

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, reading "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier 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

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Page 1 of 1

Project Manager:	Susana Lara-Mesa
E-Mail:	slaramesa@kpk.com
Project Name:	McCallum
Project Number:	

www.s2scientific.com

Sample Receipt Checklist

S2 Work Order: 1812126

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⁾ ?				
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⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	✓			HNO ₃
Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?		✓		> pH 0/7
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

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

UP
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)

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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	

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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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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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Reported:
12/12/18 12:31

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

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
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

QM-02

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Project: McCallum

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

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12/12/18 12:31

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

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]
Project Manager: Susana Lara-Mesa

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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