

Summit Scientific

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303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 10, 2018

Brent Everett
Tasman Geosciences
6899 Pecos St, Unit C
Denver, CO 80221
RE: Hoffman 1836

Enclosed are the results of analyses for samples received by Summit Scientific on 07/03/18 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836

Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@0.5' - 070318	1807033-01	Soil	07/03/18 12:30	07/03/18 16:00

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

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Page 1 of 1

Project Manager: Trent Everett / Alyss Beard
E-Mail: beverett@plasmaenergy.com / abeard@foundationenergy.com
Project Name: Hoffman 1836
Project Number:

				Preservative				Matrix				Analyze For:								
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GDTex	DRo	PH	EC	SAR			Special Instructions	
SSG1 @ 0.5' G76318	7/3/18	1230	1						X			X	X	X	X	X				
Relinquished by: <i>Brent Everett</i>	Date/Time: 7/3/18 1600	Received by: <i>[Signature]</i>	Date/Time: 7-3-16 1600	Turn Around Time (Check)				Notes:												
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/>				72 Hours <input type="checkbox"/>												
				24 Hours <input type="checkbox"/>				Standard <input checked="" type="checkbox"/>												
				48 Hours <input type="checkbox"/>																
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity:																
				Temperature Upon Receipt: <i>KO</i>																
				Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

Sample Receipt Checklist

S2 Work Order: 1807033

Client: Tasman / Foundation

Client Project ID: Hoffman 1836

Shipped Via: Pickup

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): Air ☒ Soil/Solid Water Other: _____ (Describe)

Temp (°C)	<u>12.0</u>
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

UP
Custodian Printed Name or Initials

[Signature]
Signature or Initials of Custodian

7.3.18 1845
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836
Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

SS01@0.5' - 070318
1807033-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/03/18 12:30									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807041	07/05/18	07/06/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/03/18 12:30									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/03/18 12:30									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807040	07/05/18	07/06/18	EPA 8015M	

Date Sampled: 07/03/18 12:30									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.0 %	30-150		"	"	"	"	

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

Date Sampled: 07/03/18 12:30									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	6110	11.6	mg/kg dry	1	1807061	07/06/18	07/07/18	EPA 6020B	
Magnesium	361	5.81	"	"	"	"	"	"	

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Project: Hoffman 1836
Project Number: [none]
Project Manager: Brent Everett

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SS01@0.5' - 070318
1807033-01 (Soil)

Summit Scientific

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

Sodium	1610	5.81 mg/kg dry	1	1807061	07/06/18	07/07/18	EPA 6020B
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Calculated Analysis

Date Sampled: **07/03/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.41	0.100	units	1	1807072	07/08/18	07/09/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/03/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.1		%	1	1807045	07/05/18	07/05/18	Calculation	
pH	8.29		pH Units	"	1807069	07/06/18	07/06/18	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **07/03/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.63	0.0100	mmhos/cm	1	1807070	07/06/18	07/06/18	EPA 120.1	

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Project: Hoffman 1836
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Project Manager: Brent Everett

Reported:
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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 1807041 - EPA 5030 Soil MS

Blank (1807041-BLK1)

Prepared & Analyzed: 07/05/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0402		"	0.0396	102	23-173				
Surrogate: Toluene-d8	0.0408		"	0.0400	102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400	104	21-167				

LCS (1807041-BS1)

Prepared & Analyzed: 07/05/18

Benzene	0.105	0.0020	mg/kg	0.100	105	70-130				
Toluene	0.109	0.0050	"	0.100	109	70-130				
Ethylbenzene	0.114	0.0050	"	0.100	114	70-130				
m,p-Xylene	0.208	0.010	"	0.200	104	70-130				
o-Xylene	0.100	0.0050	"	0.100	100	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0396	101	23-173				
Surrogate: Toluene-d8	0.0426		"	0.0400	106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400	107	21-167				

Matrix Spike (1807041-MS1)

Source: 1807032-01

Prepared & Analyzed: 07/05/18

Benzene	0.104	0.0020	mg/kg	0.100	ND	104	70-130			
Toluene	0.107	0.0050	"	0.100	ND	107	70-130			
Ethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130			
m,p-Xylene	0.216	0.010	"	0.200	ND	108	70-130			
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0404		"	0.0396	102	23-173				
Surrogate: Toluene-d8	0.0423		"	0.0400	106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400	106	21-167				

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6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836
Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

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

Batch 1807041 - EPA 5030 Soil MS

Matrix Spike Dup (1807041-MSD1)	Source: 1807032-01			Prepared & Analyzed: 07/05/18					
Benzene	0.112	0.0020	mg/kg	0.100	ND	112	70-130	7.59	30
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	6.28	30
Ethylbenzene	0.127	0.0050	"	0.100	ND	127	70-130	7.78	30
m,p-Xylene	0.232	0.010	"	0.200	ND	116	70-130	7.37	30
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130	7.42	30
Surrogate: 1,2-Dichloroethane-d4	0.0423		"	0.0396		107	23-173		
Surrogate: Toluene-d8	0.0408		"	0.0400		102	20-170		
Surrogate: 4-Bromofluorobenzene	0.0420		"	0.0400		105	21-167		

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6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836

Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

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 1807040 - EPA 3550A

Blank (1807040-BLK1)

Prepared & Analyzed: 07/05/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1807040-BS1)

Prepared & Analyzed: 07/05/18

C10-C28 (DRO) 464 50 mg/kg 70-130

Matrix Spike (1807040-MS1)

Source: 1807032-01

Prepared & Analyzed: 07/05/18

C10-C28 (DRO) 452 50 mg/kg 24.9 70-130

Matrix Spike Dup (1807040-MSD1)

Source: 1807032-01

Prepared & Analyzed: 07/05/18

C10-C28 (DRO) 448 50 mg/kg 24.9 70-130 0.946 20

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Project: Hoffman 1836
Project Number: [none]
Project Manager: Brent Everett

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

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

Batch 1807061 - General Preparation

Blank (1807061-BLK1)

Prepared: 07/06/18 Analyzed: 07/07/18

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

LCS (1807061-BS1)

Prepared: 07/06/18 Analyzed: 07/07/18

Calcium	487	10.0	mg/kg wet	500	97.4	70-130
Magnesium	500	5.00	"	500	100	70-130
Sodium	503	5.00	"	500	101	70-130

Duplicate (1807061-DUP1)

Source: 1807032-01

Prepared: 07/06/18 Analyzed: 07/07/18

Calcium	801	11.1	mg/kg dry	695	14.2	20
Magnesium	189	5.55	"	171	10.5	20
Sodium	88.6	5.55	"	90.1	1.68	20

Matrix Spike (1807061-MS1)

Source: 1807032-01

Prepared: 07/06/18 Analyzed: 07/07/18

Calcium	1270	11.1	mg/kg dry	555	695	103	70-130
Magnesium	733	5.55	"	555	171	101	70-130
Sodium	608	5.55	"	555	90.1	93.3	70-130

Matrix Spike Dup (1807061-MSD1)

Source: 1807032-01

Prepared: 07/06/18 Analyzed: 07/07/18

Calcium	1380	11.1	mg/kg dry	555	695	124	70-130	8.46	25
Magnesium	782	5.55	"	555	171	110	70-130	6.48	25
Sodium	623	5.55	"	555	90.1	96.1	70-130	2.51	25

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6899 Pecos St, Unit C
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Project: Hoffman 1836

Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

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

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

Batch 1807045 - General Preparation

Duplicate (1807045-DUP1) **Source: 1807032-01** Prepared & Analyzed: 07/05/18

% Solids	97.5		%		90.1			7.90	20	
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Batch 1807069 - General Preparation

LCS (1807069-BS1) Prepared & Analyzed: 07/06/18

pH	9.2		pH Units	9.18		99.8	95-105			
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Duplicate (1807069-DUP1) **Source: 1807062-01** Prepared & Analyzed: 07/06/18

pH	7.8		pH Units		8.0			2.65	20	
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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836

Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

Specific Conductance by EPA Method 120.1 - Quality Control
Summit Scientific

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

Batch 1807070 - General Preparation

LCS (1807070-BS1)

Prepared & Analyzed: 07/06/18

Specific Conductance (EC)	0.744	0.0100	mmhos/cm	0.750	99.3	90-110
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Duplicate (1807070-DUP1)

Source: 1807062-01

Prepared & Analyzed: 07/06/18

Specific Conductance (EC)	0.575	0.0100	mmhos/cm	0.586	1.89	20
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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Hoffman 1836

Project Number: [none]
Project Manager: Brent Everett

Reported:
07/10/18 08:09

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