



Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/27/2015
Report ID S1408283004
(Replaces S1408283003)

ProjectName: Spring Box Butte Sample
Lab ID: S1408283-001
ClientSample ID: Spring Box Butte Fish Tissue
COC: WEB

WorkOrder: S1408283
CollectionDate: 5/25/2014
DateReceived: 8/15/2014 11:31:00 AM
FieldSampler:
Matrix: Fish Tissue


Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Lead 210	2.8E-5	µCi/kg		1.0E-6	OTW01	09/13/2014 1255	MB
Lead 210 Precision (±)	1.5E-5	µCi/kg			OTW01	09/13/2014 1255	MB
Polonium 210	8.1E-6	µCi/kg		1.0E-6	OTW01	09/22/2014 1709	MB
Polonium 210 Precision (±)	7.0E-6	µCi/kg			OTW01	09/22/2014 1709	MB
Radium 226	4.1E-6	µCi/kg		5.0E-8	SM 7500 Ra-B	09/22/2014 1343	MB
Radium 226 Precision (±)	2.2E-6	µCi/kg			SM 7500 Ra-B	09/22/2014 1343	MB
Thorium 230	8.0E-7	µCi/kg		2.0E-7	ACW10	09/19/2014 1311	MB
Thorium230 Precision (±)	1.6E-6	µCi/kg			ACW10	09/19/2014 1311	MB
Thorium229 Tracer (30-120)	56.5	%			ACW10	09/19/2014 1311	MB
Uranium	2.1E-6	µCi/kg		2.0E-7	EPA 200.8	09/25/2014 1313	MS
Metals - Total							
Uranium	0.0031	mg/Kg		0.0003	EPA 200.8	09/25/2014 000	MS

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 a contract 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



ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation

Date: 9/30/2014

Work Order: S1408283

Report ID: S1408283001

Project: Spring Box Butte Sample

Pb210 in Animals		Sample Type	MBLK		Units: pCi/Kg				
MB-408 (09/13/14 12:55)		RunNo:	113035	PrepDate:	09/12/14 0:00	BatchID: R113035			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Lead 210		ND	1						

Pb210 in Animals		Sample Type	LCS		Units: pCi/Kg				
LCS-408 (09/23/14 09:41)		RunNo:	113035	PrepDate:	09/12/14 0:00	BatchID: R113035			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Lead 210		14	1	11.8		117	50 - 150		

Pb210 in Animals		Sample Type	MS		Units: pCi/Kg				
TAPMS-408 (09/23/14 09:41)		RunNo:	113035	PrepDate:	09/12/14 0:00	BatchID: R113035			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Lead 210		14	1	12.3	ND	105	50 - 150		

Pb210 in Animals		Sample Type	MSD		Units: pCi/Kg				
TAPMSD-408 (09/23/14 09:41)		RunNo:	113035	PrepDate:	09/12/14 0:00	BatchID: R113035			
Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Lead 210		13	1	14	3.69	93.8	20		

Po210 in Animal		Sample Type	MBLK		Units: pCi/Kg				
MB-408 (09/22/14 17:09)		RunNo:	113043	PrepDate:	09/12/14 0:00	BatchID: R113043			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Polonium 210		ND	1						

Po210 in Animal		Sample Type	LCS		Units: pCi/Kg				
LCS-408 (09/22/14 16:07)		RunNo:	113043	PrepDate:	09/12/14 0:00	BatchID: R113043			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Polonium 210		14	1	12.9		105	59.4 - 129		

Po210 in Animal		Sample Type	MS		Units: pCi/Kg				
TAPMS-408 (09/22/14 16:07)		RunNo:	113043	PrepDate:	09/12/14 0:00	BatchID: R113043			
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Polonium 210		12	1	12.3	ND	101	58.7 - 143		

Po210 in Animal		Sample Type	MSD		Units: pCi/Kg				
TAPMSD-408 (09/22/14 16:07)		RunNo:	113043	PrepDate:	09/12/14 0:00	BatchID: R113043			
Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Polonium 210		12	1	12	1.89	99.0	20		

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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: Cameco Resources, Crow Butte Operation

Date: 9/30/2014

Work Order: S1408283

Report ID: S1408283001

Project: Spring Box Butte Sample

Radium 226 in Animal		Sample Type	MBLK		Units: pCi/Kg				
MB2-1341 (09/22/14 13:43)		RunNo:	112982		PrepDate:	09/17/14 0:00		BatchID: R112982	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226		ND	0.2						

Radium 226 in Animal		Sample Type	LCS		Units: pCi/Kg				
LCS-1341 (09/22/14 10:24)		RunNo:	112982		PrepDate:	09/17/14 0:00		BatchID: R112982	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226		4.6	0.2	5		92.7	80 - 120		

Radium 226 in Animal		Sample Type	MS		Units: pCi/Kg				
TAPMS-1341 (09/22/14 10:24)		RunNo:	112982		PrepDate:	09/17/14 0:00		BatchID: R112982	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226		4.6	0.2	5	0.2	87.7	73.8 - 120		

Radium 226 in Animal		Sample Type	MSD		Units: pCi/Kg				
TAPMSD-1341 (09/22/14 10:24)		RunNo:	112982		PrepDate:	09/17/14 0:00		BatchID: R112982	
Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Radium 226		4.9	0.2	4.6	6.36	93.6	0		

Thorium 230 in Animal		Sample Type	MBLK		Units: pCi/Kg				
MB-374 (09/19/14 13:11)		RunNo:	112897		PrepDate:	09/16/14 0:00		BatchID: R112897	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Thorium230		ND	0.2						

Thorium 230 in Animal		Sample Type	LCS		Units: pCi/Kg				
LCS-374 (09/19/14 13:11)		RunNo:	112897		PrepDate:	09/16/14 0:00		BatchID: R112897	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Thorium230		13.4	0.2	12.5		107	66.4 - 143		

Thorium 230 in Animal		Sample Type	DUP		Units: pCi/Kg				
LCSD-374 (09/19/14 13:11)		RunNo:	112897		PrepDate:	09/16/14 0:00		BatchID: R112897	
Analyte		Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual	
Thorium230		12.2	0.2	13.4	9.06		20		

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	L Analyzed by a contract laboratory	ND Not Detected at the Reporting Limit
	O Outside the Range of Dilutions	R RPD outside accepted recovery limits
	S Spike Recovery outside accepted recovery limits	X Matrix Effect



ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1408283
Project: Spring Box Butte Sample

Date: 9/30/2014
Report ID: S1408283001

Total (3050) Metals by EPA 200.8		Sample Type	MBLK		Units: pCi/Kg				
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual		
MBLK (09/25/14 12:46)		RunNo: 113135							
Uranium	ND	0.2							
Total (3050) Metals by EPA 200.8		Sample Type	LCS		Units: pCi/Kg				
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual		
LCS (09/25/14 12:41)		RunNo: 113135							
Uranium	70.4	0.2	67.7		104	85 - 115			
Total (3050) Metals by EPA 200.8		Sample Type	MS		Units: pCi/Kg				
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual		
S1408283-001AS (09/25/14 13:24)		RunNo: 113135							
Uranium	3750	0.2	3720	2.1	101	70 - 130			
Total (3050) Metals by EPA 200.8		Sample Type	MSD		Units: pCi/Kg				
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual		
S1408283-001AMSD (09/25/14 13:29)		RunNo: 113135							
Uranium	3780	0.2	3750	0.755	102	20			
Total (3050) Metals by EPA 200.8		Sample Type	DUP		Units: pCi/Kg				
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual		
S1408283-001AD (09/25/14 13:18)		RunNo: 113135							
Uranium	2.1	0.2	2.1	0.829		20			

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
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	L Analyzed by a contract laboratory	ND Not Detected at the Reporting Limit
	O Outside the Range of Dilutions	R RPD outside accepted recovery limits
	S Spike Recovery outside accepted recovery limits	X Matrix Effect



Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/27/2015
Report ID S1410151003
(Replaces S1410151002)

ProjectName: Fall Box Butte Fish Sample
Lab ID: S1410151-001
ClientSample ID: Fall Box Butte Fish Tissue
COC: WEB

WorkOrder: S1410151
CollectionDate: 9/26/2014
DateReceived: 10/8/2014
FieldSampler:
Matrix: Fish Tissue

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Lead 210	<1.0E-6	µCi/kg		1.0E-6	OTW01	11/04/2014 842	MB
Lead 210 Precision (±)	2.9E-6	µCi/kg			OTW01	11/04/2014 842	MB
Polonium 210	<1.0E-6	µCi/kg		1.0E-6	OTW01	10/31/2014 1639	MB
Polonium 210 Precision (±)	8.0E-7	µCi/kg			OTW01	10/31/2014 1639	MB
Radium 226	8.0E-7	µCi/kg		5.0E-8	SM 7500 Ra-B	11/05/2014 1249	MB
Radium 226 Precision (±)	3.0E-7	µCi/kg			SM 7500 Ra-B	11/05/2014 1249	MB
Thorium 230	4.0E-7	µCi/kg		2.0E-7	ACW10	11/03/2014 1010	MB
Thorium230 Precision (±)	3.0E-7	µCi/kg			ACW10	11/03/2014 1010	MB
Thorium229 Tracer (30-120)	85.7	%			ACW10	11/03/2014 1010	MB
Uranium	1.5E-6	µCi/kg		2.0E-7	EPA 200.8	10/27/2014 2003	MS
Metals - Total							
Uranium	0.0023	mg/Kg		0.0003	EPA 200.8	10/27/2014 000	MS

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 a contract 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
Wade Nieuwsma, Assistant Laboratory Manager



ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation

Date: 11/12/2014

Work Order: S1410151

Report ID: S1410151001

Project: Fall Box Butte Fish Sample

Pb210 in Animals	Sample Type	MBLK	Units: pCi/Kg				
MB-419 (11/04/14 08:42)	RunNo:	114590	PrepDate:	10/28/14 0:00	BatchID:	R114590	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Lead 210	ND	1					

Pb210 in Animals	Sample Type	LCS	Units: pCi/Kg				
LCS-419 (11/04/14 08:42)	RunNo:	114590	PrepDate:	10/28/14 0:00	BatchID:	R114590	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Lead 210	13	1	11.8		110	79.4 - 145	

Pb210 in Animals	Sample Type	MS	Units: pCi/Kg				
TAPMS-419 (11/04/14 08:42)	RunNo:	114590	PrepDate:	10/28/14 0:00	BatchID:	R114590	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Lead 210	14	1	12.5	ND	110	80 - 129	

Pb210 in Animals	Sample Type	MSD	Units: pCi/Kg				
TAPMSD-419 (11/04/14 08:42)	RunNo:	114590	PrepDate:	10/28/14 0:00	BatchID:	R114590	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	
Lead 210	13	1	14	6.11	104	20	

Po210 in Animal	Sample Type	MBLK	Units: pCi/Kg				
MB-419 (10/31/14 16:39)	RunNo:	114597	PrepDate:	10/30/14 0:00	BatchID:	R114597	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Polonium 210	ND	1					

Po210 in Animal	Sample Type	LCS	Units: pCi/Kg				
LCS-419 (10/31/14 16:39)	RunNo:	114597	PrepDate:	10/30/14 0:00	BatchID:	R114597	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Polonium 210	8	1	10.1		79.4	50 - 150	

Po210 in Animal	Sample Type	MS	Units: pCi/Kg				
TAPMS-419 (10/31/14 16:39)	RunNo:	114597	PrepDate:	10/30/14 0:00	BatchID:	R114597	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	
Polonium 210	14	1	12.5	ND	111	60.9 - 134	

Po210 in Animal	Sample Type	MSD	Units: pCi/Kg				
TAPMSD-419 (10/31/14 16:39)	RunNo:	114597	PrepDate:	10/30/14 0:00	BatchID:	R114597	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	
Polonium 210	11	1	14	22.9	88.6	30	

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	L Analyzed by a contract laboratory	ND Not Detected at the Reporting Limit
	O Outside the Range of Dilutions	R RPD outside accepted recovery limits
	S Spike Recovery outside accepted recovery limits	X Matrix Effect



ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation

Date: 11/12/2014

Work Order: S1410151

Report ID: S1410151001

Project: Fall Box Butte Fish Sample

Radium 226 in Animal		Sample Type	MBLK		Units: pCi/L					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB-1359 (11/05/14 12:49)	114701	10/29/14 0:00	9162							
Radium 226				ND	0.05					

Radium 226 in Animal		Sample Type	LCS		Units: pCi/L					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS-1359 (11/05/14 10:39)	114701	10/29/14 0:00	9162							
Radium 226				5.1	0.05	5		102	56.9 - 139	

Radium 226 in Animal		Sample Type	MS		Units: pCi/L					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAPMS-1359 (11/05/14 10:39)	114701	10/29/14 0:00	9162							
Radium 226				4.6	0.05	5	0.07	91.1	79.6 - 122	

Radium 226 in Animal		Sample Type	MSD		Units: pCi/L					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAPMSD-1359 (11/05/14 10:39)	114701	10/29/14 0:00	9162							
Radium 226				4.5	0.05	4.6	2.12	89.2	0	

Thorium 230 in Animal		Sample Type	MBLK		Units: pCi/Kg					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB-385 (11/03/14 10:10)	114525	10/28/14 0:00	R114525							
Thorium230				ND	0.2					

Thorium 230 in Animal		Sample Type	LCS		Units: pCi/Kg					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS-385 (11/03/14 10:10)	114525	10/28/14 0:00	R114525							
Thorium230				13.4	0.2	12.5		108	50 - 143	

Thorium 230 in Animal		Sample Type	DUP		Units: pCi/Kg					
Analyte	RunNo:	PrepDate:	BatchID:	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
LCSD-385 (11/03/14 10:10)	114525	10/28/14 0:00	R114525							
Thorium230				12.9	0.2	13.4	4.45		30	

- Qualifiers:**
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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: Cameco Resources, Crow Butte Operation
Work Order: S1410151
Project: Fall Box Butte Fish Sample

Date: 11/12/2014
Report ID: S1410151001

Total (3050) Metals by EPA 200.8		Sample Type MBLK		Units: pCi/Kg			
MBLK (10/27/14 12:53)		RunNo: 114262					
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	ND	0.2					

Total (3050) Metals by EPA 200.8		Sample Type LCS		Units: pCi/Kg			
LCS (10/27/14 12:48)		RunNo: 114262					
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	68.9	0.2	67.7		102	85 - 115	

Total (3050) Metals by EPA 200.8		Sample Type MS		Units: pCi/Kg			
S1410151-001AS (10/27/14 20:24)		RunNo: 114262		PrepDate: 10/14/14 14:13		BatchID: 9036	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	2490	0.2	2480	1.5	101	70 - 130	

Total (3050) Metals by EPA 200.8		Sample Type MSD		Units: pCi/Kg			
S1410151-001AMSD (10/27/14 20:29)		RunNo: 114262		PrepDate: 10/14/14 14:13		BatchID: 9036	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Uranium	2480	0.2	2490	0.454	100	20	

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 - J Analyte detected below quantitation limits
 - ND Not Detected at the Reporting Limit
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 - X Matrix Effect