



Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

All shaded fields must be completed.
This is a legal document: any misrepresentation may be construed as fraud.

Page **1** of **1**
158988

Client Name Cameco Resources		Project Identification MU I Stability Monitoring		Sampler (Signature/Attestation of Authenticity) Gwen Trammell		Telephone # 307-358-6541 x468	
Report Address PO Box 1210 Glenrock, WY 82638		Contact Name Larry W. Banks		ANALYSES / PARAMETERS Filtered & Preserved in field			
Invoice Address Same		Email Larry.W.Banks@cameco.com					
		Phone 307 358 6541 ext 427		Purchase Order # 4500 513 220		Quote #	

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	Dissolved Calcium	Total Alkalinity	Sulfate	Total Dissolved Solids	Dissolved Uranium	Dissolved Radium	REMARKS
2	022	12/13/16	202	B-003	WT	2	X	X	X	X	X		
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
0.5 °C RO 1	Gwen C. Trammell	12-14-16	9:45	Kathy Boyd	12/14/16	10:00
	Kathy Boyd	12/14/16	16:37	Kathy Boyd	12.15.16	12:25

SHIPPING INFO	MATRIX CODES	TURNAROUND TIMES	COMPLIANCE INFORMATION	ADDITIONAL REMARKS
<input type="checkbox"/> UPS <input type="checkbox"/> Fed Express <input type="checkbox"/> US Mail <input checked="" type="checkbox"/> Hand Carried <input type="checkbox"/> Other _____	Water WT Soil SL Solid SD Filter FT Other OT	<input checked="" type="checkbox"/> Check desired service <input checked="" type="checkbox"/> Standard turnaround <input type="checkbox"/> RUSH - 5 Working Days <input type="checkbox"/> URGENT - < 2 Working Days <i>Rush & Urgent Surcharges will be applied</i>	Compliance Monitoring? Y/N Program (SDWA, NPDES,...) PWSID / Permit # _____ Chlorinated? Y/N Sample Disposal: Lab _____ Client _____	

MU-1 Stability Monitoring – Quarter 9 Well and Analytical Parameter List

Well Number	Header House	Analytical Parameters								
		Dissolved Calcium	Chloride	Dissolved Iron	Total Alkalinity	Dissolved Manganese	Dissolved Radium	Sulfate	Total Dissolved Solids (TDS)	Dissolved Uranium
B-001	1-1						X			
B-003	1-1	X			X			X	X	X
B-005	1-2	X			X			X		
B-007	1-3				X					
B-010	1-4		X		X	X		X		
B-011	1-5	X	X		X	X		X	X	
B-012	1-5							X		
B-014	1-6			X						
B-017	1-4	X	X		X	X		X	X	
B-019	1-1	X			X	X			X	X



Date: 1/6/2017

CLIENT: Power Resources (Cameco)
Project: MU1 Stability Monitoring
Lab Order: S1612193

CASE NARRATIVE
Report ID: S1612193001

Samples B-001, and B-003 were received on December 15, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Power Resources (Cameco)
PO Box 1210
Glenrock, WY 82637

Date Reported: 1/6/2017
Report ID: S1612193001

ProjectName: MU1 Stability Monitoring
Lab ID: S1612193-001
ClientSample ID: B-001
COC: 158988

WorkOrder: S1612193
CollectionDate: 12/13/2016 3:55:00 PM
DateReceived: 12/15/2016 12:25:00 PM
FieldSampler: GT
Matrix: Water

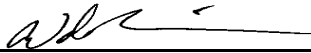
Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Radium 226	223	pCi/L		0.2	SM 7500 Ra-B	01/04/2017 1416	MB
Radium 226 Precision (±)	1.6	pCi/L			SM 7500 Ra-B	01/04/2017 1416	MB

These results apply only to the samples tested.

RL - Reporting Limit

- | | | | | |
|--------------------|---|--|----|--|
| Qualifiers: | B | Analyte detected in the associated Method Blank | C | Calculated Value |
| | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| | J | Analyte detected below quantitation limits | L | Analyzed by another laboratory |
| | M | Value exceeds Monthly Ave or MCL or is less than LCL | ND | Not Detected at the Reporting Limit |
| | O | Outside the Range of Dilutions | S | Spike Recovery outside accepted recovery limits |
| | X | Matrix Effect | | |

Reviewed by: 
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Power Resources (Cameco)
PO Box 1210
Glenrock, WY 82637

Date Reported 1/6/2017
Report ID S1612193001

ProjectName: MU1 Stability Monitoring
Lab ID: S1612193-002
ClientSample ID: B-003
COC: 158988

WorkOrder: S1612193
CollectionDate: 12/13/2016 2:02:00 PM
DateReceived: 12/15/2016 12:25:00 PM
FieldSampler: GT
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	165	mg/L		5	SM 2320B	12/15/2016 1800	IBS
Sulfate	119	mg/L		1	EPA 300.0	12/15/2016 1451	AB
Calcium	66	mg/L		1	EPA 200.7	12/16/2016 1222	DG
General Parameters							
Total Dissolved Solids (180)	330	mg/L		10	SM 2540	12/15/2016 1550	NLG
Metals - Dissolved							
Uranium	0.907	mg/L		0.0003	EPA 200.8	12/15/2016 1936	MS

These results apply only to the samples tested.

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- | | | | | |
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| | X | Matrix Effect | | |

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



ANALYTICAL QC SUMMARY REPORT

CLIENT: Power Resources (Cameco)
Work Order: S1612193
Project: MU1 Stability Monitoring

Date: 1/6/2017
Report ID: S1612193001

Alkalinity		Sample Type	MBLK		Units: mg/L				
Analyte	RunNo:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
BLANK (12/15/16 15:30)	141829								
Alkalinity, Total (As CaCO3)		ND	5						

Alkalinity		Sample Type	LCS		Units: mg/L				
Analyte	RunNo:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
ATQC (12/15/16 15:17)	141829								
Alkalinity, Total (As CaCO3)		584	5	595		98.1	90 - 110		

Alkalinity		Sample Type	DUP		Units: mg/L				
Analyte	RunNo:	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual	
S1612196-001AD (12/15/16 19:15)	141829								
Alkalinity, Total (As CaCO3)		94	5	95	0.986		20		

Dissolved Metals by ICPMS EPA 200.8 - Water		Sample Type	MBLK		Units: mg/L				
Analyte	RunNo:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
MBLK (12/15/16 16:05)	141832								
Uranium		ND	0.0003						

Dissolved Metals by ICPMS EPA 200.8 - Water		Sample Type	LCS		Units: mg/L				
Analyte	RunNo:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
LCS (12/15/16 16:00)	141832								
Uranium		0.101	0.0003	0.1		101	85 - 115		

Dissolved Metals by ICPMS EPA 200.8 - Water		Sample Type	MS		Units: mg/L				
Analyte	RunNo:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
S1612196-003DS (12/15/16 20:33)	141832								
Uranium		1.10	0.001	1.1	ND	99.7	70 - 130		

Dissolved Metals by ICPMS EPA 200.8 - Water		Sample Type	MSD		Units: mg/L				
Analyte	RunNo:	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
S1612196-003DMSD (12/15/16 20:39)	141832								
Uranium		1.09	0.001	1.10	0.430	99.2	20		

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 - S Spike Recovery outside accepted recovery limits
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - ND Not Detected at the Reporting Limit
 - R RPD outside accepted recovery limits
 - X Matrix Effect



ANALYTICAL QC SUMMARY REPORT

CLIENT: Power Resources (Cameco)
Work Order: S1612193
Project: MU1 Stability Monitoring

Date: 1/6/2017
Report ID: S1612193001

Anions by ION Chromatography

Sample Type **MBLK**

Units: mg/L

BLK (12/15/16 08:19)	RunNo: 141834							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Sulfate	ND	1						

Anions by ION Chromatography

Sample Type **LCS**

Units: mg/L

DIONEX (12/15/16 08:32)	RunNo: 141834							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Sulfate	144	1	150		95.7	90 - 110		

Anions by ION Chromatography

Sample Type **MS**

Units: mg/L

S1612193-002ASPK (12/15/16 15:17)	RunNo: 141834							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Sulfate	361	1	205	119	118	80 - 120		

Anions by ION Chromatography

Sample Type **MSD**

Units: mg/L

S1612193-002ASPKD (12/15/16 15:30)	RunNo: 141834							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Sulfate	361	1	361	0.190	118	20		

Cations by ICP (Method 200.7)

Sample Type **MBLK**

Units: mg/L

MBLK DISS/CAT (12/16/16 10:36)	RunNo: 141854							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Calcium	ND	1						

Cations by ICP (Method 200.7)

Sample Type **LCS**

Units: mg/L

CAT LCS IML3 (12/16/16 10:40)	RunNo: 141854							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Calcium	42	1	40		104	85 - 115		

Cations by ICP (Method 200.7)

Sample Type **MS**

Units: mg/L

S1612191-002AS (12/16/16 12:18)	RunNo: 141854							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Calcium	42	1	25	14	110	70 - 130		

Cations by ICP (Method 200.7)

Sample Type **MSD**

Units: mg/L

S1612191-002ASD (12/16/16 12:20)	RunNo: 141854							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Calcium	41	1	42	3.14	105	20		

Qualifiers:

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- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits

- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- X Matrix Effect



ANALYTICAL QC SUMMARY REPORT

CLIENT: Power Resources (Cameco)
Work Order: S1612193
Project: MU1 Stability Monitoring

Date: 1/6/2017
Report ID: S1612193001

Radium 226 in Water - Dissolved		Sample Type	MBLK		Units: pCi/L				
MB-1704 (01/04/17 14:16)	Analyte	RunNo:	142291	PrepDate:	12/21/16 0:00	BatchID:	12724		
		Result		RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226 (Dissolved)		ND		0.2				

Radium 226 in Water - Dissolved		Sample Type	LCS		Units: pCi/L				
LCS-1704 (01/04/17 14:16)	Analyte	RunNo:	142291	PrepDate:	12/21/16 0:00	BatchID:	12724		
		Result		RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226 (Dissolved)		5.8		0.2	5.89	97.6	67.1 - 122	

Radium 226 in Water - Dissolved		Sample Type	MS		Units: pCi/L				
MS-1704 (01/04/17 14:16)	Analyte	RunNo:	142291	PrepDate:	12/21/16 0:00	BatchID:	12724		
		Result		RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226 (Dissolved)		6.0		0.2	5.89	ND	101	65 - 131

Radium 226 in Water - Dissolved		Sample Type	MSD		Units: pCi/L				
MSD-1704 (01/04/17 14:16)	Analyte	RunNo:	142291	PrepDate:	12/21/16 0:00	BatchID:	12724		
		Result		RL	Conc	%RPD	%REC	% RPD Limits	Qual
	Radium 226 (Dissolved)		6.0		0.2	6.0	0.167	101	20

Solids By SM 2540		Sample Type	MBLK		Units: mg/L				
DI (12/15/16 15:46)	Analyte	RunNo:	141971						
		Result		RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Dissolved Solids (180)		ND		10				

Solids By SM 2540		Sample Type	LCS		Units: mg/L				
CONTROL (12/15/16 15:47)	Analyte	RunNo:	141971						
		Result		RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Dissolved Solids (180)		210		10	226	92.9	90 - 110	

Solids By SM 2540		Sample Type	DUP		Units: mg/L				
S1612196-004A (12/15/16 15:58)	Analyte	RunNo:	141971						
		Result		RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
	Total Dissolved Solids (180)		390		10	390	0.517	20	

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 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - ND Not Detected at the Reporting Limit
 - R RPD outside accepted recovery limits
 - X Matrix Effect