

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 03, 2013

Alyssa Beard  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: FEM Hillman 9-1

Enclosed are the results of analyses for samples received by Summit Scientific on 08/30/13 08:20. 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 Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
09/03/13 11:35

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B05	R308290-01	Soil	08/29/13 15:30	08/30/13 08:20
B06	R308290-02	Soil	08/29/13 15:40	08/30/13 08:20
B07	R308290-03	Soil	08/29/13 16:00	08/30/13 08:20
B08	R308290-04	Soil	08/29/13 16:10	08/30/13 08:20
B09	R308290-05	Soil	08/29/13 16:20	08/30/13 08:20

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Denver CO, 80221

Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

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09/03/13 11:35

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S<sub>2</sub>

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-374-9333 Fax

Client: THAMMAN Page 1 of 1  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_ Project Manager: Alyssa Beard  
Phone: 720 251 2302 E-Mail: \_\_\_\_\_  
Fax: \_\_\_\_\_ Project Name: FEM HILLMAN 9-1  
Sampler Name: B. Humphrey Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyze For:	Special Instructions
B05	9/2/13	1530	1	HCl	Soil	8260 BTEX 620	PLEASE BTEX, PH
B06	9/2/13	1540	1	None	Groundwater	8015 DRO	RESULTS SAME DAY
B07	9/2/13	1620	1	None	Other (Specify)	8260 BTEX 620	4 per client
B08	9/2/13	1610	1	None	Other (Specify)	8260 BTEX 620	
B09	9/2/13	1620	1	None	Other (Specify)	8260 BTEX 620	
				Received by:	Date/Time:	Turn Around Time (Check)	Notes:
				9/3/13	8:20	Some Day 72 Hours Standard	SMITHS APPROXIM
				Received by:	Date/Time:	48 Hours	PHENOL
				Received in Lab by:	Date/Time:	Sample Integrity:	
						Temperature Upon Receipt: 5.0	
						Intact: (X) No	

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
09/03/13 11:35

**B05**  
**R308290-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/29/13 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	53	50	mg/kg	1	3083010	08/30/13	08/30/13	8015M	

Date Sampled: **08/29/13 15:30**

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

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

Date Sampled: **08/29/13 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.012	0.0020	mg/kg	1	3083009	08/30/13	08/30/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.021	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.011	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.8	0.50	"	"	"	"	"	"	

Date Sampled: **08/29/13 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
09/03/13 11:35

**B06**  
**R308290-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/29/13 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3083010	08/30/13	08/30/13	8015M	

Date Sampled: **08/29/13 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

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

Date Sampled: **08/29/13 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.034</b>	0.0020	mg/kg	1	3083009	08/30/13	08/30/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.061</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.063</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>9.4</b>	0.50	"	"	"	"	"	"	

Date Sampled: **08/29/13 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		123 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

Reported:  
09/03/13 11:35

**B07**  
**R308290-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/29/13 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	350	50	mg/kg	1	3083010	08/30/13	08/30/13	8015M	

Date Sampled: **08/29/13 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		116 %	30-150		"	"	"	"	

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

Date Sampled: **08/29/13 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.019	0.0020	mg/kg	1	3083009	08/30/13	08/30/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.098	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.071	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	29	0.50	"	"	"	"	"	"	

Date Sampled: **08/29/13 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		123 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	21-167		"	"	"	"	

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
09/03/13 11:35

**B08**  
**R308290-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/29/13 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>210</b>	50	mg/kg	1	3083010	08/30/13	08/30/13	8015M	

Date Sampled: **08/29/13 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		114 %	30-150		"	"	"	"	

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

Date Sampled: **08/29/13 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.017</b>	0.0020	mg/kg	1	3083009	08/30/13	08/30/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.028</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.050</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>14</b>	0.50	"	"	"	"	"	"	

Date Sampled: **08/29/13 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		142 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		115 %	21-167		"	"	"	"	

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
09/03/13 11:35

**B09**  
**R308290-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/29/13 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>400</b>	50	mg/kg	1	3083010	08/30/13	08/30/13	8015M	

Date Sampled: **08/29/13 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		116 %	30-150		"	"	"	"	

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

Date Sampled: **08/29/13 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.034</b>	0.0020	mg/kg	1	3083009	08/30/13	08/30/13	EPA 8260B	
<b>Toluene</b>	<b>0.099</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.067</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.23</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>17</b>	0.50	"	"	"	"	"	"	

Date Sampled: **08/29/13 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		151 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		115 %	21-167		"	"	"	"	

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
09/03/13 11:35

**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 3083010 - EPA 3550A**

**Blank (3083010-BLK1)**

Prepared & Analyzed: 08/30/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3083010-BS1)**

Prepared & Analyzed: 08/30/13

C10-C28 (DRO) 530 50 mg/kg 501 106 73-134

**LCS Dup (3083010-BSD1)**

Prepared & Analyzed: 08/30/13

C10-C28 (DRO) 539 50 mg/kg 501 108 73-134 1.64 11

**Matrix Spike (3083010-MS1)**

Source: R308290-01

Prepared & Analyzed: 08/30/13

C10-C28 (DRO) 550 50 mg/kg 489 53.1 102 50-148

**Matrix Spike Dup (3083010-MSD1)**

Source: R308290-01

Prepared & Analyzed: 08/30/13

C10-C28 (DRO) 507 50 mg/kg 477 53.1 95.1 50-148 8.20 13

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**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 3083009 - EPA 5030 Soil MS**

**Blank (3083009-BLK1)**

Prepared & Analyzed: 08/30/13

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	0.0524		"	0.0397	132	23-173				
Surrogate: Toluene-d8	0.0413		"	0.0400	103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0466		"	0.0400	116	21-167				

**LCS (3083009-BS1)**

Prepared & Analyzed: 08/30/13

Benzene	0.104	0.0020	mg/kg	0.100	104	58-130				
Toluene	0.122	0.0050	"	0.100	122	61-134				
Ethylbenzene	0.120	0.0050	"	0.100	120	74-139				
m,p-Xylene	0.228	0.010	"	0.200	114	73-137				
o-Xylene	0.114	0.0050	"	0.100	114	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0533		"	0.0397	134	23-173				
Surrogate: Toluene-d8	0.0417		"	0.0400	104	20-170				
Surrogate: 4-Bromofluorobenzene	0.0457		"	0.0400	114	21-167				

**LCS Dup (3083009-BSD1)**

Prepared & Analyzed: 08/30/13

Benzene	0.105	0.0020	mg/kg	0.100	105	58-130	0.287	13		
Toluene	0.123	0.0050	"	0.100	123	61-134	1.10	16		
Ethylbenzene	0.121	0.0050	"	0.100	121	74-139	0.824	12		
m,p-Xylene	0.229	0.010	"	0.200	115	73-137	0.709	14		
o-Xylene	0.115	0.0050	"	0.100	115	73-141	0.445	12		
Surrogate: 1,2-Dichloroethane-d4	0.0526		"	0.0397	133	23-173				
Surrogate: Toluene-d8	0.0424		"	0.0400	106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0451		"	0.0400	113	21-167				

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

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09/03/13 11:35

**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 3083009 - EPA 5030 Soil MS**

Matrix Spike (3083009-MS1)		Source: R308290-01			Prepared & Analyzed: 08/30/13					
Benzene	0.111	0.0020	mg/kg	0.0954	0.0120	103	30-131			
Toluene	0.112	0.0050	"	0.0954	ND	118	30-134			
Ethylbenzene	0.136	0.0050	"	0.0954	0.0206	121	22-153			
m,p-Xylene	0.234	0.010	"	0.191	0.0107	117	10-159			
o-Xylene	0.114	0.0050	"	0.0954	ND	120	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0379		109	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0382		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0382		110	21-167			

Matrix Spike Dup (3083009-MSD1)		Source: R308290-01			Prepared & Analyzed: 08/30/13					
Benzene	0.117	0.0020	mg/kg	0.0963	0.0120	109	30-131	5.81	34	
Toluene	0.118	0.0050	"	0.0963	ND	123	30-134	5.29	30	
Ethylbenzene	0.141	0.0050	"	0.0963	0.0206	125	22-153	4.09	24	
m,p-Xylene	0.242	0.010	"	0.193	0.0107	120	10-159	3.66	68	
o-Xylene	0.117	0.0050	"	0.0963	ND	122	31-151	2.80	38	
Surrogate: 1,2-Dichloroethane-d4	0.0425		"	0.0382		111	23-173			
Surrogate: Toluene-d8	0.0428		"	0.0385		111	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0385		108	21-167			

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Project: FEM Hillman 9-1

Project Number: [none]  
Project Manager: Alyssa Beard

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09/03/13 11:35

### 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'.