

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 24, 2013

Alyssa Beard  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: FEM Sooner 10-28

Enclosed are the results of analyses for samples received by Summit Scientific on 07/19/13 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WEST	R307177-01	Soil	07/19/13 10:30	07/19/13 16:45
NORTH	R307177-02	Soil	07/19/13 10:35	07/19/13 16:45
EAST	R307177-03	Soil	07/19/13 11:00	07/19/13 16:45
SOUTH	R307177-04	Soil	07/19/13 11:15	07/19/13 16:45
BASE	R307177-05	Soil	07/19/13 11:20	07/19/13 16:45

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
07/24/13 15:38

R307177  
Summit Scientific

S<sub>2</sub>

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: TASMAN Project Manager: ALYSSA BEARD  
Address: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: 120.57.2302 Fax: \_\_\_\_\_  
Sample Name: ALYSSA BEARD Project Number: \_\_\_\_\_

Page 1 of 1

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:	Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil		
WEST	7/14/13	10:30	1			X					
NORTH	7/14/13	10:55	1								
EAST	7/14/13	11:00	1								
SOUTH	7/14/13	11:15	1								
BACK	7/14/13	11:20	1								
SOILS	7/14/13		1								
Retinued by: <u>ALY</u> Date/Time: <u>7/14/13 16:00</u> Received by: <u>ALY</u> Date/Time: <u>7/19/13 16:05</u>											
Retinued by: _____ Date/Time: _____ Received by: _____ Date/Time: _____											
Retinued by: _____ Date/Time: _____ Received by: _____ Date/Time: _____											

Turn Around Time (Check)  
Same Day ☐ 24 Hours ☐ 48 Hours ☒ 72 Hours Standard ☒

Notes:

Sample Integrity: Temperature Upon Receipt: 15.9  
Infect: (Yes) ☒ No

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**WEST**  
**R307177-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/13 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>700</b>	50	mg/kg	1	3072309	07/23/13	07/24/13	8015M	

Date Sampled: **07/19/13 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		87.7 %	30-150		"	"	"	"	

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

Date Sampled: **07/19/13 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072210	07/22/13	07/23/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/13 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		119 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.0 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.8 %	21-167		"	"	"	"	

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Denver CO, 80221

Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**NORTH**  
**R307177-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3072309	07/23/13	07/24/13	8015M	

Date Sampled: **07/19/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		74.3 %	30-150		"	"	"	"	

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

Date Sampled: **07/19/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072210	07/22/13	07/23/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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Denver CO, 80221

Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**EAST**  
**R307177-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 07/19/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3072309	07/23/13	07/24/13	8015M	

Date Sampled: 07/19/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		80.0 %	30-150		"	"	"	"	

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

Date Sampled: 07/19/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072210	07/22/13	07/23/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/19/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**SOUTH**  
**R307177-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 07/19/13 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3072309	07/23/13	07/24/13	8015M	

Date Sampled: 07/19/13 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		79.0 %	30-150		"	"	"	"	

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

Date Sampled: 07/19/13 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072210	07/22/13	07/23/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/19/13 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

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Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**BASE**  
**R307177-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 07/19/13 11:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	110	50	mg/kg	1	3072309	07/23/13	07/24/13	8015M	

Date Sampled: 07/19/13 11:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.1 %	30-150		"	"	"	"	

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

Date Sampled: 07/19/13 11:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3072210	07/22/13	07/23/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/19/13 11:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		89.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.9 %	21-167		"	"	"	"	

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Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

**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 3072309 - EPA 3550A**

<b>Blank (3072309-BLK1)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	ND	50	mg/kg							
<b>Blank (3072309-BLK2)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (3072309-BS1)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	506	50	mg/kg	501		101	73-134			
<b>LCS (3072309-BS2)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	552	50	mg/kg	501		110	73-134			
<b>LCS Dup (3072309-BSD1)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	516	50	mg/kg	501		103	73-134	1.85	11	
<b>LCS Dup (3072309-BSD2)</b>				Prepared & Analyzed: 07/23/13						
C10-C28 (DRO)	506	50	mg/kg	501		101	73-134	8.77	11	
<b>Matrix Spike (3072309-MS1)</b>				<b>Source: R307175-01</b>		Prepared & Analyzed: 07/23/13				
C10-C28 (DRO)	521	50	mg/kg	499	ND	104	50-148			
<b>Matrix Spike (3072309-MS2)</b>				<b>Source: R307175-02</b>		Prepared: 07/23/13 Analyzed: 07/24/13				
C10-C28 (DRO)	467	50	mg/kg	425	ND	110	50-148			
<b>Matrix Spike Dup (3072309-MSD1)</b>				<b>Source: R307175-01</b>		Prepared & Analyzed: 07/23/13				
C10-C28 (DRO)	485	50	mg/kg	485	ND	99.9	50-148	7.11	13	
<b>Matrix Spike Dup (3072309-MSD2)</b>				<b>Source: R307175-02</b>		Prepared: 07/23/13 Analyzed: 07/24/13				
C10-C28 (DRO)	504	50	mg/kg	501	ND	101	50-148	7.62	13	

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Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
07/24/13 15:38

**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 3072210 - EPA 5030 Soil MS**

**Blank (3072210-BLK1)**

Prepared: 07/22/13 Analyzed: 07/23/13

Benzene	ND	0.0050	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	0.0432		"	0.0397		109	23-173			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.8	21-167			

**LCS (3072210-BS1)**

Prepared: 07/22/13 Analyzed: 07/23/13

Benzene	0.0944	0.0050	mg/kg	0.100		94.4	58-130			
Toluene	0.0995	0.0050	"	0.100		99.5	61-134			
Ethylbenzene	0.133	0.0050	"	0.100		133	74-139			
m,p-Xylene	0.252	0.010	"	0.200		126	73-137			
o-Xylene	0.128	0.0050	"	0.100		128	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0426		"	0.0397		107	23-173			
Surrogate: Toluene-d8	0.0362		"	0.0400		90.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		102	21-167			

**LCS Dup (3072210-BSD1)**

Prepared: 07/22/13 Analyzed: 07/23/13

Benzene	0.0997	0.0050	mg/kg	0.100		99.7	58-130	5.53	13	
Toluene	0.110	0.0050	"	0.100		110	61-134	9.77	16	
Ethylbenzene	0.138	0.0050	"	0.100		138	74-139	3.69	12	
m,p-Xylene	0.261	0.010	"	0.200		131	73-137	3.41	14	
o-Xylene	0.132	0.0050	"	0.100		132	73-141	3.18	12	
Surrogate: 1,2-Dichloroethane-d4	0.0459		"	0.0397		116	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

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Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
07/24/13 15:38

**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 3072210 - EPA 5030 Soil MS**

Matrix Spike (3072210-MS1)		Source: R307175-01			Prepared: 07/22/13		Analyzed: 07/23/13			
Benzene	0.0921	0.0050	mg/kg	0.100	ND	92.1	30-131			
Toluene	0.0962	0.0050	"	0.100	ND	96.2	30-134			
Ethylbenzene	0.131	0.0050	"	0.100	ND	131	22-153			
m,p-Xylene	0.253	0.010	"	0.200	ND	127	10-159			
o-Xylene	0.132	0.0050	"	0.100	ND	132	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0397		108	23-173			
Surrogate: Toluene-d8	0.0364		"	0.0400		91.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		98.9	21-167			
Matrix Spike Dup (3072210-MSD1)		Source: R307175-01			Prepared: 07/22/13		Analyzed: 07/23/13			
Benzene	0.0915	0.0050	mg/kg	0.100	ND	91.5	30-131	0.588	34	
Toluene	0.0957	0.0050	"	0.100	ND	95.7	30-134	0.563	30	
Ethylbenzene	0.133	0.0050	"	0.100	ND	133	22-153	1.32	24	
m,p-Xylene	0.250	0.010	"	0.200	ND	125	10-159	1.16	68	
o-Xylene	0.128	0.0050	"	0.100	ND	128	31-151	3.53	38	
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0397		111	23-173			
Surrogate: Toluene-d8	0.0366		"	0.0400		91.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

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Project: FEM Sooner 10-28

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
07/24/13 15:38

### 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

A handwritten signature in black ink, appearing to read 'Alyssa Beard IV'.