



February 6, 2018

CERTIFIED MAIL # 7015 1520 0000 2613 3826

Mr. Mark Rogaczewski, District 3 Supervisor  
Wyoming Department of Environmental Quality  
Land Quality Division  
2100 West 5th Street  
Sheridan, Wyoming 82801

40-8964

**CAMECO RESOURCES**

Smith Ranch-Highland  
Operation

Mail:

P.O. Box 1210

Glenrock, WY

82637 USA

Tel: (307) 358-6541

Fax: (307) 358-4533

[www.cameco.com](http://www.cameco.com)

**January 2018 Excursion Report Summary, Cameco Resources, North Butte ISR Project, Permit 632**

Dear Mr. Rogaczewski:

Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the January 2018 Monthly Excursion Report Summary for the North Butte ISR Project. Monitor Well NB2M-060 was confirmed on excursion November 16, 2017, exceeding the UCL's in chloride, alkalinity and conductivity. Verbal notification was made by phone to Luke McMahan, Wyoming Department of Environmental Quality (WDEQ) – Land Quality Division (LQD) District 3, on November 17, 2017, with written notification following in a letter dated November 20, 2017.

Monitor Well NB2M-060 continued to show a decrease in all parameters from the previous report period. The January 9, 2018 sample showed all parameters below the UCL's. It is Cameco's practice to continue weekly sampling until three (3) consecutive weekly samples show concentrations below the UCL's, deeming the well officially off excursion. Excursion control efforts were continued and Monitor Well NB2M-060 was officially off excursion on January 23, 2018. A courtesy email was sent to LQD on January 22, 2018, at which time Monitor Well NB2M-060 was returned to the regular sampling schedule. Sampling data for Monitor Well NB2M-060 is attached.

As stated in the December 2017 Monthly Excursion Report, Permit 632, Section 3.3.7.5 requires that "If an excursion is not controlled within 30 days following confirmation, each effected monitor well will be sampled and analyzed for the parameters in Table OP-10. Additionally, LQD Rules and Regulations Chapter 11, Section 12(d)(i) require that excursion samples be analyzed for antimony, barium, beryllium, conductivity, copper, lead, mercury, nitrate, pH and thallium. The LQD may waive the analysis of specific parameters if, based on historical ground water sampling data, the parameter(s) is not considered likely to occur as a result of ISR activities." A sample was collected from Monitor Well NB2M-060 on December 18, 2017 and analyzed for baseline parameters. Baseline parameters include all of the constituents listed in Table OP-10, the constituents require by Chapter 11, excluding antimony, beryllium and thallium, and in addition, silica, aluminum and nickel. Analytical results were received during the report period and are attached.

Please call Vickie Gitthens at (307) 358-6541 ext. 462 or email at Victoria\_Gitthens@cameco.com if you have questions.

Respectfully,



Larry Reimann  
Manager, Compliance & Licensing

LR/vg

Attachment: Monitor Well Reports for NB2M-060 (2 pages)  
Energy Laboratories, Laboratory Analytical Report NB2M-060 (2 pages)

cc: File NB 4.3.3.3  
Mr. Doug Mandeville, NRC - CERTIFIED MAIL # 7015 1520 0000 2613 3833  
Document Control Desk, NRC - CERTIFIED MAIL # 7015 1520 0000 2613 3840

ec: Cameco Distribution

xc: LQD - Cheyenne



**Cameco Resources**  
**North Butte Operation**  
**Monitor Well Report**

*Well Name: NB2M-060*

<i>NRC/WDEQ UCL</i>	<i>Chloride (mg/L)</i>	<i>Alkalinity (mg/L CaCO3)</i>	<i>Conductivity (μMho/cm)</i>	<i>U3O8 (mg/L)</i>	<i>Water Elevation</i>
	20.0	105	1732		
01/23/2018	8.0	81	1177		4762.00
01/17/2018	9.0	94	1257	0.30	4761.80
01/09/2018	11.0	101	1314	0.30	4767.80
01/02/2018	16.0	134	1391	0.40	4761.30
12/25/2017	22.0	144	1474	0.50	4757.50
12/19/2017	35.0	188	1598	1.00	4755.70
12/11/2017	58.0	258	1999	2.20	4742.40
12/04/2017	58.0	347	2005	3.20	4741.10
11/27/2017	63.0	395	2276	4.60	4747.60
11/20/2017	59.0	406	2205	4.70	4757.20
11/16/2017	61.0	425	2308		4772.30
11/14/2017	62.0	452	2310		4771.20
10/24/2017	19.0	149	1447		4771.70
10/11/2017	9.0	76	1238		4769.80
09/25/2017	7.0	52	1192		4755.30
09/13/2017	7.0	69	1211		4778.60
08/23/2017	8.0	76	1227		4785.40
08/08/2017	8.0	79	1261		4846.00
07/25/2017	8.0	76	1205		4852.20
07/11/2017	8.0	31	1054		4780.40
06/20/2017	7.0	63	1133		4782.80
06/06/2017	7.0	37	1107		4780.90
05/23/2017	7.0	47	1178		4779.80
05/08/2017	6.0	40	1123		4766.80



***Cameco Resources  
North Butte Operation  
Monitor Well Report***

*Well Name: NB2M-060*

<i>NRC/WDEQ UCL</i>	<i>Chloride (mg/L)</i>	<i>Alkalinity (mg/L CaCO3)</i>	<i>Conductivity (μMho/cm)</i>	<i>U3O8 (mg/L)</i>	<i>Water Elevation</i>
	20.0	105	1732		
04/24/2017	7.0	35	1122		4775.10
04/12/2017	7.0	58	1163		4779.90
03/21/2017	6.0	44	1127		4789.00
03/07/2017	7.0	34	1137		4786.50
02/22/2017	7.0	45	1122		4788.20
02/08/2017	7.0	34	1083		4794.40
01/24/2017	7.0	60	1166		4796.00
01/11/2017	6.0	34	1107		4787.60



Trust our People. Trust our Data.

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** Power Resources dba Cameco Resources  
**Project:** North Butte Operation  
**Lab ID:** C17120590-001  
**Client Sample ID:** NB2M-060

**Report Date:** 01/25/18  
**Collection Date:** 12/19/17 12:00  
**Date Received:** 12/21/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Carbonate as CO <sub>3</sub>	ND	mg/L		5		A2320 B	12/26/17 17:57 / mvr
Bicarbonate as HCO <sub>3</sub>	229	mg/L		5		A2320 B	12/26/17 17:57 / mvr
Chloride	36	mg/L		1		E300.0	12/28/17 17:17 / ljl
Fluoride	ND	mg/L		0.1		A4500-F C	12/21/17 17:55 / mvr
Sulfate	625	mg/L	D	2		E300.0	12/28/17 17:17 / ljl
Calcium	72	mg/L		1		E200.7	12/27/17 18:42 / eli-b
Magnesium	22	mg/L		1		E200.7	12/27/17 18:42 / eli-b
Potassium	8	mg/L		1		E200.7	12/27/17 18:42 / eli-b
Silica	15.3	mg/L		0.2		E200.8	01/05/18 17:36 / eli-b
Sodium	300	mg/L		1		E200.7	12/27/17 18:42 / eli-b
<b>PHYSICAL PROPERTIES</b>							
pH	8.01	s.u.	H	0.01		A4500-H B	12/26/17 13:21 / mvr
Solids, Total Dissolved TDS @ 180 C	1170	mg/L		10		A2540 C	12/21/17 15:03 / mvr
Sodium Adsorption Ratio (SAR)	7.91	unitless		0.01		Calculation	12/28/17 16:51 / eli-b
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	12/22/17 13:08 / dmb
Nitrogen, Ammonia as N	0.05	mg/L		0.05		A4500-NH3 G	12/26/17 13:13 / dmb
<b>METALS, DISSOLVED</b>							
Arsenic	0.001	mg/L		0.001		E200.8	12/27/17 05:55 / eli-b
Cadmium	ND	mg/L		0.0001		E200.8	12/27/17 05:55 / eli-b
Chromium	ND	mg/L		0.001		E200.8	12/27/17 05:55 / eli-b
Iron	0.019	mg/L		0.005		E200.8	12/27/17 05:55 / eli-b
Molybdenum	0.00103	mg/L		0.00005		E200.8	12/27/17 05:55 / eli-b
Selenium	ND	mg/L		0.001		E200.8	12/27/17 05:55 / eli-b
Zinc	ND	mg/L		0.01		E200.8	12/27/17 05:55 / eli-b
<b>METALS, TOTAL</b>							
Aluminum	ND	mg/L		0.03		E200.8	01/05/18 17:36 / eli-b
Barium	ND	mg/L		0.05		E200.8	01/05/18 17:36 / eli-b
Boron	0.06	mg/L		0.05		E200.8	01/05/18 17:36 / eli-b
Copper	ND	mg/L		0.005		E200.8	01/05/18 17:36 / eli-b
Iron	0.04	mg/L		0.03		E200.8	01/05/18 17:36 / eli-b
Lead	ND	mg/L		0.001		E200.8	01/05/18 17:36 / eli-b
Manganese	0.047	mg/L		0.001		E200.8	01/05/18 17:36 / eli-b
Mercury	ND	mg/L		0.0001		E245.1	01/05/18 14:59 / eli-b
Nickel	ND	mg/L		0.005		E200.8	01/05/18 17:36 / eli-b
Uranium	0.732	mg/L		0.0003		E200.8	01/05/18 17:36 / eli-b
Vanadium	ND	mg/L		0.01		E200.8	01/05/18 17:36 / eli-b
<b>RADIONUCLIDES, TOTAL</b>							
Gross Alpha	766	pCi/L				E900.0	01/02/18 22:45 / cnh

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
H - Analysis performed past recommended holding time.



Trust our People. Trust our Data.

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Power Resources dba Cameco Resources  
**Project:** North Butte Operation  
**Lab ID:** C17120590-001  
**Client Sample ID:** NB2M-060

**Report Date:** 01/25/18  
**Collection Date:** 12/19/17 12:00  
**Date Received:** 12/21/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES, TOTAL</b>							
Gross Alpha precision (±)	150	pCi/L			E900.0		01/02/18 22:45 / cnh
Gross Alpha MDC	6.9	pCi/L			E900.0		01/02/18 22:45 / cnh
Gross Beta	182	pCi/L			E900.0		01/02/18 22:45 / cnh
Gross Beta precision (±)	19.3	pCi/L			E900.0		01/02/18 22:45 / cnh
Gross Beta MDC	8.0	pCi/L			E900.0		01/02/18 22:45 / cnh
Radium 226	69.0	pCi/L			E903.0		01/15/18 09:15 / arh
Radium 226 precision (±)	13.0	pCi/L			E903.0		01/15/18 09:15 / arh
Radium 226 MDC	0.2	pCi/L			E903.0		01/15/18 09:15 / arh
Radium 228	1.9	pCi/L			RA-05		01/07/18 11:33 / trs
Radium 228 precision (±)	0.8	pCi/L			RA-05		01/07/18 11:33 / trs
Radium 228 MDC	1.4	pCi/L			RA-05		01/07/18 11:33 / trs

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.