

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 19, 2014

John Cocroft  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: Thomsen 1C-18Hz

Enclosed are the results of analyses for samples received by Summit Scientific on 12/18/14 14:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President



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

Project: Thomsen 1C-18Hz  
Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	1412161-01	Soil	12/18/14 13:25	12/18/14 14:20
SS02	1412161-02	Soil	12/18/14 13:15	12/18/14 14:20

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

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

Project: Thomsen 1C-18Hz  
Project Number: 014214385  
Project Manager: John Cocroft

Reported:  
12/19/14 06:17

# Summit Scientific 1412141

S<sub>2</sub>

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

Page 1 of 1

Client: LT Environmental Project Manager: John Cocroft  
Address: 4600 West 60th Ave E-Mail:  
City/State/Zip: Arvada, CO 80003  
Phone: 303-433-9788 Fax: 303-433-1432 Project Name: Thomsen 1C-18Hz  
Sampler Name: Michael Furtaw Project Number: 014214385

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTEX	TPH	EC	pH	SAR		
1	5501	12/19/14	1325	1			X			X				X	X	X	X	X	
2	5502	12/18/14	1315	1			X			X			X	X	X	X	X	X	
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>[Signature]</u>	Date/Time: <u>12/18/14 - 1420</u>	Received by: <u>[Signature]</u>	Date/Time: <u>12/18/14 1420</u>	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by: <u>[Signature]</u>	Date/Time: <u>12/18/14 1540</u>	Sample Integrity:	
				Temperature Upon Receipt: <u>6.0</u>	
				Intact: Yes No	

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

Project: Thomsen 1C-18Hz

Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

**SS01**  
**1412161-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1412207	12/18/14	12/19/14	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1412222	12/18/14	12/18/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	21-167		"	"	"	"	

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

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Thomsen 1C-18Hz  
Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

**SS01**  
**1412161-01 (Soil)**

**Summit Scientific**

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

Calcium	405	10.6 mg/kg dry	1	1412210	12/18/14	12/18/14	EPA 6020/Mod. USDA60 6(2, 3A)
Magnesium	154	5.32	"	"	"	"	"
Sodium	167	5.32	"	"	"	"	"

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.79		units	"	1412227	12/19/14	12/19/14	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.15	0.0100 mmhos/cm		1	1412225	12/18/14	12/18/14	SM 2510B	

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.53	0.100	pH Units	"	1412224	12/18/14	12/18/14	EPA 9045	

Date Sampled: 12/18/14 13:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.0		%	"	1412226	12/19/14	12/19/14	% calculation	

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Project: Thomsen 1C-18Hz

Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

**SS02**  
**1412161-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1412207	12/18/14	12/19/14	8015M	
C28-C36 (TEPH-ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1412222	12/18/14	12/18/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

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

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Thomsen 1C-18Hz

Project Number: 014214385  
Project Manager: John Cocroft

Reported:  
12/19/14 06:17

**SS02**  
**1412161-02 (Soil)**

**Summit Scientific**

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

Analyte	Result	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	685	11.4 mg/kg dry	1	1412210	12/18/14	12/18/14	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	295	5.70	"	"	"	"	"	
Sodium	142	5.70	"	"	"	"	"	

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.14		units	"	1412227	12/19/14	12/19/14	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.22	0.0100	mmhos/cm	1	1412225	12/18/14	12/18/14	SM 2510B	

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.78	0.100	pH Units	"	1412224	12/18/14	12/18/14	EPA 9045	

Date Sampled: 12/18/14 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.7		%	"	1412226	12/19/14	12/19/14	% calculation	

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Project: Thomsen 1C-18Hz  
Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

**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 1412207 - EPA 3550A**

**Blank (1412207-BLK1)**

Prepared & Analyzed: 12/18/14

C10-C28 (TEPH-DRO)	ND	50	mg/kg
C28-C36 (TEPH-ORO)	ND	50	"

Surrogate: o-Terphenyl 13.0 " 12.2 107 30-150

**LCS (1412207-BS1)**

Prepared & Analyzed: 12/18/14

C10-C28 (TEPH-DRO)	519	50	mg/kg	501	104	73-134
Surrogate: <i>o</i> -Terphenyl	12.7		"	12.2	104	30-150

**Matrix Spike (1412207-MS1)**

Source: 1412149-01

Prepared & Analyzed: 12/18/14

C10-C28 (TEPH-DRO)	621	50	mg/kg	486	87.2	110	50-148
Surrogate: o-Terphenyl	13.6		"	11.8		115	30-150

**Matrix Spike Dup (1412207-MSD1)**

Source: 1412149-01

Prepared & Analyzed: 12/18/14

C10-C28 (TEPH-DRO)	625	50	mg/kg	488	87.2	110	50-148	0.529	13
Surrogate: o-Terphenyl	14.2	"		11.9		119	30-150		

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Reported:  
12/19/14 06:17

**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 1412222 - EPA 5030 Soil MS**

**Blank (1412222-BLK1)**

Prepared & Analyzed: 12/18/14

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	0.0380		"	0.0396	96.1	23-173				
Surrogate: Toluene-d8	0.0376		"	0.0400	94.0	20-170				
Surrogate: 4-Bromofluorobenzene	0.0377		"	0.0400	94.4	21-167				

**LCS (1412222-BS1)**

Prepared & Analyzed: 12/18/14

Benzene	0.0882	0.0020	mg/kg	0.100	88.2	58-130				
Toluene	0.0891	0.0050	"	0.100	89.1	61-134				
Ethylbenzene	0.100	0.0050	"	0.0992	101	74-139				
m,p-Xylene	0.197	0.010	"	0.200	98.9	73-137				
o-Xylene	0.100	0.0050	"	0.0984	102	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0385		"	0.0396	97.1	23-173				
Surrogate: Toluene-d8	0.0381		"	0.0400	95.2	20-170				
Surrogate: 4-Bromofluorobenzene	0.0365		"	0.0400	91.3	21-167				

**Matrix Spike (1412222-MS1)**

Source: 1412162-03

Prepared & Analyzed: 12/18/14

Benzene	0.0820	0.0020	mg/kg	0.0923	ND	88.9	30-131			
Toluene	0.0820	0.0050	"	0.0923	ND	88.9	30-134			
Ethylbenzene	0.0928	0.0050	"	0.0915	ND	101	22-153			
m,p-Xylene	0.181	0.010	"	0.184	ND	98.2	10-159			
o-Xylene	0.0930	0.0050	"	0.0908	ND	102	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0356		"	0.0365	97.5	23-173				
Surrogate: Toluene-d8	0.0352		"	0.0369	95.3	20-170				
Surrogate: 4-Bromofluorobenzene	0.0336		"	0.0369	91.0	21-167				

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Project: Thomsen 1C-18Hz  
Project Number: 014214385  
Project Manager: John Cocroft

Reported:  
12/19/14 06:17

**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 1412222 - EPA 5030 Soil MS**

Matrix Spike Dup (1412222-MSD1)	Source: 1412162-03			Prepared & Analyzed: 12/18/14						
Benzene	0.0812	0.0018	mg/kg	0.0907	ND	89.5	30-131	1.01	34	
Toluene	0.0819	0.0045	"	0.0907	ND	90.3	30-134	0.140	30	
Ethylbenzene	0.0906	0.0045	"	0.0900	ND	101	22-153	2.39	24	
m,p-Xylene	0.178	0.0091	"	0.181	ND	98.1	10-159	1.75	68	
o-Xylene	0.0919	0.0045	"	0.0893	ND	103	31-151	1.20	38	
Surrogate: 1,2-Dichloroethane-d4	0.0360		"	0.0359		100	23-173			
Surrogate: Toluene-d8	0.0349		"	0.0363		96.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0328		"	0.0363		90.4	21-167			

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Project: Thomsen 1C-18Hz  
Project Number: 014214385  
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Reported:  
12/19/14 06:17

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

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

**Batch 1412210 - General Preparation**

**Blank (1412210-BLK1)**

Prepared & Analyzed: 12/18/14

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

**LCS (1412210-BS1)**

Prepared & Analyzed: 12/18/14

Calcium	461	10.0	mg/kg wet	500	92.2	80-120
Magnesium	498	5.00	"	500	99.5	80-120
Sodium	555	5.00	"	500	111	80-120

**Duplicate (1412210-DUP1)**

Source: 1412149-01

Prepared & Analyzed: 12/18/14

Calcium	479	10.0	mg/kg wet	399	18.3	200
Magnesium	106	5.00	"	117	9.20	200
Sodium	873	5.00	"	769	12.6	200

**Matrix Spike (1412210-MS1)**

Source: 1412149-01

Prepared & Analyzed: 12/18/14

Calcium	923	10.0	mg/kg wet	500	399	105	75-125
Magnesium	546	5.00	"	500	117	85.8	75-125
Sodium	1350	5.00	"	500	769	116	75-125

**Matrix Spike Dup (1412210-MSD1)**

Source: 1412149-01

Prepared & Analyzed: 12/18/14

Calcium	948	10.0	mg/kg wet	463	399	119	75-125	2.67	25
Magnesium	489	5.00	"	463	117	80.4	75-125	11.0	25
Sodium	1340	5.00	"	463	769	124	75-125	0.322	25

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Physical Parameters by APHA/ASTM/EPA Methods - Quality Control  
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Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1412224 - General Preparation

LCS (1412224-BS1)

Prepared & Analyzed: 12/18/14

pH	8.09	0.100	pH Units	8.00	101	95-105
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Duplicate (1412224-DUP1)

Source: 1412161-01

Prepared & Analyzed: 12/18/14

pH	7.62	0.100	pH Units	7.53	1.19	20
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Batch 1412225 - General Preparation

Blank (1412225-BLK1)

Prepared & Analyzed: 12/18/14

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1412225-BS1)

Prepared & Analyzed: 12/18/14

Specific Conductance (EC)	0.997	0.00200	mmhos/cm	1.00	99.7	90-110
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Duplicate (1412225-DUP1)

Source: 1412161-01

Prepared & Analyzed: 12/18/14

Specific Conductance (EC)	2.04	0.0100	mmhos/cm	2.15	5.02	20
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4600 West 60th Avenue  
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Project: Thomsen 1C-18Hz

Project Number: 014214385  
Project Manager: John Cocroft

**Reported:**  
12/19/14 06:17

### Notes and Definitions

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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