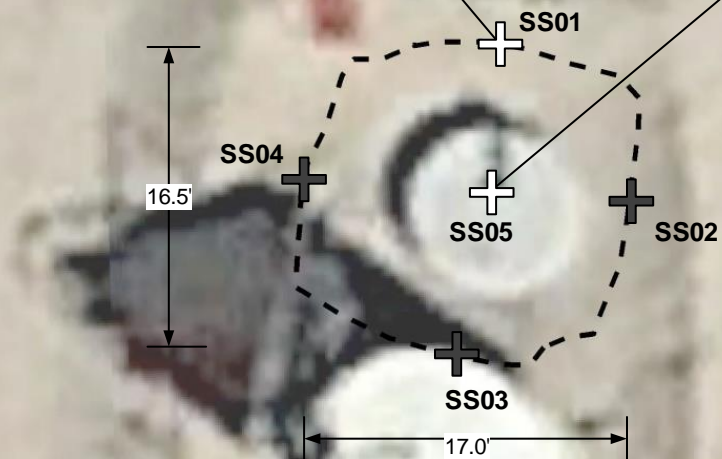


SS01@3'  
B - <0.0020 mg/kg  
T - <0.0050 mg/kg  
E - <0.0050 mg/kg  
X - <0.010 mg/kg  
TPH - <50 mg/kg  
N - <0.010 mg/kg  
SAR - 0.182  
EC - 0.392 mmhos/cm  
pH - 8.80

SS05@6'  
B - <0.0020 mg/kg  
T - <0.0050 mg/kg  
E - <0.0050 mg/kg  
X - <0.010 mg/kg  
TPH - <50 mg/kg  
N - <0.010 mg/kg



**Legend**

- + Excavation Sample Location
- + Excavation Sample Location (Not Submitted for Laboratory Analysis)
- - - - Excavation Extent

**Notes**

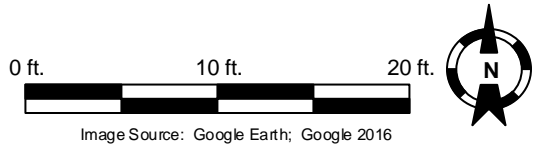
1) All locations are approximate unless otherwise noted

2) **RED** Value Indicates Concentration Greater Than COGCC Table 910-1 Soil Standard (See table below).

mg/kg    Milligrams Per Kilogram

mmhos/cm    Millimhos Per Centimeter

Contaminant of Concern	COGCC Concentration Standard
B - Benzene	0.17 mg/kg
T - Toluene	85 mg/kg
E - Ethylbenzene	100 mg/kg
X – Total Xylenes	175 mg/kg
TPH- Total Petroleum Hydrocarbons	500 mg/kg
N - Naphthalene	23 mg/kg



# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 10, 2017

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Tennyson 34-04

Enclosed are the results of analyses for samples received by Summit Scientific on 08/03/17 09:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Shrewsbury', with a long, sweeping horizontal stroke extending to the right.

Ben Shrewsbury  
Laboratory Manager



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@3'	1708027-01	Soil	08/02/17 12:50	08/03/17 09:30
SS05@6'	1708027-02	Soil	08/02/17 13:00	08/03/17 09:30

Summit Scientific

*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.*



# Summit Scientific


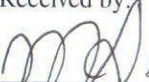
1708027

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: Noble/Tasman  
Address: -  
City/State/Zip: -  
Phone: 303-487-1228 Fax: -  
Sampler Name: JW

Project Manager: Brandon Bruns, Invoice: Jacob Evans  
E-Mail: Bbruns@tasman-geo.com  
Project Name: Tennyson 34-04  
Project Number: -

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	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR									
SS01@3-	8/2/17	1250	1			X			X						X	X	X							
SS05@6-	8/2/17	1300	1			X			X						X	X								
Relinquished by: 	Date/Time: <u>930</u>	Received by: 		Date/Time: <u>8/3/17 930</u>		Turn Around Time (Check)										Notes:  <u>on ice</u>								
Relinquished by:	Date/Time: <u>8/3/17</u>	Received by:		Date/Time:		Same Day	<input type="checkbox"/>	72 Hours	<input type="checkbox"/>	Standard	<input checked="" type="checkbox"/>													
Relinquished by:	Date/Time:	Received in Lab by:		Date/Time:		24 Hours	<input type="checkbox"/>																	
Relinquished by:	Date/Time:	Received in Lab by:		Date/Time:		48 Hours	<input type="checkbox"/>																	
Sample Integrity:						Temperature Upon Receipt: <u>5.5°C</u>																		
Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																								

1708027

## Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: Noble/TasmanClient Project ID: Tennyson 34-04Shipped Via: P/U

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

Airbill #: \_\_\_\_\_

Matrix (check all that apply):      Air   ✓   Soil/Solid      Water      Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	5.5				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ?				
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 <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			✓	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			✓	
Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.Nakita  
Custodian Printed Name[Signature]  
Signature or Initials of Custodian8/3/17 1140  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**SS01@3'**  
**1708027-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1708054	08/04/17	08/05/17	8015M	

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

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

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708053	08/04/17	08/04/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.1 %	21-167		"	"	"	"	

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

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>1400</b>	11.8	mg/kg dry	1	1708067	08/07/17	08/07/17	EPA 6020/Mod. USDA60 6(2, 3A)	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**SS01@3'**  
**1708027-01 (Soil)**

**Summit Scientific**

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

<b>Magnesium</b>	<b>420</b>	5.92	mg/kg dry	1	1708067	08/07/17	08/07/17	EPA 6020/Mod. USDA60 6(2, 3A)
<b>Sodium</b>	<b>30.3</b>	5.92	"	"	"	"	"	"
<b>Sodium Adsorption Ratio</b>	<b>0.182</b>		units	"	1708087	08/08/17	08/08/17	"

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

Date Sampled: **08/02/17 12:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.80</b>	0.100	pH Units	1	1708059	08/04/17	08/04/17	EPA 9045	
<b>Specific Conductance (EC)</b>	<b>0.392</b>	0.0100	mmhos/cm	"	1708058	08/04/17	08/04/17	SM 2510B	
<b>% Solids</b>	<b>84.4</b>		%	"	1708060	08/04/17	08/04/17	% calculation	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**SS05@6'**  
**1708027-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/02/17 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1708054	08/04/17	08/05/17	8015M	

Date Sampled: **08/02/17 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

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

Date Sampled: **08/02/17 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708053	08/04/17	08/04/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/02/17 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.2 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**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 1708054 - EPA 3550A**

**Blank (1708054-BLK1)**

Prepared & Analyzed: 08/04/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	13.2		"	12.5		106	30-150			

**LCS (1708054-BS1)**

Prepared & Analyzed: 08/04/17

C10-C28 (DRO)	606	50	mg/kg	499		122	73-134			
Surrogate: o-Terphenyl	14.6		"	12.5		117	30-150			

**Matrix Spike (1708054-MS1)**

Source: 1708027-01

Prepared & Analyzed: 08/04/17

C10-C28 (DRO)	606	50	mg/kg	499	37.2	114	50-148			
Surrogate: o-Terphenyl	14.4		"	12.5		116	30-150			

**Matrix Spike Dup (1708054-MSD1)**

Source: 1708027-01

Prepared & Analyzed: 08/04/17

C10-C28 (DRO)	565	50	mg/kg	499	37.2	106	50-148	7.03	20	
Surrogate: o-Terphenyl	13.5		"	12.5		108	30-150			

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**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 1708053 - EPA 5030 Soil MS**

**Blank (1708053-BLK1)**

Prepared & Analyzed: 08/04/17

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0403</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.7</i>	<i>21-167</i>			

**LCS (1708053-BS1)**

Prepared & Analyzed: 08/04/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0874	0.0020	"	0.100		87.4	58-130			
Toluene	0.0938	0.0050	"	0.100		93.8	61-134			
Ethylbenzene	0.0943	0.0050	"	0.0992		95.1	74-139			
m,p-Xylene	0.181	0.010	"	0.200		90.9	73-137			
o-Xylene	0.0928	0.0050	"	0.0980		94.7	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0403</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>96.1</i>	<i>21-167</i>			

**Matrix Spike (1708053-MS1)**

**Source: 1708027-01**

Prepared & Analyzed: 08/04/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0848	0.0020	"	0.100	ND	84.8	30-131			
Toluene	0.0891	0.0050	"	0.100	ND	89.1	30-134			
Ethylbenzene	0.0883	0.0050	"	0.0992	ND	89.0	22-153			
m,p-Xylene	0.171	0.010	"	0.200	ND	85.5	10-159			
o-Xylene	0.0859	0.0050	"	0.0980	ND	87.6	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0375</i>		<i>"</i>	<i>0.0400</i>		<i>93.8</i>	<i>21-167</i>			

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

**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 1708053 - EPA 5030 Soil MS**

Matrix Spike Dup (1708053-MSD1)		Source: 1708027-01			Prepared & Analyzed: 08/04/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0761	0.0020	"	0.100	ND	76.1	30-131	10.9	34	
Toluene	0.0807	0.0050	"	0.100	ND	80.7	30-134	9.82	30	
Ethylbenzene	0.0807	0.0050	"	0.0992	ND	81.4	22-153	8.98	24	
m,p-Xylene	0.158	0.010	"	0.200	ND	79.4	10-159	7.49	68	
o-Xylene	0.0806	0.0050	"	0.0980	ND	82.3	31-151	6.27	38	
Surrogate: 1,2-Dichloroethane-d4	0.0425		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	21-167			

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

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

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

**Batch 1708067 - General Preparation**

**Blank (1708067-BLK1)**

Prepared & Analyzed: 08/07/17

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

**LCS (1708067-BS1)**

Prepared & Analyzed: 08/07/17

Calcium	485	10.0	mg/kg wet	500	97.1	82.9-118
Magnesium	460	5.00	"	500	92.0	77.1-123
Sodium	466	5.00	"	500	93.3	71-129

**Duplicate (1708067-DUP1)**

Source: 1708027-01

Prepared & Analyzed: 08/07/17

Calcium	1400	11.8	mg/kg dry	1400	0.0949	200
Magnesium	414	5.92	"	420	1.34	200
Sodium	24.2	5.92	"	30.3	22.3	200

**Matrix Spike (1708067-MS1)**

Source: 1708027-01

Prepared & Analyzed: 08/07/17

Calcium	1860	11.8	mg/kg dry	592	1400	78.7	75-125
Magnesium	998	5.92	"	592	420	97.5	75-125
Sodium	607	5.92	"	592	30.3	97.3	75-125

**Matrix Spike Dup (1708067-MSD1)**

Source: 1708027-01

Prepared & Analyzed: 08/07/17

Calcium	1900	11.8	mg/kg dry	592	1400	85.4	75-125	2.12	25
Magnesium	923	5.92	"	592	420	85.0	75-125	7.74	25
Sodium	565	5.92	"	592	30.3	90.3	75-125	7.03	25

Summit Scientific

*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.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

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

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

**Batch 1708058 - General Preparation**

**Blank (1708058-BLK1)**

Prepared & Analyzed: 08/04/17

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (1708058-BS1)**

Prepared & Analyzed: 08/04/17

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.750 100 90-110

**Duplicate (1708058-DUP1)**

**Source: 1708027-01**

Prepared & Analyzed: 08/04/17

Specific Conductance (EC) 0.391 0.0100 mmhos/cm 0.392 0.243 20

**Batch 1708059 - General Preparation**

**LCS (1708059-BS1)**

Prepared & Analyzed: 08/04/17

pH 6.02 0.100 pH Units 6.00 100 95-105

**Duplicate (1708059-DUP1)**

**Source: 1708027-01**

Prepared & Analyzed: 08/04/17

pH 8.77 0.100 pH Units 8.80 0.341 20

**Batch 1708060 - General Preparation**

**Duplicate (1708060-DUP1)**

**Source: 1708027-01**

Prepared & Analyzed: 08/04/17

% Solids 83.1 % 84.4 1.55 20

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Tennyson 34-04

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/10/17 14:59

### 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