

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 05, 2016

Colby Sterling  
Talon/LPE  
1811 E Mulberry  
Ft Collins, CO 80524  
RE: Razor 12F

Enclosed are the results of analyses for samples received by Summit Scientific on 10/04/16 15:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Razor 12F  
Project Number: 701530.064.03  
Project Manager: Colby Sterling

**Reported:**  
10/05/16 16:13

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P-2@24"	1610043-01	Soil	10/04/16 10:50	10/04/16 15:10
UL-3@24"	1610043-02	Soil	10/04/16 10:26	10/04/16 15:10
UL-5@24"	1610043-03	Soil	10/04/16 10:46	10/04/16 15:10
UL-6@12"	1610043-04	Soil	10/04/16 10:22	10/04/16 15:10
UL-8@12"	1610043-05	Soil	10/04/16 10:34	10/04/16 15:10
UL-9@12"	1610043-06	Soil	10/04/16 10:30	10/04/16 15:10
UL-10@12"	1610043-07	Soil	10/04/16 10:38	10/04/16 15:10
UL-11@12"	1610043-08	Soil	10/04/16 10:42	10/04/16 15:10

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Razor 12F  
Project Number: 701530.064.03  
Project Manager: Colby Sterling

Reported:  
10/05/16 16:13

### Sample Receipt Checklist

S2 Work Order: 1610043

Client: Talon

Client Project ID: Razor 12F

Shipped 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)	<u>21.1</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Muri P.  
Custodian Printed Name

MS 10-4-16  
Signature or Initials of Custodian

17:50  
Date/Time



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Razor 12F  
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**Reported:**  
10/05/16 16:13

**P-2@24"**  
**1610043-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	3880	13.4	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	417	6.70	"	"	"	"	"	"	
Sodium	1060	6.70	"	"	"	"	"	"	
Sodium Adsorption Ratio	4.32		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	9.00	0.100	pH Units	1	1610042	10/05/16	10/05/16	EPA 9045	
% Solids	74.6		%	"	1610043	"	10/05/16	% calculation	
Specific Conductance (EC)	1.26	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	

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Project: Razor 12F  
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**Reported:**  
10/05/16 16:13

**UL-3@24"**  
**1610043-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2940	12.7	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	288	6.34	"	"	"	"	"	"	
Sodium	924	6.34	"	"	"	"	"	"	
Sodium Adsorption Ratio	4.35		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.38	0.0100	mmhos/cm	1	1610041	10/05/16	10/05/16	SM 2510B	
pH	8.88	0.100	pH Units	"	1610042	10/05/16	10/05/16	EPA 9045	
% Solids	78.9		%	"	1610043	"	10/05/16	% calculation	

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Project: Razor 12F  
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**Reported:**  
10/05/16 16:13

**UL-5@24"**  
**1610043-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>1610</b>	13.0	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
<b>Magnesium</b>	<b>253</b>	6.51	"	"	"	"	"	"	
<b>Sodium</b>	<b>1100</b>	6.51	"	"	"	"	"	"	
<b>Sodium Adsorption Ratio</b>	<b>6.73</b>		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.64</b>	0.100	pH Units	1	1610042	10/05/16	10/05/16	EPA 9045	
<b>% Solids</b>	<b>76.8</b>		%	"	1610043	"	10/05/16	% calculation	
<b>Specific Conductance (EC)</b>	<b>2.00</b>	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	

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**Reported:**  
10/05/16 16:13

**UL-6@12"**  
**1610043-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2350	11.4	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	176	5.68	"	"	"	"	"	"	
Sodium	233	5.68	"	"	"	"	"	"	
Sodium Adsorption Ratio	1.25		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.0		%	1	1610043	10/05/16	10/05/16	% calculation	
Specific Conductance (EC)	0.462	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	
pH	8.86	0.100	pH Units	"	1610042	10/05/16	10/05/16	EPA 9045	

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**Reported:**  
10/05/16 16:13

**UL-8@12"**  
**1610043-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1710	11.5	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	269	5.75	"	"	"	"	"	"	
Sodium	1100	5.75	"	"	"	"	"	"	
Sodium Adsorption Ratio	6.53		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.9		%	1	1610043	10/05/16	10/05/16	% calculation	
Specific Conductance (EC)	2.51	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	
pH	8.57	0.100	pH Units	"	1610042	10/05/16	10/05/16	EPA 9045	

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**Reported:**  
10/05/16 16:13

**UL-9@12"**  
**1610043-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>1300</b>	12.1	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
<b>Magnesium</b>	<b>232</b>	6.05	"	"	"	"	"	"	
<b>Sodium</b>	<b>670</b>	6.05	"	"	"	"	"	"	
<b>Sodium Adsorption Ratio</b>	<b>4.50</b>		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>% Solids</b>	<b>82.6</b>		%	1	1610043	10/05/16	10/05/16	% calculation	
<b>pH</b>	<b>8.46</b>	0.100	pH Units	"	1610042	"	10/05/16	EPA 9045	
<b>Specific Conductance (EC)</b>	<b>1.71</b>	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	

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**Reported:**  
10/05/16 16:13

**UL-10@12"**  
**1610043-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>3100</b>	12.4	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	<b>477</b>	6.18	"	"	"	"	"	"	
Sodium	<b>921</b>	6.18	"	"	"	"	"	"	
Sodium Adsorption Ratio	<b>4.07</b>		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>1.04</b>	0.0100	mmhos/cm	1	1610041	10/05/16	10/05/16	SM 2510B	
pH	<b>9.35</b>	0.100	pH Units	"	1610042	10/05/16	10/05/16	EPA 9045	
% Solids	<b>80.9</b>		%	"	1610043	"	10/05/16	% calculation	

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**Reported:**  
10/05/16 16:13

**UL-11@12"**  
**1610043-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/04/16 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>2250</b>	12.2	mg/kg dry	1	1610044	10/05/16	10/05/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	<b>375</b>	6.11	"	"	"	"	"	"	
Sodium	<b>628</b>	6.11	"	"	"	"	"	"	
Sodium Adsorption Ratio	<b>3.23</b>		units	"	1610056	10/05/16	10/05/16	"	

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

Date Sampled: **10/04/16 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>9.18</b>	0.100	pH Units	1	1610042	10/05/16	10/05/16	EPA 9045	
% Solids	<b>81.9</b>		%	"	1610043	"	10/05/16	% calculation	
Specific Conductance (EC)	<b>0.729</b>	0.0100	mmhos/cm	"	1610041	10/05/16	10/05/16	SM 2510B	

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**Reported:**  
10/05/16 16:13

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

**Summit Scientific**

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

**Batch 1610044 - General Preparation**

**Blank (1610044-BLK1)**

Prepared & Analyzed: 10/05/16

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

**LCS (1610044-BS1)**

Prepared & Analyzed: 10/05/16

Calcium	428	10.0	mg/kg wet	500	85.6	82.9-118
Magnesium	460	5.00	"	500	92.0	77.1-123
Sodium	471	5.00	"	500	94.2	71-129

**Duplicate (1610044-DUP1)**

Source: 1610043-01

Prepared & Analyzed: 10/05/16

Calcium	3140	13.4	mg/kg dry	3880	21.1	200
Magnesium	371	6.70	"	417	11.7	200
Sodium	981	6.70	"	1060	7.47	200

**Matrix Spike (1610044-MS1)**

Source: 1610043-01

Prepared & Analyzed: 10/05/16

Calcium	4550	13.4	mg/kg dry	670	3880	100	75-125
Magnesium	960	6.70	"	670	417	81.0	75-125
Sodium	1580	6.70	"	670	1060	78.7	75-125

**Matrix Spike Dup (1610044-MSD1)**

Source: 1610043-01

Prepared & Analyzed: 10/05/16

Calcium	4630	13.4	mg/kg dry	670	3880	112	75-125	1.67	25
Magnesium	933	6.70	"	670	417	77.0	75-125	2.80	25
Sodium	1560	6.70	"	670	1060	75.7	75-125	1.27	25

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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 1610041 - General Preparation

Blank (1610041-BLK1)

Prepared & Analyzed: 10/05/16

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1610041-BS1)

Prepared & Analyzed: 10/05/16

Specific Conductance (EC) 0.511 0.0100 mmhos/cm 0.500 102 90-110

Duplicate (1610041-DUP1)

Source: 1610009-01

Prepared & Analyzed: 10/05/16

Specific Conductance (EC) 5.44 0.0100 mmhos/cm 5.08 7.03 20

Batch 1610042 - General Preparation

LCS (1610042-BS1)

Prepared & Analyzed: 10/05/16

pH 8.03 0.100 pH Units 8.00 100 95-105

Duplicate (1610042-DUP1)

Source: 1610009-01

Prepared & Analyzed: 10/05/16

pH 7.89 0.100 pH Units 7.92 0.380 20

Batch 1610043 - General Preparation

Duplicate (1610043-DUP1)

Source: 1610042-01

Prepared & Analyzed: 10/05/16

% Solids 88.3 % 88.3 0.00 20

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Ft Collins CO, 80524

Project: Razor 12F

Project Number: 701530.064.03  
Project Manager: Colby Sterling

**Reported:**  
10/05/16 16:13

### 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