

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 03, 2017

Bryan Paraspolo
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: HPD Spill Response

Enclosed are the results of analyses for samples received by Summit Scientific on 10/27/17 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: HPD Spill Response

Project Number: 036217011
Project Manager: Bryan Paraspolo

Reported:
11/03/17 09:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HPD01	1710312-01	Soil	10/27/17 15:00	10/27/17 17:40
HPD02	1710312-02	Soil	10/27/17 15:20	10/27/17 17:40
HPD03	1710312-03	Soil	10/27/17 15:30	10/27/17 17:40
HPD04	1710312-04	Soil	10/27/17 15:10	10/27/17 17:40
HPD05	1710312-05	Soil	10/27/17 15:45	10/27/17 17:40

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S₂

1710312

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Page / of /

Client: LT ENVIRONMENTAL

Project Manager: BEVAN PARASPOLO

Address: 4600 W 60th AVE

E-Mail: BPARASPOLO@LTENV.COM

City/State/Zip: ARVADA CO 80003

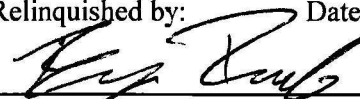
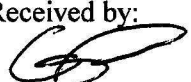
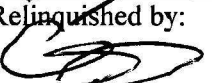

Phone: 303 433 9788 Fax:

Project Name: HPD SPILL RESPONSE

Sampler Name: B. PARASPOLO

Project Number: 036217011

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	TPH	BTEX							
1	HPD01	10/27/17	1500	2			X			X				X	X						
2	HPD02	↓	1520	2			X			X				X	X						
3	HPD03	↓	1530	2			X			X				X	X						
4	HPD04	↓	1510	2			X			X				X	X						
5	HPD05	↓	1545	2			X			X				X	X						
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: <u>10/27/17 1740</u>	Received by: 	Date/Time: <u>10/27/17 1740</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: <u>4.3</u> Temperature Upon Receipt: <u> </u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by: 	Date/Time: <u>10/27/17 1740</u>	Received by: 	Date/Time: <u>10-27-17 1740</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

1710312

S2 Work Order: _____

Client: LTE Client Project ID: HPD Spill Response

Shipped Via: H.D. ONICE Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Cooler ID					
Temp (°C)	4.3				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
If custody seals are present, are they intact ⁽¹⁾ ?			X	
Are short holding time analytes or samples with HTs due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.				
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			X	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			X	
Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

Muri P.
Custodian Printed Name

PA 10-27-17
Signature or Initials of Custodian

18:00
Date/Time



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: HPD Spill Response
Project Number: 036217011
Project Manager: Bryan Paraspolo

Reported:
11/03/17 09:42

HPD01
1710312-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 10/27/17 15:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	190	50	mg/kg	1	1710335	10/31/17	11/01/17	8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: 10/27/17 15:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		103 %	70-130		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/27/17 15:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1710317	10/30/17	10/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5.6	0.50	"	"	"	"	"	"	

Date Sampled: 10/27/17 15:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	21-167		"	"	"	"	

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Reported:
11/03/17 09:42

HPD02
1710312-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/17 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	410	50	mg/kg	1	1710335	10/31/17	11/01/17	8015M	
C28-C36 (ORO)	50	50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	70-130		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/17 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1710317	10/30/17	10/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.020	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	9.0	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		117 %	21-167		"	"	"	"	

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Reported:
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HPD03
1710312-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/17 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1710335	10/31/17	11/01/17	8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	70-130		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/17 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1710317	10/30/17	10/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.0	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		131 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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Reported:
11/03/17 09:42

HPD04
1710312-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/17 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	160	50	mg/kg	1	1710335	10/31/17	11/01/17	8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	70-130		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/17 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1710317	10/30/17	10/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.4	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

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Reported:
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HPD05
1710312-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/17 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	160	50	mg/kg	1	1710335	10/31/17	11/01/17	8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	70-130		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/17 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1710317	10/30/17	10/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.0055	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.9	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/17 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	21-167		"	"	"	"	

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Project Number: 036217011
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Reported:
11/03/17 09:42

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1710335 - EPA 3550A

Blank (1710335-BLK1)

Prepared & Analyzed: 10/31/17

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.1		"	12.5		105	70-130			

LCS (1710335-BS1)

Prepared & Analyzed: 10/31/17

C10-C28 (DRO)	549	50	mg/kg	499		110	50-150			
C28-C36 (ORO)	11.0	50	"				50-150			
Surrogate: o-Terphenyl	13.8		"	12.5		110	70-130			

Matrix Spike (1710335-MS1)

Source: 1710312-01

Prepared: 10/31/17 Analyzed: 11/01/17

C10-C28 (DRO)	570	50	mg/kg	499	186	76.9	50-150			
C28-C36 (ORO)	23.1	50	"		27.0		50-150			
Surrogate: o-Terphenyl	14.8		"	12.5		119	70-130			

Matrix Spike Dup (1710335-MSD1)

Source: 1710312-01

Prepared: 10/31/17 Analyzed: 11/01/17

C10-C28 (DRO)	508	50	mg/kg	499	186	64.5	50-150	11.5	20	
C28-C36 (ORO)	13.9	50	"		27.0		50-150	49.6	20	
Surrogate: o-Terphenyl	12.9		"	12.5		103	70-130			

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Reported:
11/03/17 09:42

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1710317 - EPA 5030 Soil MS

Blank (1710317-BLK1)

Prepared & Analyzed: 10/30/17

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0518		"	0.0400		130	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0359		"	0.0400		89.8	21-167			

LCS (1710317-BS1)

Prepared: 10/30/17 Analyzed: 10/31/17

Benzene	0.145	0.0020	mg/kg	0.150		96.4	58-130			
Toluene	0.151	0.0050	"	0.150		100	61-134			
Ethylbenzene	0.155	0.0050	"	0.150		103	74-139			
m,p-Xylene	0.309	0.010	"	0.300		103	73-137			
o-Xylene	0.150	0.0050	"	0.150		100	73-141			
Xylenes (total)	0.459	0.0050	"				30-150			
Gasoline Range Hydrocarbons	10.6	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0517		"	0.0400		129	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0352		"	0.0400		88.1	21-167			

Matrix Spike (1710317-MS1)

Source: 1710312-01

Prepared: 10/30/17 Analyzed: 10/31/17

Benzene	0.117	0.0020	mg/kg	0.150	ND	78.0	30-131			
Toluene	0.121	0.0050	"	0.150	ND	80.9	30-134			
Ethylbenzene	0.126	0.0050	"	0.150	ND	84.1	22-153			
m,p-Xylene	0.241	0.010	"	0.300	ND	80.2	10-159			
o-Xylene	0.126	0.0050	"	0.150	ND	84.3	31-151			
Xylenes (total)	0.367	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	13.3	0.50	"		5.62		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0544		"	0.0400		136	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.7	21-167			

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11/03/17 09:42

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1710317 - EPA 5030 Soil MS

Matrix Spike Dup (1710317-MSD1)		Source: 1710312-01			Prepared: 10/30/17		Analyzed: 10/31/17			
Benzene	0.125	0.0020	mg/kg	0.150	ND	83.4	30-131	6.62	34	
Toluene	0.133	0.0050	"	0.150	ND	88.5	30-134	9.04	30	
Ethylbenzene	0.131	0.0050	"	0.150	ND	87.4	22-153	3.82	24	
m,p-Xylene	0.251	0.010	"	0.300	ND	83.7	10-159	4.32	68	
o-Xylene	0.132	0.0050	"	0.150	ND	87.7	31-151	3.93	38	
Xylenes (total)	0.383	0.0050	"		ND		30-150	4.19	20	
Gasoline Range Hydrocarbons	10.4	0.50	"		5.62		30-150	24.5	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0524		"	0.0400		131	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400		95.8	21-167			

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11/03/17 09:42

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference