

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,



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	HNO3	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: <u>[Signature]</u> Date/Time: <u>10/27/17 1740</u>	Received by: <u>[Signature]</u> Date/Time: <u>10/27/17 1740</u>	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <u>X</u> 48 hours _____ Sample Integrity: <u>4.3</u> Temperature Upon Receipt: _____ Intact: <u>(Yes)</u> No	Notes:
Relinquished by: <u>[Signature]</u> Date/Time: <u>10/27/17 1740</u>	Received by: <u>[Signature]</u> <u>10-27-17 1740</u>		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

Sample Receipt Checklist

S2 Work Order: 1710312

Client: LTE Client Project ID: HPD Spill Response

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

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

Cooler ID					
Temp (°C)	<u>4.3</u>				

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⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			x	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? 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

HPD 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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Project: HPD Spill Response

Project Number: 036217011
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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
<i>Surrogate: o-Terphenyl</i>		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
<i>Surrogate: 1,2-Dichloroethane-d4</i>		130 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.3 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: <i>o</i> -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:
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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: <i>o</i> -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:
11/03/17 09:42

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: <i>o</i> -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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Reported:
11/03/17 09:42

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1710335 - EPA 3550A

Blank (1710335-BLK1) Prepared & Analyzed: 10/31/17

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

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			
<i>Surrogate: o-Terphenyl</i>	<i>13.8</i>		<i>"</i>	<i>12.5</i>		<i>110</i>	<i>70-130</i>			

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			
<i>Surrogate: o-Terphenyl</i>	<i>14.8</i>		<i>"</i>	<i>12.5</i>		<i>119</i>	<i>70-130</i>			

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	
<i>Surrogate: o-Terphenyl</i>	<i>12.9</i>		<i>"</i>	<i>12.5</i>		<i>103</i>	<i>70-130</i>			

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Project: HPD Spill Response

Project Number: 036217011
Project Manager: Bryan Paraspolo

Reported:
11/03/17 09:42

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

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

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0518</i>		<i>"</i>	<i>0.0400</i>		<i>130</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.2</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0359</i>		<i>"</i>	<i>0.0400</i>		<i>89.8</i>	<i>21-167</i>				

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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0517</i>		<i>"</i>	<i>0.0400</i>		<i>129</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.8</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0352</i>		<i>"</i>	<i>0.0400</i>		<i>88.1</i>	<i>21-167</i>				

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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0544</i>		<i>"</i>	<i>0.0400</i>		<i>136</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>96.1</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>21-167</i>				

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Project Manager: Bryan Paraspolo

Reported:
11/03/17 09:42

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

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

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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Project Manager: Bryan Paraspolo

Reported:
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