LT Environmental, Inc.
3300 North A Street, Building 1, #103
Midland, Texas 79705
T 432.704.5178 / F 432.704.5179

July 27, 2018

Mr. Michael Bratcher
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

RE: Closure Request
Big Eddy Unit-DI-9 to Legg Federal SWD Temporary SWD Line
Remediation Permit Number 2RP-2398
Eddy County, New Mexico

Dear Mr. Bratcher;

LT Environmental, Inc. (LTE) on behalf of XTO Energy Inc. (XTO), presents the following letter report detailing the soil sampling activities at the Big Eddy Unit (BEU) DI-9 to Legg Federal Salt water Disposal (SWD) temporary flow line (Site) in Section 15 of Township 22 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the investigation was to assess impacts to soil after a temporary 4-inch polyethylene flow line approximately 1.45 miles north of the Legg Federal SWD ruptured due to equipment damage and caused a release of approximately 215 barrels (bbls) of freshwater and produced water on July 12, 2014. The flow line was filled with freshwater prior to the release, and approximately 195 bbls of freshwater were released before produced water entered the flow line. A total of 20 bbs of produced water were released. The release impacted approximately 1,600 square feet of lease road, then flowed offsite and impacted approximately 1,453 feet of ditch line, approximately 500 square feet of a dry arroyo, and approximately 590 square feet of pasture. Free-standing fluids were recovered with a vacuum truck from the roadway. The previous operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on July 18, 2014, and was assigned Remediation Permit Number (RP) 2RP-2398 (Attachment 1). Although the impact occurred while the well was operated by the previous operator, XTO is the current operator and is committed to addressing any releases that remain unresolved. The sampling was conducted to assess current site conditions. Based on the results of the sampling event as described herein, XTO is requesting no further action for this release.

BACKGROUND

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 and known aquifer properties. The nearest permitted water well with depth to groundwater data is C 03015, located approximately 1.15 miles south of the Site, with a depth to groundwater of 262 feet bgs and a total depth of 1,316 feet bgs. The Site is approximately 623 feet south of permitted water well C02723. The closest surface water to the Site is an arroyo located approximately 40 feet north of the Site. Based on these criteria, the NMOCD site ranking for remediation action levels is 20, and the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg benzene, toluene, ethylbenzene, and total xylenes (BTEX); and 100 mg/kg total petroleum hydrocarbons (TPH).

Based on standard practice in this region, LTE proposes a site-specific chloride action level of 600 mg/kg or within 10 percent (%) of the background concentrations.

SOIL SAMPLING

Soil sample locations were based on the coordinates provided on the initial C-141 Form, and visual inspection of the Site. Based on the description of the affected area, LTE determined the release occurred on the lease road and flowed into the adjacent arroyo. LTE made an effort to collect representative samples around the reported release source and the downgradient area potentially affected by the release. Because the C-141 form does not specify that remediation occurred, other than removal of standing fluids following the 2014 release, it is unlikely that any soil was removed. No visual or olfactory evidence of the release was observed at the Site. LTE collected six soil samples on February 26, 2018, as depicted on Figure 2.

To eliminate effects from weathering and natural degradation of contaminants at the ground surface, subsurface samples were collected from each location at roughly 0.5 feet bgs by hand auger. The soil samples were collected directly into pre-cleaned glass jars, labeled with location, date, time, sampler, and method of analysis and immediately placed on ice. The samples were delivered at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH- oil range organics (ORO) by USEPA Method SW8015 Modified, and chloride by USEPA Method 300.

ANALYTICAL RESULTS

Laboratory analytical results for all six soil samples indicated BTEX and TPH concentrations were below laboratory reporting limits. Chloride concentrations ranged from below the laboratory reporting limit in soil samples SS2 and SS3 to 125 mg/kg in soil sample SS4. The laboratory analytical results are presented on Figure 2 and in Table 1, and the complete laboratory analytical report is included as Attachment 2.

CONCLUSIONS

Laboratory analytical results for soil samples collected at and around the former release point indicate impact to soil, as defined by concentrations of BTEX, TPH, and chloride, do not exceed NMOCD site-specific remediation action levels. XTO requests no further action for this release based on the soil sampling results and the fact that the majority of the release volume was freshwater.

If you have any questions or comments, do not hesitate to contact Adrian Baker at (432) 887-1255 or abaker@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Adrian Baker
Project Geologist

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

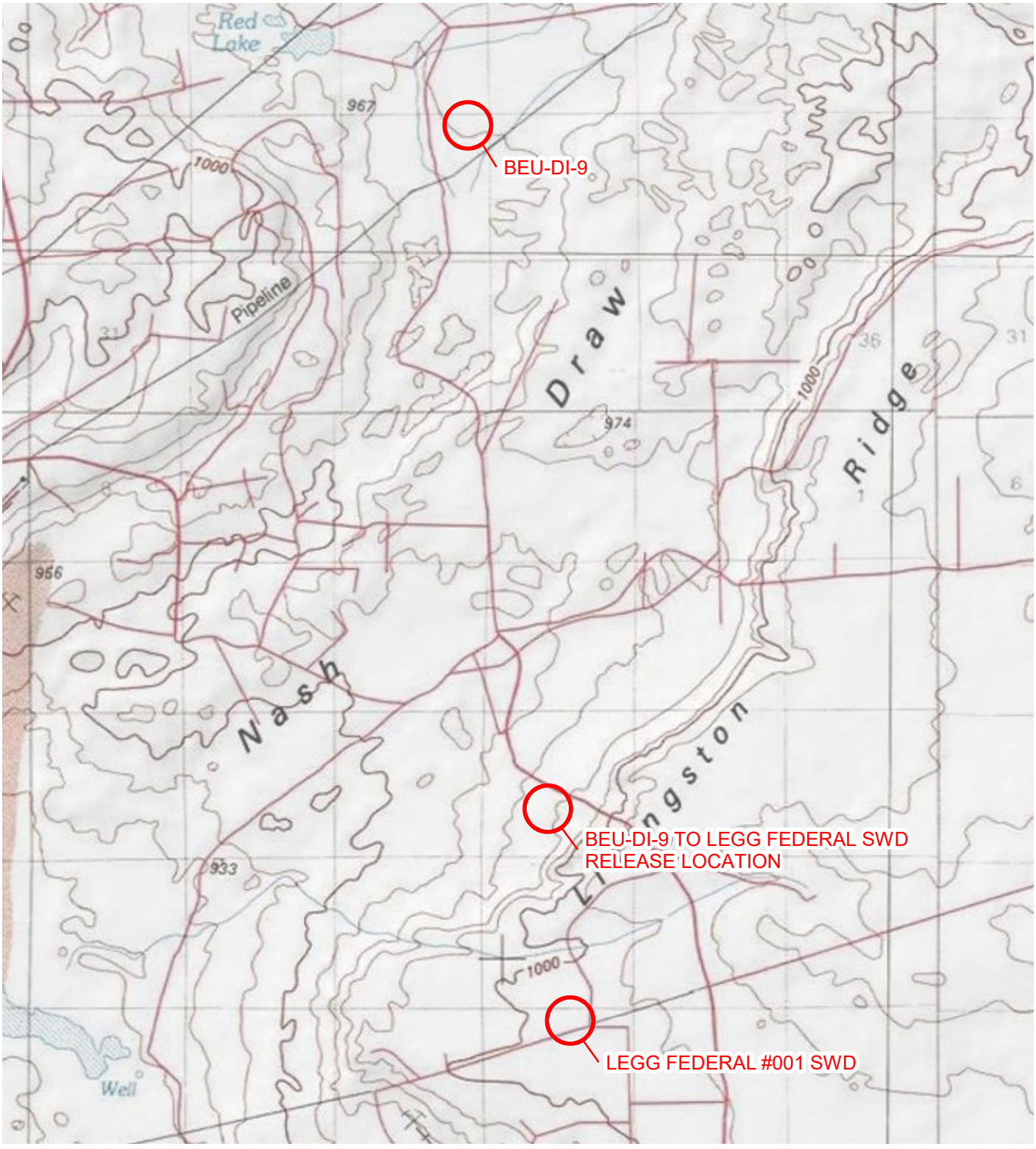
cc: Kyle Littrell, XTO
Jim Amos, BLM
Shelly Tucker, BLM

Attachments:

Figure 1	Site Location Map
Figure 2	Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/ Final NMOCD Form C-141
Attachment 2	Laboratory Analytical Report

FIGURES

Advancing Opportunity



LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 5,000 10,000

Feet

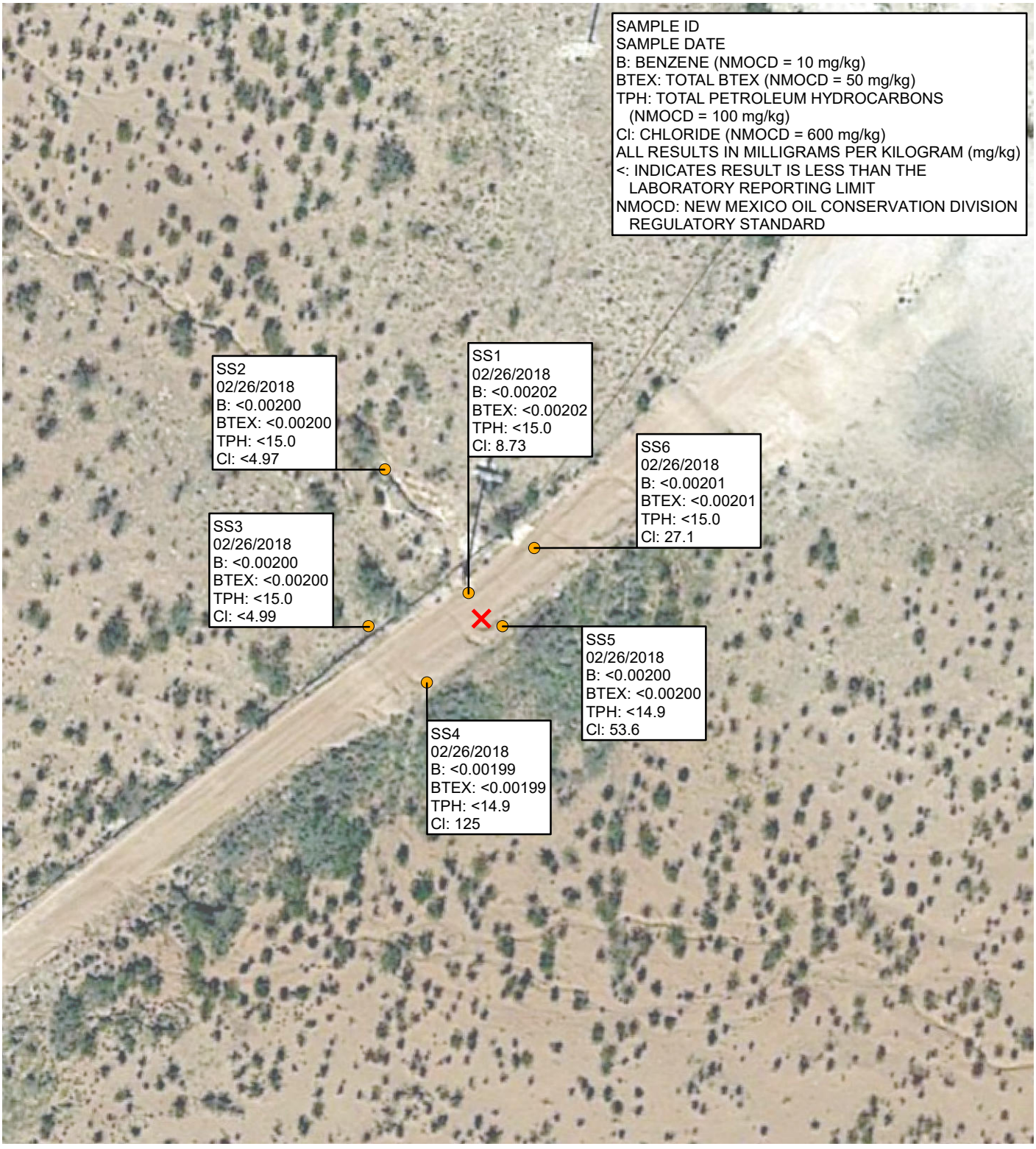
N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 2RP-2398

FIGURE 1
SITE LOCATION MAP
BEU-DI-9 TO LEGG FEDERAL SWD
UNIT K SEC 15 T22S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918024_LEGG FEDERAL 001\012918024_FIG01_SL_2018_2398_180713.mxd



LEGEND

RELEASE LOCATION

SOIL SAMPLE

IMAGE COURTESY OF GOOGLE EARTH 2017

0 50 100

Feet

N

FIGURE 2
SOIL SAMPLE LOCATIONS
BEU-DI-9 TO LEGG FEDERAL SWD
UNIT K SEC 15 T22S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

NOTE: REMEDIATION PERMIT NUMBER 2RP-2398

P:\XTO Energy\GIS\MXD\012918024_LEGG FEDERAL 001\012918024_FIG02_SITE_2018_2398.mxd

TABLE

TABLE 1
SOIL ANALYTICAL RESULTS
BEU-DI-9 TO LEGG FEDERAL SWD
REMEDIATION PERMIT NUMBER 2RP-2398
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 Gasoline Range Organics (mg/kg)	C10-C28 Diesel Range Organics (mg/kg)	C28-C40 Motor Oil Range Organics (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS1	0.5	02/26/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	8.73
SS2	0.5	02/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<4.97
SS3	0.5	02/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<4.99
SS4	0.5	02/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<14.9	<14.9	<14.9	<14.9	125
SS5	0.5	02/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	53.6
SS6	0.5	02/26/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	27.1
NMOCD Remediation Action Levels			10	NE	NE	NE	50	NE	NE	NE	100	600

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
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits
Bold indicates result exceeds the applicable regulatory standard.

ATTACHMENT 1

INITIAL/FINAL NMOCD FORM C-141

Advancing Opportunity

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 18 2014
RECEIVED

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

nAB1420952742

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. 260737	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: BEU-DI-9 to Legg Federal SWD Temporary SWD line. The spill is located 1.45 miles North of the Legg Fed. SWD Battery	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-04734

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	15	22S	30E					Eddy

Latitude N 32.389507 **Longitude** W 103.870061

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release: 215 barrels	Volume Recovered: 15 barrels
Source of Release: Temporary 4" poly line	Date and Hour of Occurrence: 7/12/14 time unknown	Date and Hour of Discovery: 7/12/14 at 7:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD Mike Bratcher and BLM Jim Amos	
By Whom? Tony Savoie	Date and Hour: 7/13/14 at 6:29 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
The produced water did reach a dry drainage gulley and traveled approximately 250 ft. This dry drainage terminates at the salt lakes approximately 2.43 miles to the west/south west.

Describe Cause of Problem and Remedial Action Taken.*
A new 4" poly line ruptured due to equipment damage. The source point was isolated and the damaged areas have been repaired.
The line had been filled with fresh water prior to the release. Approximately 195 barrels of fresh water was released prior to the PW spill.
An incident report is attached.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted approximately 1600 sq.ft. of lease road, approximately 1453 ft. of ditch line, approximately 500 sq.ft of dry drainage gulley and approximately 590 sq.ft. of pasture area. The free standing fluid was recovered from the roadway. Samples were collected to determine the chloride levels in the ditch line, roadway and gulleys.
The spill will be cleaned up in accordance to the NMOCD and BLM remediation guidelines.

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: Tony Savoie

Printed Name: Tony Savoie

Title: Waste Management and Remediation Specialist

E-mail Address: tasavoie@basspet.com

Date: 7/18/14 Phone: 432-556-8730

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 7/29/14 Expiration Date: NA

Conditions of Approval:
Remediation per OCD Rule & Guidelines. **SUBMIT REMEDIATION PROPOSAL NO LATER THAN:** 8/29/14

Attached ☐

RP2-2398

* Attach Additional Sheets If Necessary

TN

MN (7.4°E)

Scale 1 : 50,000

1" = 4,166.7 ft

Data Zoom 12-0

BOPCO, L.P.

PAGE NO. _____

DATE	DEPARTMENT	PREPARED BY
7/14/14		

BEU-DI-9 to Lagg Fed. SWD

Release Point - Road area	200' x 3' x 4" (.33)	Standing
Ditch Line	1453' x 2' x 6" (.5)	Standing
Arroya	250 x 2' x 2" (.17)	Saturation
Gully	295 x 2' x 2" (.17)	Saturation

Road area Standing	94 BLS	
Ditch Line Standing	260 BLS	
Arroya	15 BLS	
Gully	18 BLS	
	387 BLS	15 recovered

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

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company XTO Energy	Contact: Kyle Littrell
Address 3104 E Greene Street, Carlsbad, NM 88220	Telephone No: 432-221-7331
Facility Name: BEU-DI-9 to Legg Federal SWD Temporary SWD line. The spill is located 1.45 miles North of the Legg Fed. SWD Battery	Facility Type: Exploration and Production

Surface Owner Federal	Mineral Owner: Federal	API No. 30-015-04734

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	15	22S	30E					Eddy

Latitude N32.389507 **Longitude** W 103.870061 NAD83

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 215 barrels	Volume Recovered 15 barrels
Source of Release: Temporary 4" poly line	Date and Hour of Occurrence 7/12/2014 time unknown	Date and Hour of Discovery 7/12/2018 7:00PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD Mike Bratcher and BLM Jim Amos	
By Whom? Tony Savoir	Date and Hour: 7/13/14 6:29AM	
Was a Watercourse Reached? ☐ Yes ☒ No (Dry arroyo was reached)	If YES, Volume Impacting the Watercourse:	

If a Watercourse was Impacted, Describe Fully.*
The produced water did reach a dry drainage arroyo and traveled approximately 250 feet. The dry drainage terminates at the salt lakes approximately 2.43 miles to the west/ southwest.

Describe Cause of Problem and Remedial Action Taken.*
The new 4" poly line ruptured due to equipment damage. The source point was isolated and the damaged areas have been repaired.
The line had been filled with fresh water prior to the release. Approximately 195 barrels of fresh water was released prior to the produced water spill. An incident report was attached to the initial C-141.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted approximately 1,600 square feet of lease road, approximately 1,453 square feet of ditch line, approximately 500 square feet of dry drainage and approximately 590 square feet of pasture area. The free-standing fluid was recovered from the roadway. Samples were collected to determine the chloride levels in the ditch line, roadways, and arroyo.

On February 26, 2018, LTE collected six soil samples. Laboratory analytical results for the six soil samples indicated BTEX, TPH, and chloride were below the NMOCD remediation action levels for this Site. Initial remediation efforts and natural degradation have remediated the impacted soil at the Site and XTO requests no further action for this release.

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:	OIL CONSERVATION DIVISION	
Printed Name: Kyle Littrell	Approved by Environmental Specialist: Bradford Billings	
Title: SH&E Coordinator	Approval Date: 11/18/2019	Expiration Date:
E-mail Address: Kyle_Littrell@xtoenergy.com	Conditions of Approval:	Attached ☐
Date: 7/26/2018 Phone: 432-221-7331		

* Attach Additional Sheets If Necessary

ATTACHMENT 2

LABORATORY ANALYTICAL REPORT

Advancing Opportunity

Analytical Report 577907

for

LT Environmental, Inc.

Project Manager: Adrian Baker

BEU-DI-9 to Legg Federal SWD

30-015-047734

09-MAR-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-16), 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 (T104704400-18-14)
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)
Xenco-Atlanta (LELAP Lab ID #04176)

09-MAR-18

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

Reference: XENCO Report No(s): **577907**
BEU-DI-9 to Legg Federal SWD
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) 577907. 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. 577907 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS1	S	02-26-18 09:50	6 In	577907-001
SS2	S	02-26-18 09:52	6 In	577907-002
SS3	S	02-26-18 09:54	6 In	577907-003
SS4	S	02-26-18 09:56	6 In	577907-004
SS5	S	02-26-18 09:58	6 In	577907-005
SS6	S	02-26-18 10:00	6 In	577907-006

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3042733 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 577907

LT Environmental, Inc., Arvada, CO

Project Name: BEU-DI-9 to Legg Federal SWD

Project Id: 30-015-047734
Contact: Adrian Baker
Project Location: NM

Date Received in Lab: Thu Mar-01-18 01:10 pm
Report Date: 09-MAR-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	577907-001		577907-002		577907-003		577907-004		577907-005		577907-006	
	Field Id:	SS1		SS2		SS3		SS4		SS5		SS6	
	Depth:	6- In		6- In		6- In		6- In		6- In		6- In	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-26-18 09:50		Feb-26-18 09:52		Feb-26-18 09:54		Feb-26-18 09:56		Feb-26-18 09:58		Feb-26-18 10:00	
BTEX by EPA 8021B	***Extracted:***	Mar-04-18 10:30		Mar-04-18 10:30		Mar-04-18 10:30		Mar-04-18 10:30		Mar-04-18 10:30		Mar-04-18 10:30	
	Analyzed:	Mar-04-18 23:58		Mar-05-18 00:17		Mar-05-18 00:36		Mar-05-18 00:55		Mar-05-18 01:53		Mar-05-18 02:12	
	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	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Toluene		<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
m,p-Xylenes		<0.00403	0.00403	<0.00401	0.00401	<0.00399	0.00399	<0.00398	0.00398	<0.00401	0.00401	<0.00402	0.00402
o-Xylene		<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Total BTEX		<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201
Inorganic Anions by EPA 300	***Extracted:***	Mar-07-18 10:13		Mar-07-18 10:13		Mar-07-18 12:00		Mar-07-18 12:00		Mar-07-18 12:00		Mar-07-18 12:00	
	Analyzed:	Mar-09-18 05:19		Mar-09-18 05:24		Mar-09-18 11:14		Mar-09-18 11:19		Mar-09-18 11:24		Mar-09-18 11:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		8.73	4.93	<4.97	4.97	<4.99	4.99	125	4.94	53.6	4.93	27.1	4.99
TPH by SW8015 Mod	***Extracted:***	Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00	
	Analyzed:	Mar-03-18 15:05		Mar-03-18 15:25		Mar-03-18 15:45		Mar-03-18 16:05		Mar-03-18 17:03		Mar-03-18 17:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0

Jessica Kramer
Project Assistant

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS1**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-001	Date Collected:	02.26.18 09.50	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 10.13	Basis:	Wet Weight
Seq Number:	3043092				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8.73**	4.93	mg/kg	03.09.18 05.19		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.03.18 15.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.03.18 15.05	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.03.18 15.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.03.18 15.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	03.03.18 15.05	
o-Terphenyl	84-15-1	103	%	70-135	03.03.18 15.05	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS1**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-001	Date Collected:	02.26.18 09.50	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.04.18 23.58	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.04.18 23.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.04.18 23.58	
1,4-Difluorobenzene	540-36-3	73	%	70-130	03.04.18 23.58	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS2**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-002	Date Collected:	02.26.18 09.52	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 10.13	Basis:	Wet Weight
Seq Number:	3043092				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	03.09.18 05.24	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.03.18 15.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.03.18 15.25	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.03.18 15.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.03.18 15.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	03.03.18 15.25	
o-Terphenyl	84-15-1	98	%	70-135	03.03.18 15.25	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS2**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-002	Date Collected:	02.26.18 09.52	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.05.18 00.17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.18 00.17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	77	%	70-130	03.05.18 00.17	
4-Bromofluorobenzene	460-00-4	115	%	70-130	03.05.18 00.17	

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS3**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-003	Date Collected:	02.26.18 09.54	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 12.00	Basis:	Wet Weight
Seq Number:	3043190				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.09.18 11.14	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.03.18 15.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.03.18 15.45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.03.18 15.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.03.18 15.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.03.18 15.45	
o-Terphenyl	84-15-1	91	%	70-135	03.03.18 15.45	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS3**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-003	Date Collected:	02.26.18 09.54	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.05.18 00.36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.18 00.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.05.18 00.36	
1,4-Difluorobenzene	540-36-3	75	%	70-130	03.05.18 00.36	

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS4**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-004	Date Collected:	02.26.18 09.56	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 12.00	Basis:	Wet Weight
Seq Number:	3043190				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**125**	4.94	mg/kg	03.09.18 11.19		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.03.18 16.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.03.18 16.05	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	03.03.18 16.05	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.03.18 16.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	03.03.18 16.05	
o-Terphenyl	84-15-1	98	%	70-135	03.03.18 16.05	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS4**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-004	Date Collected:	02.26.18 09.56	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.05.18 00.55	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.05.18 00.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	77	%	70-130	03.05.18 00.55	
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.05.18 00.55	

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS5**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-005	Date Collected:	02.26.18 09.58	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 12.00	Basis:	Wet Weight
Seq Number:	3043190				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**53.6**	4.93	mg/kg	03.09.18 11.24		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.03.18 17.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.03.18 17.03	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	03.03.18 17.03	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.03.18 17.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	03.03.18 17.03	
o-Terphenyl	84-15-1	106	%	70-135	03.03.18 17.03	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS5**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-005	Date Collected:	02.26.18 09.58	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.05.18 01.53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.05.18 01.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.05.18 01.53	
1,4-Difluorobenzene	540-36-3	84	%	70-130	03.05.18 01.53	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS6**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-006	Date Collected:	02.26.18 10.00	Sample Depth:	6 In

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.07.18 12.00	Basis:	Wet Weight
Seq Number:	3043190				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**27.1**	4.99	mg/kg	03.09.18 11.30		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.02.18 18.00	Basis:	Wet Weight
Seq Number:	3042782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.03.18 17.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.03.18 17.23	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.03.18 17.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.03.18 17.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	03.03.18 17.23	
o-Terphenyl	84-15-1	101	%	70-135	03.03.18 17.23	

Certificate of Analytical Results 577907

LT Environmental, Inc., Arvada, CO

BEU-DI-9 to Legg Federal SWD

Sample Id:	**SS6**	Matrix:	Soil	Date Received:	03.01.18 13.10
Lab Sample Id:	577907-006	Date Collected:	02.26.18 10.00	Sample Depth:	6 In
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.04.18 10.30	Basis:	Wet Weight
Seq Number:	3042733				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.05.18 02.12	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.05.18 02.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	70-130	03.05.18 02.12	
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.05.18 02.12	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 577907

LT Environmental, Inc.

BEU-DI-9 to Legg Federal SWD

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043092 Matrix: Solid Date Prep: 03.07.18
MB Sample Id: 7640346-1-BLK LCS Sample Id: 7640346-1-BKS LCSD Sample Id: 7640346-1-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	248	99	240	96	90-110	3	20	mg/kg	03.07.18 10:25	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043190 Matrix: Solid Date Prep: 03.07.18
MB Sample Id: 7640423-1-BLK LCS Sample Id: 7640423-1-BKS LCSD Sample Id: 7640423-1-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	275	110	90-110	0	20	mg/kg	03.08.18 19:08	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043092 Matrix: Soil Date Prep: 03.07.18
Parent Sample Id: 577880-004 MS Sample Id: 577880-004 S MSD Sample Id: 577880-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	97.7	247	381	115	365	108	90-110	4	20	mg/kg	03.07.18 11:05	X

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043092 Matrix: Soil Date Prep: 03.07.18
Parent Sample Id: 577905-003 MS Sample Id: 577905-003 S MSD Sample Id: 577905-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	154	248	449	119	402	100	90-110	11	20	mg/kg	03.07.18 12:20	X

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043190 Matrix: Soil Date Prep: 03.07.18
Parent Sample Id: 577908-002 MS Sample Id: 577908-002 S MSD Sample Id: 577908-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.92	246	272	111	263	107	90-110	3	20	mg/kg	03.08.18 19:24	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

QC Summary 577907

LT Environmental, Inc.

BEU-DI-9 to Legg Federal SWD

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3043190 Matrix: Soil Date Prep: 03.07.18
Parent Sample Id: 577909-002 MS Sample Id: 577909-002 S MSD Sample Id: 577909-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	216	246	485	109	492	112	90-110	1	20	mg/kg	03.08.18 20:38	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3042782 Matrix: Solid Date Prep: 03.02.18
MB Sample Id: 7640130-1-BLK LCS Sample Id: 7640130-1-BKS LCSD Sample Id: 7640130-1-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	1030	103	1150	115	70-135	11	35	mg/kg	03.03.18 04:37	
Diesel Range Organics (DRO)	<15.0	1000	852	85	932	93	70-135	9	35	mg/kg	03.03.18 04:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		104		110		70-135	%	03.03.18 04:37
o-Terphenyl	96		102		109		70-135	%	03.03.18 04:37

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3042782 Matrix: Soil Date Prep: 03.02.18
Parent Sample Id: 578034-003 MS Sample Id: 578034-003 S MSD Sample Id: 578034-003 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)	<15.0	997	1020	102	1090	109	70-135	7	35	mg/kg	03.03.18 06:18	
Diesel Range Organics (DRO)	<15.0	997	825	83	880	88	70-135	6	35	mg/kg	03.03.18 06:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		107		70-135	%	03.03.18 06:18
o-Terphenyl	97		106		70-135	%	03.03.18 06:18

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

QC Summary 577907

LT Environmental, Inc.

BEU-DI-9 to Legg Federal SWD

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

Seq Number: 3042733 Matrix: Solid Date Prep: 03.04.18

MB Sample Id: 7640122-1-BLK LCS Sample Id: 7640122-1-BKS LCSD Sample Id: 7640122-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0875	88	0.0809	81	70-130	8	35	mg/kg	03.04.18 19:51	
Toluene	<0.00200	0.0998	0.0944	95	0.0877	88	70-130	7	35	mg/kg	03.04.18 19:51	
Ethylbenzene	<0.00200	0.0998	0.108	108	0.100	100	70-130	8	35	mg/kg	03.04.18 19:51	
m,p-Xylenes	<0.00399	0.200	0.214	107	0.198	99	70-130	8	35	mg/kg	03.04.18 19:51	
o-Xylene	<0.00200	0.0998	0.108	108	0.0988	99	70-130	9	35	mg/kg	03.04.18 19:51	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	75		78		88		70-130	%	03.04.18 19:51
4-Bromofluorobenzene	104		111		118		70-130	%	03.04.18 19:51

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

Seq Number: 3042733 Matrix: Soil Date Prep: 03.04.18

Parent Sample Id: 577908-006 MS Sample Id: 577908-006 S MSD Sample Id: 577908-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0655	66	0.0683	68	70-130	4	35	mg/kg	03.04.18 20:29	X
Toluene	<0.00201	0.100	0.0678	68	0.0726	72	70-130	7	35	mg/kg	03.04.18 20:29	X
Ethylbenzene	<0.00201	0.100	0.0770	77	0.0826	82	70-130	7	35	mg/kg	03.04.18 20:29	
m,p-Xylenes	<0.00402	0.201	0.151	75	0.165	82	70-130	9	35	mg/kg	03.04.18 20:29	
o-Xylene	<0.00201	0.100	0.0776	78	0.0818	81	70-130	5	35	mg/kg	03.04.18 20:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	79		82		70-130	%	03.04.18 20:29
4-Bromofluorobenzene	113		119		70-130	%	03.04.18 20:29

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

CHAIN OF CUSTODY

Page 1 Of 1

Revision 2016.1

2RP-2398

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Xenco Quote #

Xenco Job # 577907

Client / Reporting Information

Company Name / Branch: LTE / Permian

Company Address: 3300 N. A. Street Bldg 1 #103

Email: Abaker@Ltenv.com Phone No: 432-704-5178

Project Contact: Adrian Baker

Samplers's Name: Aaron Williamson

Project Information

Project Name/Number: 30-015-04734 BEU-D1-9 to Legg Federal SWD

Project Location: NM

Invoice To: XTO Energy - Kyle Littrell

PO Number: 30 015 04734

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	BTEX 8021	TPH 8015	Chloride 300.1	Field Comments
1	S51	6"	2/26	950	S	1									X	X	X	
2	S52			952	S	1									X	X	X	
3	S53			954	S	1									X	X	X	
4	S54			956	S	1									X	X	X	
5	S55			958	S	1									X	X	X	
6	S56			10:00	S	1									X	X	X	
7																		
8																		
9																		
10	NEAR																	

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface Water
SL - Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY
- [x] Standard

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] Level II Report with TRRP checklist

Notes:

Temp: 3.4 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.2

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished By Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		2/28 730		2	3/1 1310	
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
			5			

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 03/01/2018 01:10:00 PM

Work Order #: 577907

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

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	3.2	
#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?	**No**	TPH received in bulk jars
#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: 03/01/2018

Connie Hernandez

Checklist reviewed by: Jessica Kramer Date: 03/01/2018

Jessica Kramer