

Summit Scientific

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June 02, 2016

Rob Rebel
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: Hawkins 5-61-21

Enclosed are the results of analyses for samples received by Summit Scientific on 05/27/16 10:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: Hawkins 5-61-21

Project Number: 027314025
Project Manager: Rob Rebel

Reported:
06/02/16 12:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@0-1'	1605264-01	Soil	05/25/16 10:20	05/27/16 10:15
SS02@0-1'	1605264-02	Soil	05/25/16 10:30	05/27/16 10:15

Summit Scientific

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

Project: Hawkins 5-61-21

Project Number: 027314025
Project Manager: Rob Rebel

Reported:
06/02/16 12:19

Sample Receipt Checklist

S2 Work Order: 1605264
 Client: LTE Client Project ID: Hawkins 5-61-21
 Shipped Via: p/u (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: _____
 Matrix (check all that apply): Air Soil/Solid Water Other: _____ (Describe)

Cooler ID					
Temp (°C)	<u>8.2°C</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?				
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?				
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
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⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Nakita
Custodian Printed Name

MA
Signature or Initials of Custodian

5/27/16 10:45
Date/Time



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

Project: Hawkins 5-61-21

Project Number: 027314025
Project Manager: Rob Rebel

Reported:
06/02/16 12:19

SS01@0-1'
1605264-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/25/16 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1605303	05/31/16	06/01/16	8015M	

Date Sampled: **05/25/16 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		111 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/25/16 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1605308	05/31/16	06/01/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/25/16 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **05/25/16 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
06/02/16 12:19

SS01@0-1'
1605264-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1460	12.0	mg/kg dry	1	1605299	05/31/16	06/01/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	342	6.00	"	"	"	"	"	"	
Sodium	133	6.00	"	"	"	"	"	"	

Date Sampled: 05/25/16 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.814		units	"	1606011	06/02/16	06/02/16	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 05/25/16 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.590	0.0100	mmhos/cm	1	1606006	06/01/16	06/01/16	SM 2510B	

Date Sampled: 05/25/16 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.67	0.100	pH Units	"	1606005	06/01/16	06/01/16	EPA 9045	

Date Sampled: 05/25/16 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.3		%	"	1606002	06/01/16	06/01/16	% calculation	

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SS02@0-1'
1605264-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/25/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1605303	05/31/16	06/01/16	8015M	

Date Sampled: **05/25/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		112 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/25/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1605308	05/31/16	06/01/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/25/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **05/25/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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SS02@0-1'
1605264-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	636	12.2	mg/kg dry	1	1605299	05/31/16	06/01/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	119	6.10	"	"	"	"	"	"	
Sodium	269	6.10	"	"	"	"	"	"	

Date Sampled: 05/25/16 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.57		units	"	1606011	06/02/16	06/02/16	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 05/25/16 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.741	0.0100	mmhos/cm	1	1606006	06/01/16	06/01/16	SM 2510B	

Date Sampled: 05/25/16 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.17	0.100	pH Units	"	1606005	06/01/16	06/01/16	EPA 9045	

Date Sampled: 05/25/16 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.0		%	"	1606002	06/01/16	06/01/16	% calculation	

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Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1605303 - EPA 3550A

Blank (1605303-BLK1)

Prepared: 05/31/16 Analyzed: 06/01/16

C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	13.3		"	12.5		107	30-150				

LCS (1605303-BS1)

Prepared: 05/31/16 Analyzed: 06/01/16

C10-C28 (DRO)	549	50	mg/kg	499		110	73-134				
<i>Surrogate: o-Terphenyl</i>	13.4		"	12.5		107	30-150				

Matrix Spike (1605303-MS1)

Source: 1605263-01

Prepared: 05/31/16 Analyzed: 06/01/16

C10-C28 (DRO)	543	50	mg/kg	499	ND	109	50-148				
<i>Surrogate: o-Terphenyl</i>	13.6		"	12.5		109	30-150				

Matrix Spike Dup (1605303-MSD1)

Source: 1605263-01

Prepared: 05/31/16 Analyzed: 06/01/16

C10-C28 (DRO)	544	50	mg/kg	499	ND	109	50-148	0.193	13		
<i>Surrogate: o-Terphenyl</i>	13.6		"	12.5		109	30-150				

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Project Manager: Rob Rebel

Reported:
06/02/16 12:19

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 1605308 - EPA 5030 Soil MS

Blank (1605308-BLK1)

Prepared & Analyzed: 05/31/16

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>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0387</i>		<i>"</i>	<i>0.0400</i>		<i>96.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0425</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>21-167</i>			

LCS (1605308-BS1)

Prepared & Analyzed: 05/31/16

Benzene	0.0907	0.0020	mg/kg	0.100		90.7	58-130			
Toluene	0.0943	0.0050	"	0.100		94.3	61-134			
Ethylbenzene	0.0860	0.0050	"	0.0992		86.6	74-139			
m,p-Xylene	0.162	0.010	"	0.200		81.3	73-137			
o-Xylene	0.0780	0.0050	"	0.0980		79.6	73-141			
Xylenes (total)	0.240	0.0050	"				30-150			
Gasoline Range Hydrocarbons	1.75	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0363</i>		<i>"</i>	<i>0.0400</i>		<i>90.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0497</i>		<i>"</i>	<i>0.0400</i>		<i>124</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

Matrix Spike (1605308-MS1)

Source: 1605252-01

Prepared & Analyzed: 05/31/16

Benzene	0.108	0.0020	mg/kg	0.100	ND	108	30-131			
Toluene	0.116	0.0050	"	0.100	ND	116	30-134			
Ethylbenzene	0.112	0.0050	"	0.0992	ND	113	22-153			
m,p-Xylene	0.214	0.010	"	0.200	ND	107	10-159			
o-Xylene	0.103	0.0050	"	0.0980	ND	105	31-151			
Xylenes (total)	0.317	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	2.29	0.50	"		ND		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0415</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0472</i>		<i>"</i>	<i>0.0400</i>		<i>118</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0417</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

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Arvada CO, 80003

Project: Hawkins 5-61-21

Project Number: 027314025
Project Manager: Rob Rebel

Reported:
06/02/16 12:19

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 1605308 - EPA 5030 Soil MS

Matrix Spike Dup (1605308-MSD1)	Source: 1605252-01			Prepared & Analyzed: 05/31/16						
Benzene	0.120	0.0020	mg/kg	0.100	ND	120	30-131	10.3	34	
Toluene	0.127	0.0050	"	0.100	ND	127	30-134	9.16	30	
Ethylbenzene	0.138	0.0050	"	0.0992	ND	139	22-153	21.1	24	
m,p-Xylene	0.262	0.010	"	0.200	ND	131	10-159	20.2	68	
o-Xylene	0.126	0.0050	"	0.0980	ND	129	31-151	20.3	38	
Xylenes (total)	0.388	0.0050	"		ND		30-150	20.3	20	QM-07
Gasoline Range Hydrocarbons	2.88	0.50	"		ND		30-150	22.6	20	QM-07
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0449</i>		<i>"</i>	<i>0.0400</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0426</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>21-167</i>			

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Project: Hawkins 5-61-21

Project Number: 027314025
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Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 1605299 - General Preparation

Blank (1605299-BLK1)

Prepared: 05/31/16 Analyzed: 06/01/16

Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							

LCS (1605299-BS1)

Prepared: 05/31/16 Analyzed: 06/01/16

Calcium	567	10.0	mg/kg wet	500	113	82.9-118				
Magnesium	532	5.00	"	500	106	77.1-123				
Sodium	557	5.00	"	500	111	71-129				

Duplicate (1605299-DUP1)

Source: 1605256-01

Prepared: 05/31/16 Analyzed: 06/01/16

Calcium	11900	11.7	mg/kg dry	11800			1.04	200		
Magnesium	417	5.83	"	414			0.746	200		
Sodium	764	5.83	"	756			0.991	200		

Matrix Spike (1605299-MS1)

Source: 1605256-01

Prepared: 05/31/16 Analyzed: 06/01/16

Calcium	12300	11.7	mg/kg dry	583	11800	80.9	75-125			
Magnesium	1010	5.83	"	583	414	102	75-125			
Sodium	1370	5.83	"	583	756	106	75-125			

Matrix Spike Dup (1605299-MSD1)

Source: 1605256-01

Prepared: 05/31/16 Analyzed: 06/01/16

Calcium	12100	11.7	mg/kg dry	583	11800	59.9	75-125	1.00	25	QM-07
Magnesium	1010	5.83	"	583	414	102	75-125	0.0429	25	
Sodium	1370	5.83	"	583	756	106	75-125	0.0634	25	

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Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 1606002 - General Preparation

Duplicate (1606002-DUP1)		Source: 1605279-01			Prepared & Analyzed: 06/01/16						
% Solids	87.8		%		87.9				0.0342	20	

Batch 1606005 - General Preparation

LCS (1606005-BS1)		Prepared & Analyzed: 06/01/16									
pH	8.01	0.100	pH Units	8.00	100	95-105					
Duplicate (1606005-DUP1)		Source: 1605264-01			Prepared & Analyzed: 06/01/16						
pH	8.81	0.100	pH Units	8.67				1.60	20		

Batch 1606006 - General Preparation

Blank (1606006-BLK1)		Prepared & Analyzed: 06/01/16									
Specific Conductance (EC)	ND	0.0100	mmhos/cm								
LCS (1606006-BS1)		Prepared & Analyzed: 06/01/16									
Specific Conductance (EC)	0.487	0.0100	mmhos/cm	0.500	97.4	90-110					
Duplicate (1606006-DUP1)		Source: 1605264-01			Prepared & Analyzed: 06/01/16						
Specific Conductance (EC)	0.600	0.0100	mmhos/cm	0.590				1.77	20		

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Project: Hawkins 5-61-21

Project Number: 027314025
Project Manager: Rob Rebel

Reported:
06/02/16 12:19

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

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