

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 14, 2018

Randy Edelen
Grynberg Petroleum Company
3600 S Yosemite Suite 900
Denver, CO 80237
RE: Croissant #1

Enclosed are the results of analyses for samples received by Summit Scientific on 04/04/18 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Director



Grynberg Petroleum Company
3600 S Yosemite Suite 900
Denver CO, 80237

Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1-2	1804035-01	Soil	04/04/18 11:40	04/04/18 16:30
1-4	1804035-02	Soil	04/04/18 11:48	04/04/18 16:30
2-3	1804035-03	Soil	04/04/18 13:02	04/04/18 16:30
2-5	1804035-04	Soil	04/04/18 11:59	04/04/18 16:30
3-1	1804035-05	Soil	04/04/18 12:38	04/04/18 16:30
3-3 WH	1804035-06	Soil	04/04/18 12:45	04/04/18 16:30
4-3	1804035-07	Soil	04/04/18 12:21	04/04/18 16:30
5-5	1804035-08	Soil	04/04/18 12:05	04/04/18 16:30

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S₂

1804035

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401

303-277-9310 ♦ 303-374-5933

Client: Grynberg Petroleum Company

Project Manager: Randy Edelen

Page 1 of 1

Address: 3600 S. ROSEMIRE SUITE 900

E-Mail: r.edelen@grynberg.com

City/State/Zip: Denver, CO 80237

pinkanz@gmail.com

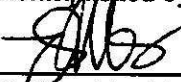

Phone: 303-850-7490 Fax: 303-850-7498

Project Name: Croissant #1

Sampler Name: PINKY ZAREMBA

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BITEX	TPH-DRO	TPH-GRO	PH	EC		SAR
1	1-2	4/4/18	11:40	1			*												
2	1-4	4/4/18	11:48	1															
3	2-3	4/4/18	1:02	1															
4	2-5	4/4/18	11:59	1															
5	3-1	4/4/18	12:38	1															
6	3-3 WH	4/4/18	12:45	1															
7	4-3	4/4/18	12:21	1															
8	5-5	4/4/18	12:05	1			✓			✓			✓	✓	✓	✓	✓	✓	
9																			
10																			

Relinquished by: 	Date/Time: 4-4-18 4:30	Received by: 	Date/Time: 4-4-18 16:30	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day _____ 72 hours	
				24 hours _____ Standard <input checked="" type="checkbox"/>	
				48 hours _____	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: 7.7	
				Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sample Receipt Checklist

S2 Work Order:

1804035

Client:

Grynberg Petroleum

Client Project ID:

Croissant #1

Shipped Via:

H.D. onice

Airbill #:

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

Matrix (check all that apply):

Air

☒

Soil/Solid

Water

Other:

(Describe)

Cooler ID					
Temp (°C)	7.7				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			
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			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.			<input checked="" type="checkbox"/>	
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.

Mur
Custodian Printed Name

LA 4-4-18
Signature or Initials of Custodian

16:45
Date/Time



Grynberg Petroleum Company
3600 S Yosemite Suite 900
Denver CO, 80237

Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

1-2
1804035-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		87.6 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		105 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.7 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3020	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	981	1.00	"	"	"	"	"	"	

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1-2
1804035-01 (Soil)

Summit Scientific

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

Sodium	1370	5.00 mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B
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Calculated Analysis

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.54	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	6.40	0.0100	mmhos/cm	1	1804068	04/13/18	04/13/18	EPA 120.1	
% Solids	86.4		%	"	1804075	04/07/18	04/14/18	Calculation	
pH	6.4		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

1-4
1804035-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.7 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		105 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.9 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.9 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1660	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	829	1.00	"	"	"	"	"	"	
Sodium	1620	5.00	"	"	"	"	"	"	

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04/14/18 16:22

1-4
1804035-02 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	8.11	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.86	0.0100	mmhos/cm	1	1804068	04/13/18	04/13/18	EPA 120.1	
% Solids	84.3		%	"	1804075	04/07/18	04/14/18	Calculation	
pH	7.7		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

2-3
1804035-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		82.9 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		105 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.2 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3220	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	893	1.00	"	"	"	"	"	"	
Sodium	2580	5.00	"	"	"	"	"	"	

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Project: Croissant #1
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Reported:
04/14/18 16:22

2-3
1804035-03 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	10.4	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.7		%	1	1804075	04/07/18	04/14/18	Calculation	
Specific Conductance (EC)	7.60	0.0100	mmhos/cm	"	1804068	04/13/18	04/13/18	EPA 120.1	
pH	7.6		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
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Reported:
04/14/18 16:22

2-5
1804035-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		85.9 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		104 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.0 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	886	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	462	1.00	"	"	"	"	"	"	
Sodium	857	5.00	"	"	"	"	"	"	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

2-5
1804035-04 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.81	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.9		%	1	1804075	04/07/18	04/14/18	Calculation	
Specific Conductance (EC)	2.96	0.0100	mmhos/cm	"	1804068	04/13/18	04/13/18	EPA 120.1	
pH	7.5		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
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Reported:
04/14/18 16:22

3-1
1804035-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.7 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		104 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.8 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.0 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4550	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	693	1.00	"	"	"	"	"	"	
Sodium	695	5.00	"	"	"	"	"	"	

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Project: Croissant #1
Project Number: [none]
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3-1
1804035-05 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.54	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.544	0.0100	mmhos/cm	1	1804068	04/13/18	04/13/18	EPA 120.1	
% Solids	92.7		%	"	1804075	04/07/18	04/14/18	Calculation	
pH	8.0		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

3-3 WH
1804035-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.0 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		105 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.6 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1260	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	685	1.00	"	"	"	"	"	"	
Sodium	2500	5.00	"	"	"	"	"	"	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

3-3 WH
1804035-06 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	14.1	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.62	0.0100	mmhos/cm	1	1804068	04/13/18	04/13/18	EPA 120.1	
% Solids	90.6		%	"	1804075	04/07/18	04/14/18	Calculation	
pH	8.0		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

4-3
1804035-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		89.0 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		104 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.3 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1690	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	853	1.00	"	"	"	"	"	"	
Sodium	464	5.00	"	"	"	"	"	"	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

4-3
1804035-07 (Soil)

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

Calculated Analysis

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.30	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.678	0.0100	mmhos/cm	1	1804068	04/13/18	04/13/18	EPA 120.1	
% Solids	92.9		%	"	1804075	04/07/18	04/14/18	Calculation	
pH	8.6		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

5-5
1804035-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1804035	04/05/18	04/05/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		81.3 %	75-125		"	"	"	"	
Surrogate: Toluene-d8		104 %	81-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.8 %	57-173		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1804036	04/04/18	04/06/18	EPA 8015M	

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	80-124		"	"	"	"	

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

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1220	2.50	mg/kg dry	1	1804058	04/05/18	04/05/18	EPA 6020B	
Magnesium	455	1.00	"	"	"	"	"	"	
Sodium	198	5.00	"	"	"	"	"	"	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

5-5
1804035-08 (Soil)

Summit Scientific

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

Calculated Analysis

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.23	0.100	units	1	1804077	04/14/18	04/14/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/04/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.3		%	1	1804075	04/07/18	04/14/18	Calculation	
Specific Conductance (EC)	0.139	0.0100	mmhos/cm	"	1804068	04/13/18	04/13/18	EPA 120.1	
pH	8.3		pH Units	"	1804076	04/06/18	04/14/18	EPA 9045D	

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

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 1804035 - EPA 5030 Soil MS

Blank (1804035-BLK1)

Prepared: 04/02/18 Analyzed: 04/05/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
m,p-Xylene	ND	0.010	"							
o-Xylene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0338		"	0.0396		85.5	75-125			
Surrogate: Toluene-d8	0.0418		"	0.0400		105	81-119			
Surrogate: 4-Bromofluorobenzene	0.0337		"	0.0400		84.2	57-173			

LCS (1804035-BS1)

Prepared: 04/02/18 Analyzed: 04/05/18

Benzene	0.0734	0.0020	mg/kg	0.100		73.4	86-121			
Toluene	0.0764	0.0050	"	0.100		76.4	76-137			
Ethylbenzene	0.0859	0.0050	"	0.100		85.9	76-137			
m,p-Xylene	0.168	0.010	"	0.200		84.2	76-137			
o-Xylene	0.0840	0.0050	"	0.100		84.0	76-137			
Xylenes (total)	ND	0.010	"				76-137			
Gasoline Range Hydrocarbons	ND	0.50	"				0-200			
Surrogate: 1,2-Dichloroethane-d4	0.0312		"	0.0396		78.8	75-125			
Surrogate: Toluene-d8	0.0420		"	0.0400		105	81-119			
Surrogate: 4-Bromofluorobenzene	0.0326		"	0.0400		81.5	57-173			

Matrix Spike (1804035-MS1)

Source: 1804035-01

Prepared: 04/02/18 Analyzed: 04/05/18

Benzene	0.0808	0.0020	mg/kg	0.100	ND	80.8	86-121			
Toluene	0.0824	0.0050	"	0.100	ND	82.4	76-137			
Ethylbenzene	0.0869	0.0050	"	0.100	ND	86.9	76-137			
m,p-Xylene	0.170	0.010	"	0.200	ND	84.9	76-137			
o-Xylene	0.0858	0.0050	"	0.100	ND	85.8	76-137			
Xylenes (total)	ND	0.010	"		ND		76-137			
Gasoline Range Hydrocarbons	ND	0.50	"		ND		76-76			
Surrogate: 1,2-Dichloroethane-d4	0.0341		"	0.0396		86.1	75-125			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	81-119			
Surrogate: 4-Bromofluorobenzene	0.0323		"	0.0400		80.8	57-173			

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

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 1804035 - EPA 5030 Soil MS

Matrix Spike Dup (1804035-MSD1)		Source: 1804035-01			Prepared: 04/02/18		Analyzed: 04/05/18			
Benzene	0.0713	0.0020	mg/kg	0.100	ND	71.3	86-121	12.5	20	
Toluene	0.0722	0.0050	"	0.100	ND	72.2	76-137	13.2	20	
Ethylbenzene	0.0766	0.0050	"	0.100	ND	76.6	76-137	12.7	20	
m,p-Xylene	0.149	0.010	"	0.200	ND	74.4	76-137	13.2	20	
o-Xylene	0.0760	0.0050	"	0.100	ND	76.0	76-137	12.0	20	
Xylenes (total)	ND	0.010	"		ND		76-137		20	
Gasoline Range Hydrocarbons	ND	0.50	"		ND		76-76		20	
Surrogate: 1,2-Dichloroethane-d4	0.0328		"	0.0396		82.7	75-125			
Surrogate: Toluene-d8	0.0420		"	0.0400		105	81-119			
Surrogate: 4-Bromofluorobenzene	0.0329		"	0.0400		82.2	57-173			

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

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 1804036 - EPA 3550A

Blank (1804036-BLK1)

Prepared & Analyzed: 04/04/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1804036-BS1)

Prepared & Analyzed: 04/04/18

C10-C28 (DRO) 479 50 mg/kg 500 95.9 81.4-129

Matrix Spike (1804036-MS1)

Source: 1804035-01

Prepared & Analyzed: 04/04/18

C10-C28 (DRO) 441 50 mg/kg 500 ND 88.3 77.8-133

Matrix Spike Dup (1804036-MSD1)

Source: 1804035-01

Prepared & Analyzed: 04/04/18

C10-C28 (DRO) 459 50 mg/kg 500 ND 91.8 77.8-133 3.91 8.48

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Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

Soluble Nutrients by EPA 6020/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 1804058 - General Preparation

Blank (1804058-BLK1)

Prepared & Analyzed: 04/05/18

Calcium	ND	2.50	mg/kg wet
Magnesium	ND	1.00	"
Sodium	ND	5.00	"

LCS (1804058-BS1)

Prepared & Analyzed: 04/05/18

Calcium	980	2.50	mg/kg wet	1000	98.0	70-130
Magnesium	1080	1.00	"	1000	108	70-130
Sodium	1140	5.00	"	1000	114	70-130

Duplicate (1804058-DUP1)

Source: 1804035-01

Prepared & Analyzed: 04/05/18

Calcium	4590	2.50	mg/kg dry	3020	41.2	200
Magnesium	1360	1.00	"	981	32.7	200
Sodium	1820	5.00	"	1370	28.1	200

Matrix Spike (1804058-MS1)

Source: 1804035-01

Prepared & Analyzed: 04/05/18

Calcium	4320	2.50	mg/kg dry	1160	3020	113	70-130
Magnesium	2190	1.00	"	1160	981	104	70-130
Sodium	2510	5.00	"	1160	1370	98.5	70-130

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Denver CO, 80237

Project: Croissant #1
Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

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 1804068 - General Preparation

Blank (1804068-BLK1)

Prepared & Analyzed: 04/13/18

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1804068-BS1)

Prepared & Analyzed: 04/13/18

Specific Conductance (EC) 0.786 0.0100 mmhos/cm 80-120

Duplicate (1804068-DUP1)

Source: 1804004-02

Prepared & Analyzed: 04/13/18

Specific Conductance (EC) 0.446 0.0100 mmhos/cm 0.410 8.33 20

Batch 1804075 - General Preparation

Duplicate (1804075-DUP1)

Source: 1804004-02

Prepared: 04/07/18 Analyzed: 04/14/18

% Solids 89.2 % 89.8 0.670 20

Batch 1804076 - General Preparation

Duplicate (1804076-DUP1)

Source: 1804004-02

Prepared: 04/06/18 Analyzed: 04/14/18

pH 8.3 pH Units 8.2 0.484 20

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Denver CO, 80237

Project: Croissant #1

Project Number: [none]
Project Manager: Randy Edelen

Reported:
04/14/18 16:22

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