

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 12, 2018

Susana Lara-Mesa

K.P. Kauffman

1675 Broadway

Denver, CO 80202

RE: McCallum

Enclosed are the results of analyses for samples received by Summit Scientific on 12/07/18 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Ben Shrewsbury

Laboratory Manager



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: McCallum

Project Number: [none]
Project Manager: Susana Lara-Mesa

Reported:
12/12/18 12:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
McCallum #9	1812106-01	Water	12/07/18 07:30	12/07/18 15:00
McCallum #143	1812106-02	Water	12/07/18 07:45	12/07/18 15:00
McCallum #166	1812106-03	Water	12/07/18 08:00	12/07/18 15:00

Summit Scientific

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Sample Receipt Checklist

S2 Work Order: 18/2106

Client: KP Koffman Client Project ID: McCallum

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

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

Temp (°C)	11.4
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HNO3
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	>PH0/7
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

KP
 Custodian Printed Name or Initials

[Signature]
 Signature or Initials of Custodian

12-7-18 1545
 Date/Time



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: McCallum

Project Number: [none]
Project Manager: Susana Lara-Mesa

Reported:
12/12/18 12:31

McCallum #9
1812106-01 (Water)

Summit Scientific

Total Metals by EPA Method 200.8

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	21.9	0.0500	mg/L	1	1812129	12/10/18	12/10/18	EPA 200.8	
Magnesium	17.0	0.0500	"	"	"	"	"	"	
Potassium	17.4	0.0500	"	"	"	"	"	"	
Sodium	3210	0.0500	"	"	"	"	"	"	

Anions by EPA Method 300.0

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Bromide	12.7	1.00	mg/L	100	1812091	12/07/18	12/10/18	EPA 300.0	
Chloride	1880	100	"	"	"	"	"	"	
Fluoride	ND	9.00	"	"	"	"	"	"	R-01
Nitrate as N	ND	4.00	"	"	"	"	"	"	R-01
Nitrite as N	ND	2.00	"	"	"	"	"	"	R-01
Orthophosphate as P	ND	5.00	"	"	"	"	"	"	R-01
Sulfate	ND	100	"	"	"	"	"	"	R-01

Total Dissolved Solids by SM2540C

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	9440	10.0	mg/L	1	1812148	12/11/18	12/11/18	SM2540C	

Summit Scientific

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1675 Broadway
Denver CO, 80202

Project: McCallum

Project Number: [none]
Project Manager: Susana Lara-Mesa

Reported:
12/12/18 12:31

McCallum #143
1812106-02 (Water)

Summit Scientific

Total Metals by EPA Method 200.8

Date Sampled: **12/07/18 07:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	21.4	0.0500	mg/L	1	1812129	12/10/18	12/10/18	EPA 200.8	
Magnesium	16.4	0.0500	"	"	"	"	"	"	
Potassium	16.6	0.0500	"	"	"	"	"	"	
Sodium	3110	0.0500	"	"	"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **12/07/18 07:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Bromide	11.4	1.00	mg/L	100	1812091	12/07/18	12/10/18	EPA 300.0	R-01
Chloride	1170	100	"	"	"	"	"	"	
Fluoride	ND	9.00	"	"	"	"	"	"	R-01
Nitrate as N	ND	4.00	"	"	"	"	"	"	R-01
Nitrite as N	ND	2.00	"	"	"	"	"	"	R-01
Orthophosphate as P	ND	5.00	"	"	"	"	"	"	R-01
Sulfate	ND	100	"	"	"	"	"	"	R-01

Total Dissolved Solids by SM2540C

Date Sampled: **12/07/18 07:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	9460	10.0	mg/L	1	1812148	12/11/18	12/11/18	SM2540C	

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Project: McCallum

Project Number: [none]
Project Manager: Susana Lara-Mesa

Reported:
12/12/18 12:31

McCallum #166
1812106-03 (Water)

Summit Scientific

Total Metals by EPA Method 200.8

Date Sampled: **12/07/18 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	21.0	0.0500	mg/L	1	1812129	12/10/18	12/10/18	EPA 200.8	
Magnesium	15.8	0.0500	"	"	"	"	"	"	
Potassium	16.1	0.0500	"	"	"	"	"	"	
Sodium	2990	0.0500	"	"	"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **12/07/18 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Bromide	14.6	1.00	mg/L	100	1812091	12/07/18	12/10/18	EPA 300.0	
Chloride	1320	100	"	"	"	"	"	"	
Fluoride	ND	9.00	"	"	"	"	"	"	R-01
Nitrate as N	ND	4.00	"	"	"	"	"	"	R-01
Nitrite as N	ND	2.00	"	"	"	"	"	"	R-01
Orthophosphate as P	ND	5.00	"	"	"	"	"	"	R-01
Sulfate	ND	100	"	"	"	"	"	"	R-01

Total Dissolved Solids by SM2540C

Date Sampled: **12/07/18 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	9480	10.0	mg/L	1	1812148	12/11/18	12/11/18	SM2540C	

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Project: McCallum

Project Number: [none]
Project Manager: Susana Lara-Mesa

Reported:
12/12/18 12:31

Total Metals by EPA Method 200.8 - Quality Control

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

Batch 1812129 - EPA 200.8

Blank (1812129-BLK1)

Prepared & Analyzed: 12/10/18

Calcium	ND	0.0500	mg/L								
Magnesium	ND	0.0500	"								
Potassium	ND	0.0500	"								
Sodium	ND	0.0500	"								

LCS (1812129-BS1)

Prepared & Analyzed: 12/10/18

Calcium	5.79	0.0500	mg/L	5.00		116	80-120				
Magnesium	5.82	0.0500	"	5.00		116	80-120				
Potassium	5.58	0.0500	"	5.00		112	80-120				
Sodium	5.90	0.0500	"	5.00		118	80-120				

Duplicate (1812129-DUP1)

Source: 1812098-01

Prepared & Analyzed: 12/10/18

Calcium	59.8	0.0500	mg/L		58.7			1.85	20		
Magnesium	13.9	0.0500	"		13.8			0.514	20		
Potassium	1.40	0.0500	"		1.40			0.510	20		
Sodium	10.2	0.0500	"		10.7			4.85	20		

Matrix Spike (1812129-MS1)

Source: 1812098-01

Prepared & Analyzed: 12/10/18

Calcium	64.7	0.0500	mg/L	5.00	58.7	120	75-125				
Magnesium	19.7	0.0500	"	5.00	13.8	117	75-125				
Potassium	6.89	0.0500	"	5.00	1.40	110	75-125				
Sodium	15.8	0.0500	"	5.00	10.7	102	75-125				

Matrix Spike Dup (1812129-MSD1)

Source: 1812098-01

Prepared & Analyzed: 12/10/18

Calcium	64.7	0.0500	mg/L	5.00	58.7	120	75-125	0.0221	25		
Magnesium	19.8	0.0500	"	5.00	13.8	119	75-125	0.475	25		
Potassium	7.03	0.0500	"	5.00	1.40	113	75-125	1.98	25		
Sodium	16.0	0.0500	"	5.00	10.7	106	75-125	1.39	25		

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Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch 1812091 - General Preparation

Blank (1812091-BLK1)

Prepared & Analyzed: 12/07/18

Bromide	ND	0.0100	mg/L							
Chloride	ND	1.00	"							
Fluoride	ND	0.0900	"							
Nitrate as N	ND	0.0400	"							
Nitrite as N	ND	0.0200	"							
Orthophosphate as P	ND	0.0500	"							
Sulfate	ND	1.00	"							

LCS (1812091-BS1)

Prepared & Analyzed: 12/07/18

Bromide	9.95	0.0100	mg/L	10.0		99.5	90-110			
Chloride	2.99	1.00	"	3.00		99.7	90-110			
Fluoride	2.07	0.0900	"	2.00		103	90-110			
Nitrate as N	3.08	0.0400	"	3.00		103	90-110			
Nitrite as N	3.08	0.0200	"	3.00		102	90-110			
Orthophosphate as P	4.92	0.0500	"	5.00		98.3	90-110			
Sulfate	15.4	1.00	"	15.0		103	90-110			

Duplicate (1812091-DUP1)

Source: 1812072-01

Prepared & Analyzed: 12/07/18

Bromide	1.84	0.0100	mg/L		1.83			0.218	20	
Chloride	ND	1.00	"		ND				20	
Fluoride	1.87	0.0900	"		1.55			18.7	20	
Nitrate as N	0.0620	0.0400	"		0.0600			3.28	20	
Nitrite as N	ND	0.0200	"		ND				20	
Orthophosphate as P	0.0640	0.0500	"		0.0670			4.58	20	
Sulfate	39.4	1.00	"		39.2			0.369	20	

Matrix Spike (1812091-MS1)

Source: 1812072-01

Prepared & Analyzed: 12/07/18

Bromide	11.4	0.0100	mg/L	10.0	1.83	96.1	80-120			
Chloride	ND	1.00	"	3.00	ND		80-120			QM-02
Fluoride	3.42	0.0900	"	2.00	1.55	93.3	80-120			
Nitrate as N	2.89	0.0400	"	3.00	0.0600	94.4	80-120			
Nitrite as N	3.22	0.0200	"	3.00	ND	107	80-120			
Orthophosphate as P	4.41	0.0500	"	5.00	0.0670	86.9	80-120			
Sulfate	51.7	1.00	"	15.0	39.2	83.1	80-120			

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Total Dissolved Solids by SM2540C - Quality Control
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Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

Batch 1812148 - General Preparation

Blank (1812148-BLK1)

Prepared & Analyzed: 12/11/18

Total Dissolved Solids ND 10.0 mg/L

Duplicate (1812148-DUP1)

Source: 1812098-01

Prepared & Analyzed: 12/11/18

Total Dissolved Solids 295 10.0 mg/L 295 0.136 20

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Project: McCallum

Project Number: [none]
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Notes and Definitions

- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- 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