

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 30, 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 09/29/16 18:05. 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: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P-2@12"	1609199-01	Soil	09/29/16 11:20	09/29/16 18:05
UL-3@12"	1609199-02	Soil	09/29/16 11:26	09/29/16 18:05
UL-6	1609199-03	Soil	09/29/16 11:31	09/29/16 18:05
UL-7	1609199-04	Soil	09/29/16 11:35	09/29/16 18:05
UL-8	1609199-05	Soil	09/29/16 11:38	09/29/16 18:05
UL-9	1609199-06	Soil	09/29/16 11:41	09/29/16 18:05
UL-10	1609199-07	Soil	09/29/16 11:43	09/29/16 18:05
UL-11	1609199-08	Soil	09/29/16 11:45	09/29/16 18:05
UL-5@12"	1609199-09	Soil	09/29/16 11:48	09/29/16 18:05

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F

Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

Summit Scientific 1609189



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

Page 1 of 1

Client: Talon/LPE - Bill Whiting Petroleum
Address: 1811 East Mulberry
City/State/Zip: Fort Collins, CO 80524
Phone: 970-818-5330 Fax:
Sampler Name: Jason Leverton / Colby Sterling

Project Manager: Colby Sterling
E-Mail: csterling@talonlpe.com
Project Name: Razor 12F
Project Number: 701530.064.03

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:								Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GRO/DRO	BTEX	EC	SAR	pH				
P-2 @ 12"	9/29/2016	11:20	1		x			x					x	x	x	x	x			
UL-3 @ 12"	9/29/2016	11:26	1		x			x					x	x	x	x	x			
UL-6	9/29/2016	11:31	1		x			x					x	x	x	x	x			
UL-7	9/29/2016	11:35	1		x			x					x	x	x	x	x			
UL-8	9/29/2016	11:38	1		x			x					x	x	x	x	x			
UL-9	9/29/2016	11:41	1		x			x					x	x	x	x	x			
UL-10	9/29/2016	11:43	1		x			x					x	x	x	x	x			
UL-11	9/29/2016	11:45	1		x			x					x	x	x	x	x			
UL-5 @ 12"	9/29/2016	11:48	1		x			x					x	x	x	x	x			

Relinquished by: 	Date/Time: 9-29-16 16:00	Received by: 	Date/Time: 9-29-16 16:00	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 Hours <input checked="" type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: 23.7	
				Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

Sample Receipt Checklist

S2 Work Order: 1609159

Client: Talon Client Project ID: Razor 12F

Shipped Via: P.O. Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Cooler ID					
Temp (°C)	<u>23.7</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 ⁽¹⁾ ?			<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<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) ⁽¹⁾ ?			<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 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):				

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

Muri P.
Custodian Printed Name

MS 9-29-16
Signature or Initials of Custodian

17:45
Date/Time



Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

P-2@12"
1609199-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/29/16 11:20									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/29/16	8015M	

Date Sampled: 09/29/16 11:20									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/29/16 11:20									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 09/29/16 11:20									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Date Sampled: 09/29/16 11:20									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	8830	13.4	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	535	6.72	"	"	"	"	"	"	

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P-2@12"
1609199-01 (Soil)

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

Sodium	516	6.72	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	1.44		units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.756	0.0100	mmhos/cm	1	1609245	09/29/16	09/30/16	SM 2510B	
% Solids	74.4		%	"	1609248	09/30/16	09/30/16	% calculation	
pH	10.7	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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Project: Razor 12F
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Reported:
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UL-3@12"
1609199-02 (Soil)

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Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/29/16	8015M	

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	9740	11.3	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	553	5.63	"	"	"	"	"	"	

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UL-3@12"
1609199-02 (Soil)

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

Sodium	443	5.63 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	1.18	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.2		%	1	1609248	09/30/16	09/30/16	% calculation	
Specific Conductance (EC)	1.18	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	
pH	9.83	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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Reported:
09/30/16 17:02

UL-6
1609199-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/29/16	8015M	

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1350	9.44	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	229	4.72	"	"	"	"	"	"	

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UL-6
1609199-03 (Soil)

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

Sodium	38.0	4.72 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	0.252	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.9		%	1	1609248	09/30/16	09/30/16	% calculation	
Specific Conductance (EC)	0.554	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	
pH	9.15	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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Reported:
09/30/16 17:02

UL-7
1609199-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/29/16	8015M	

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1900	8.55	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	277	4.27	"	"	"	"	"	"	

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UL-7
1609199-04 (Soil)

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

Sodium	196	4.27 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	1.11	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.58	0.100	pH Units	1	1609244	09/29/16	09/30/16	EPA 9045	
% Solids	95.9		%	"	1609248	09/30/16	09/30/16	% calculation	
Specific Conductance (EC)	1.96	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	

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UL-8
1609199-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/29/16	8015M	

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1450	9.90	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	187	4.95	"	"	"	"	"	"	

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09/30/16 17:02

UL-8
1609199-05 (Soil)

Summit Scientific

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

Sodium	607	4.95	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	3.99		units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.21	0.0100	mmhos/cm	1	1609245	09/29/16	09/30/16	SM 2510B	
% Solids	84.2		%	"	1609248	09/30/16	09/30/16	% calculation	
pH	10.4	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-9
1609199-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/30/16	8015M	

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2190	9.67	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	195	4.84	"	"	"	"	"	"	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-9
1609199-06 (Soil)

Summit Scientific

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

Sodium	846	4.84 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	4.65	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.7		%	1	1609248	09/30/16	09/30/16	% calculation	
Specific Conductance (EC)	1.98	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	
pH	11.6	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-10
1609199-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/30/16	8015M	

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1200	7.62	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	147	3.81	"	"	"	"	"	"	

Summit Scientific

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-10
1609199-07 (Soil)

Summit Scientific

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

Sodium	611	3.81 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	4.43	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.1		%	1	1609248	09/30/16	09/30/16	% calculation	
pH	10.4	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	
Specific Conductance (EC)	2.15	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-11
1609199-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/30/16	8015M	

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0018	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0045	"	"	"	"	"	"	
Ethylbenzene	ND	0.0045	"	"	"	"	"	"	
Xylenes (total)	ND	0.0045	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.45	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2360	10.9	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	270	5.47	"	"	"	"	"	"	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-11
1609199-08 (Soil)

Summit Scientific

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

Sodium	798	5.47 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	4.15	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.4		%	1	1609248	09/30/16	09/30/16	% calculation	
Specific Conductance (EC)	2.97	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	
pH	10.1	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	

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Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-5@12"
1609199-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1609247	09/29/16	09/30/16	8015M	

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609246	09/29/16	09/29/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	6070	11.4	mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	496	5.71	"	"	"	"	"	"	

Summit Scientific

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

UL-5@12"
1609199-09 (Soil)

Summit Scientific

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

Sodium	773	5.71 mg/kg dry	1	1609250	09/30/16	09/30/16	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	2.56	units	"	1609259	09/30/16	09/30/16	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/29/16 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	74.2		%	1	1609248	09/30/16	09/30/16	% calculation	
pH	8.20	0.100	pH Units	"	1609244	09/29/16	09/30/16	EPA 9045	
Specific Conductance (EC)	7.45	0.0100	mmhos/cm	"	1609245	09/29/16	09/30/16	SM 2510B	

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

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 1609247 - EPA 3550A

Blank (1609247-BLK1)

Prepared & Analyzed: 09/29/16

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	11.8		"	12.5		94.3	30-150			

LCS (1609247-BS1)

Prepared & Analyzed: 09/29/16

C10-C28 (DRO)	418	50	mg/kg	499		83.9	73-134			
Surrogate: o-Terphenyl	12.2		"	12.5		97.4	30-150			

Matrix Spike (1609247-MS1)

Source: 1609199-01

Prepared & Analyzed: 09/29/16

C10-C28 (DRO)	435	50	mg/kg	490	15.5	85.6	50-148			
Surrogate: o-Terphenyl	14.4		"	12.3		117	30-150			

Matrix Spike Dup (1609247-MSD1)

Source: 1609199-01

Prepared & Analyzed: 09/29/16

C10-C28 (DRO)	424	50	mg/kg	488	15.5	83.6	50-148	2.67	20	
Surrogate: o-Terphenyl	13.7		"	12.2		112	30-150			

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

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 1609246 - EPA 5030 Soil MS

Blank (1609246-BLK1)

Prepared & Analyzed: 09/29/16

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	0.0422		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

LCS (1609246-BS1)

Prepared & Analyzed: 09/29/16

Benzene	0.109	0.0020	mg/kg	0.100		109	58-130			
Toluene	0.113	0.0050	"	0.100		113	61-134			
Ethylbenzene	0.116	0.0050	"	0.0992		116	74-139			
m,p-Xylene	0.213	0.010	"	0.200		107	73-137			
o-Xylene	0.113	0.0050	"	0.0980		115	73-141			
Xylenes (total)	0.326	0.0050	"				30-150			
Gasoline Range Hydrocarbons	2.34	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0442		"	0.0400		111	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	21-167			

Matrix Spike (1609246-MS1)

Source: 1609199-01

Prepared & Analyzed: 09/29/16

Benzene	0.103	0.0020	mg/kg	0.0926	ND	111	30-131			
Toluene	0.110	0.0050	"	0.0926	ND	119	30-134			
Ethylbenzene	0.116	0.0050	"	0.0919	ND	126	22-153			
m,p-Xylene	0.214	0.010	"	0.185	ND	116	10-159			
o-Xylene	0.112	0.0050	"	0.0907	ND	123	31-151			
Xylenes (total)	0.325	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	2.41	0.50	"		ND		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0370		110	23-173			
Surrogate: Toluene-d8	0.0379		"	0.0370		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0370		99.0	21-167			

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

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 1609246 - EPA 5030 Soil MS

Matrix Spike Dup (1609246-MSD1)		Source: 1609199-01			Prepared: 09/29/16		Analyzed: 09/30/16			
Benzene	0.112	0.0020	mg/kg	0.0973	ND	115	30-131	8.88	34	
Toluene	0.119	0.0050	"	0.0973	ND	122	30-134	7.17	30	
Ethylbenzene	0.130	0.0050	"	0.0965	ND	135	22-153	11.6	24	
m,p-Xylene	0.237	0.010	"	0.194	ND	122	10-159	10.4	68	
o-Xylene	0.123	0.0050	"	0.0953	ND	129	31-151	9.31	38	
Xylenes (total)	0.360	0.0050	"		ND		30-150	10.0	20	
Gasoline Range Hydrocarbons	2.67	0.50	"		ND		30-150	10.1	20	
Surrogate: 1,2-Dichloroethane-d4	0.0423		"	0.0389		109	23-173			
Surrogate: Toluene-d8	0.0383		"	0.0389		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0389		99.0	21-167			

Summit Scientific

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

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 1609250 - General Preparation

Blank (1609250-BLK1)

Prepared & Analyzed: 09/30/16

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

LCS (1609250-BS1)

Prepared & Analyzed: 09/30/16

Calcium	472	10.0	mg/kg wet	500	94.3	82.9-118
Magnesium	478	5.00	"	500	95.6	77.1-123
Sodium	401	5.00	"	500	80.2	71-129

Duplicate (1609250-DUP1)

Source: 1609119-04

Prepared & Analyzed: 09/30/16

Calcium	11300	8.50	mg/kg dry	12800	12.3	200
Magnesium	952	4.25	"	1080	12.8	200
Sodium	4750	4.25	"	4820	1.38	200

Matrix Spike (1609250-MS1)

Source: 1609119-04

Prepared & Analyzed: 09/30/16

Calcium	10200	8.50	mg/kg dry	425	12800	NR	75-125	QM-02
Magnesium	1140	4.25	"	425	1080	12.6	75-125	QM-02
Sodium	4970	4.25	"	425	4820	36.2	75-125	QM-02

Matrix Spike Dup (1609250-MSD1)

Source: 1609119-04

Prepared & Analyzed: 09/30/16

Calcium	10000	8.50	mg/kg dry	425	12800	NR	75-125	1.85	25	QM-02
Magnesium	1280	4.25	"	425	1080	45.9	75-125	11.7	25	QM-02
Sodium	5010	4.25	"	425	4820	44.4	75-125	0.697	25	QM-02

Summit Scientific

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Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F
Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

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 1609244 - General Preparation

LCS (1609244-BS1)

Prepared & Analyzed: 09/29/16

pH	6.04	0.100	pH Units	6.00	101	95-105
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Duplicate (1609244-DUP1)

Source: 1609195-01

Prepared & Analyzed: 09/29/16

pH	8.17	0.100	pH Units	8.23	0.732	20
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Batch 1609245 - General Preparation

Blank (1609245-BLK1)

Prepared & Analyzed: 09/29/16

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1609245-BS1)

Prepared & Analyzed: 09/29/16

Specific Conductance (EC)	0.0997	0.00200	mmhos/cm	0.100	99.7	90-110
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Duplicate (1609245-DUP1)

Source: 1609195-01

Prepared & Analyzed: 09/29/16

Specific Conductance (EC)	0.285	0.0100	mmhos/cm	0.306	7.01	20
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Batch 1609248 - General Preparation

Duplicate (1609248-DUP1)

Source: 1609176-02

Prepared & Analyzed: 09/30/16

% Solids	60.3		%	60.7	0.661	20
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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.



Talon/LPE
1811 E Mulberry
Ft Collins CO, 80524

Project: Razor 12F

Project Number: [none701530.064.03]
Project Manager: Colby Sterling

Reported:
09/30/16 17:02

Notes and Definitions

QM-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
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