOH: Na	112007.112	HNO3: HN	None: NO	MeOH: Me	Preser	PT LI Othei	ST/UST UTRRP	]	wnfields RRC	Comments	Page
wised Date 022619 Rev. 20		Date/Time		/ Zn 470 / 7471 : Hg										e Comments	red by 4:00pm	ay recevied by the lat	aOH: Zn						vative Codes			]	Superfund		of

Final 1.000

#### **XENCO** Laboratories

#### Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.	Acceptable Temperat	ure Range: 0 - 6 degC
Date/ Time Received: 01.30.2020 01.58.00 PM	Air and Metal sample	s Acceptable Range: Ambient
Work Order #: 650903	Temperature Measuri	ng device used: T-NM-007
Sample Rece	eipt Checklist	Comments
#1 *Temperature of cooler(s)?	.4	
#2 *Shipping container in good condition?	Yes	S
#3 *Samples received on ice?	Yes	5
#4 *Custody Seals intact on shipping container/ cooler?	Yes	5
#5 Custody Seals intact on sample bottles?	Yes	6
#6*Custody Seals Signed and dated?	Yes	5
#7 *Chain of Custody present?	Yes	5
#8 Any missing/extra samples?	No	,
#9 Chain of Custody signed when relinquished/ received?	Yes	5
#10 Chain of Custody agrees with sample labels/matrix?	Yes	5
#11 Container label(s) legible and intact?	Yes	6
#12 Samples in proper container/ bottle?	Yes	6
#13 Samples properly preserved?	Yes	6
#14 Sample container(s) intact?	Yes	6
#15 Sufficient sample amount for indicated test(s)?	Yes	6
#16 All samples received within hold time?	Yes	6
#17 Subcontract of sample(s)?	No	•
#18 Water VOC samples have zero headspace?	N/A	A

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

Analyst:

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PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Checklist reviewed by: Lessica Kramer

Date: 01.30.2020

Jessica Kramer

Date: 01.31.2020