

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

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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,



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

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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

S₂

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	HNO3	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	
2	5502	12/18/14	1315	1			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) Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>6.0</u> Intact: Yes No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by: <u>[Signature]</u>	Date/Time: <u>12/18/14 1540</u>		

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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: <i>o</i> -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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Reported:
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SS01

1412161-01 (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	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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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: <i>o</i> -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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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	Reporting Limit	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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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 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	"							
<i>Surrogate: o-Terphenyl</i>	<i>13.0</i>		<i>"</i>	<i>12.2</i>	<i>107</i>	<i>30-150</i>				
LCS (1412207-BS1)				Prepared & Analyzed: 12/18/14						
C10-C28 (TEPH-DRO)	519	50	mg/kg	501	104	73-134				
<i>Surrogate: o-Terphenyl</i>	<i>12.7</i>		<i>"</i>	<i>12.2</i>	<i>104</i>	<i>30-150</i>				
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			
<i>Surrogate: o-Terphenyl</i>	<i>13.6</i>		<i>"</i>	<i>11.8</i>	<i>115</i>	<i>30-150</i>				
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	
<i>Surrogate: o-Terphenyl</i>	<i>14.2</i>		<i>"</i>	<i>11.9</i>	<i>119</i>	<i>30-150</i>				

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12/19/14 06:17

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 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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0380</i>		<i>"</i>	<i>0.0396</i>		<i>96.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0377</i>		<i>"</i>	<i>0.0400</i>		<i>94.4</i>	<i>21-167</i>			

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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0385</i>		<i>"</i>	<i>0.0396</i>		<i>97.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0365</i>		<i>"</i>	<i>0.0400</i>		<i>91.3</i>	<i>21-167</i>			

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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0356</i>		<i>"</i>	<i>0.0365</i>		<i>97.5</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0352</i>		<i>"</i>	<i>0.0369</i>		<i>95.3</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0336</i>		<i>"</i>	<i>0.0369</i>		<i>91.0</i>	<i>21-167</i>			

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Project: Thomsen 1C-18Hz

Project Number: 014214385
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 12/19/14 06:17

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 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	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0360</i>		<i>"</i>	<i>0.0359</i>		<i>100</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0349</i>		<i>"</i>	<i>0.0363</i>		<i>96.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0328</i>		<i>"</i>	<i>0.0363</i>		<i>90.4</i>	<i>21-167</i>			

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

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

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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 1412224 - General Preparation

LCS (1412224-BS1)					Prepared & Analyzed: 12/18/14					
pH	8.09	0.100	pH Units	8.00	101	95-105				
Duplicate (1412224-DUP1)					Source: 1412161-01 Prepared & Analyzed: 12/18/14					
pH	7.62	0.100	pH Units	7.53	1.19	20				

Batch 1412225 - General Preparation

Blank (1412225-BLK1)					Prepared & Analyzed: 12/18/14					
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (1412225-BS1)					Prepared & Analyzed: 12/18/14					
Specific Conductance (EC)	0.997	0.00200	mmhos/cm	1.00	99.7	90-110				
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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Project Number: 014214385
Project Manager: John Cocroft

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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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