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June 22, 2009

U.S. Nuclear Regulatory Commission  
Region IV  
Attn: Mr. Jack Whitten  
612 East Lamar Blvd, Suite 400  
Arlington TX 76011-4125

RE: NRC Inspection Report 040-08964/09-001 (NRC Region IV Memo Dated April 17, 2009)

Dear Mr. Whitten:

Power Resources, Inc. d/b/a/ Cameco Resources (CR) is herein responding to supplemental items in your report for the routine inspection conducted from March 17-19, 2009.

The response to the unresolved item regarding the purge storage reservoir 2 (PSR 2) is provided in the first attachment. The second attachment provides additional information regarding the release of fluids at Satellite No. 2.

If you have questions, please contact me at (307) 358-6541, ext. 462.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Wenzel".

Krista Wenzel  
Manager, Environment, Health and Safety

Attachments: PSR 2 Report, Satellite No. 2 Release Report

cc: T. Cannon                      S. Bakken                      J. McCarthy                      A. Faunce  
      B. Kluchewski                D. Mandeville, USNRC (2 copies)                      File SR 4.6.4.1

## **Unresolved Item Related to Purge Storage Reservoir 2 (PSR 2)**

### **Introduction**

During the March 2008 inspection the NRC requested additional information related to PSR 2 and its potential for leakage into neighboring areas. Power Resources, Inc. d/b/a/ Cameco Resources (CR) responded on July 25, 2008; the NRC left the item open pending additional information. As discussed during the March 2009 inspection, CR has been developing a method to more definitively determine the potential for leakage of PSR 2. The NRC suggested, and CR agreed, that the July 25, 2008, information should be supplemented with a written plan that clearly identifies the specific methods that will be used to evaluate the conditions at PSR 2. The water levels in the shallow monitor wells described below vary inconsistently both seasonally and from year to year and are sometimes dry. These wells may be representative of the potential for leakage and thus would indicate that PSR 2 is probably not leaking, however, additional wells would provide a more definitive conclusion.

To provide continuity, the information from the July 25, 2008 letter is summarized here and supplemental information is provided in the next sections. Based on past permits, no leak detection systems per se were required or employed. Alternatively, two shallow monitoring wells were installed at the time of construction of PSR 2 with a requirement for annual sampling (later increased to quarterly water level determinations and semi-annual sampling). Baseline water quality sampling was not required; however, the two shallow monitoring wells were installed during initial construction and have been routinely monitored since. Soil samples (at 0-6 inches and 6-12 inches) and vegetation samples were also taken at each of the four quarters of the proposed reservoir prior to construction. In addition, gamma readings were taken with a MicroR Meter at the nodes of a 200 foot by 200 foot Md prior to use of the reservoir.

Power Resources, Inc. was issued a new permit, Permit No. 93-410, *Power Resources Satellite #2 Wastewater Holding Pond and Land Application Facility*, to construct PSR2 by the Wyoming Department of Environmental Quality, Water Quality Division, on April 8, 1994. Condition 3 of 11 in that permit includes detailed information submitted by Power Resources on the quality of the wastewater. It was sampled for As, Ba, B, Cr, Se, Zn, Cl, S04, Total Dissolved Solids, Ra226, Ra228, pH, and SAR. As stated in the permit, the wastewater met the class of use limitations for class III groundwater (except for selenium). The permit also stated: "The issuance of this permit requires the permittee to construct the Satellite 2 Purge Storage Reservoir into existing impervious soils of a thickness designed to prohibit a discharge to any groundwater aquifer or surface waters of the state. Any discharge to a groundwater aquifer or to ground surface occurring as a result of operation of this facility is a violation of this permit. The Water Quality Division believes that the "C Wellfield" monitor wells are situated in such a manner as to detect any class of use violation caused by leakage from the Purge Storage Reservoir."

During the permit application and review process, Power Resources provided information that domestic and stock wells in the area of the proposed facility were not routinely installed to depths less than approximately 200 feet. In addition, it was noted that this substantiated the premise that shallower sandstone units less than approximately 200 feet deep, if present, do not contain enough water to support domestic or livestock water use. During the application and review

process, it was determined that the two shallow wells (10 to 15 feet deep) would be installed just east of the east dike and just south of the south dike. In addition, sampling was and still is required at least semi-annually for pH, electrical conductivity, Cl, SO<sub>4</sub>, HCO<sub>3</sub>, Se, B, U, and Ra226 per current WDEQ permit requirements (WDEQ/LQD Permit to Mine No. 603). The results are analyzed for trends and none have been noted. There is one result from 2008 for uranium that was higher than previously. However, there have been no changes to the water input or any other conditions around PSR 2 and the next sampling results showed uranium at historical levels.

### **Proposed Actions**

In order to adequately investigate the potential for groundwater impact from water contained in PSR 2, four monitoring wells are planned with a consideration for four additional wells. CR plans to install four relatively shallow (approximately 25 feet in depth) during the summer of 2009 and to consider four relatively deep (approximately 200 feet in depth) groundwater monitoring wells based on initial sampling results.

Soil samples will be composited after they are logged and collected at approximate ten-foot intervals. Soil samples will be analyzed for barium (Ba), selenium (Se), arsenic (As) chemical uranium (cU) and radium 226 (Ra 226). The samples will be stored in 1-quart, food grade, new zip lock bags and delivered, under chain of custody, to Energy Laboratories, Inc. in Casper, Wyoming.

The new wells will be developed by first measuring the depth to water in each well and calculating the volume of water in each well (well volume expressed in gallons). Groundwater will be pumped from the new wells until the water runs clear and/or the conductivity stabilizes. The wells will be allowed to stabilize for at least 24 hours. They will then be slow-purged (typically < 0.5 gpm) until the conductivity stabilizes. Groundwater samples will be analyzed for bicarbonate as HCO<sub>3</sub> (Method A2320 B), chloride (Method A4500-Cl B), sulfate (Method A4500-SO<sub>4</sub> E), barium, selenium, arsenic and uranium (all by Method E200.8) and radium 226 (Method E903.0) at Energy Laboratories, Inc. in Casper, Wyoming. Conductivity and pH will be measured in the field at the time of sample collection.

### **Proposed Schedule**

Drilling and soil sampling are scheduled for the shallow wells during June and July of 2009. The first round of groundwater samples will be collected within 24 hours of the wells being developed, stabilized and re-purged. The monitoring wells will initially be sampled quarterly. A report summarizing field activities including drilling, soil sampling and groundwater sampling will be prepared after the conclusion of the first quarterly monitoring event. Soil and groundwater analyses will be presented along with potentiometric maps of the perched and surficial aquifer surfaces. As-built diagrams of the monitoring wells and lithologic logs will be prepared. It will be determined, after the evaluation of the shallow wells, if it will be necessary to drill the deep wells. Additional sampling will also be considered for shallow monitoring wells to fill data gaps, if any.

## **Supplemental Report for Satellite 2 Release**

### **Introduction**

On January 10, 2009 at 8 p.m., while beginning a routine resin transfer from an ion exchange (IX) column to a resin trailer, the Satellite No. 2 operator failed to isolate the IX column from wellfield pressures as directed in the Standard Operating Procedure. The subsequent pressure drop caused the wellfields, supplying the Satellite No. 2 columns to shut down on low pressure. The operator proceeded to restart the wellfields, restoring the wellfield pressure to the columns, including the column being transferred. The resulting high pressures ruptured the transfer hose and caused IX Columns Nos. 21 and 22 connections and other fittings to fail. Production water filled the area below grade in the building and flowed outdoors at about 12:30 a.m. Resin discharged from the columns onto the floor but did not leave the building.

### **Investigation**

The Environment, Health and Safety (EHS) Manager and Wellfield Operation Superintendent were notified the next morning, Sunday, January 11, 2009, that fluid had left the building. and responded to the site to begin an investigation. During the investigation the EHS Manager used a microR gamma meter to walk the perimeter of the resin release within the building noting the highest readings were 2.0 milliroentgen per hour (mR/hour) in a localized area over the sump. Other readings were 1.2 mR/hour or less. The operators cleaning up the area wore rubber boots, protective clothing and required TLD's. Clean-up procedures consisted of in-place sump pumps and the use of a vacuum truck to remove excess fluid and resin from the sump. In addition, the operators opened all doors immediately after the accident and doors were kept open throughout the clean-up. There was a steady breeze moving through the building, reducing the chance of radon build up. The average wind speed determined by the National Weather Service on January 10, 2009 was 9.9 miles per hour (mph) with peak gusts at 37 mph. On January 11, 2009, the average speed was 11.3 mph with peak gusts at 41 mph. Clean-up lasted throughout the day. Public or worker access was not restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area.

Uranium is ionically bonded to the resin within the IX vessels with typically 3 to 6 ppm exiting with the water through the bottom valves and PVC piping. During this event the uranium was bonded to the resin with small amounts in solution of the released water. Resin on the floor of the Satellite during the release would bond with the uranium in the accompanying water and lower the uranium concentrations in the water. During this event it was not possible for uranium to become airborne, therefore it would not be necessary to air sample for uranium particulates.

On Monday, January 12, 2009, the assistant Radiation Safety Officer went to Satellite 2 to begin surveys and air sample inside the building. The results are as follows:

1. Radon Daughter Sampling at 4 locations: average working level (WL) 0.002 (Action Limit 0.08 WL)
  - 2008 average radon daughter working level 0.01

2. High Volume Air Sampling at 3 locations: average activity  $2.8E-13$   $\mu\text{Ci/ml}$  (Action Limit  $1.25E-10$   $\mu\text{Ci/ml}$ )
  - Routine samples are not required in satellites due to the enclosed process
3. Gamma Readings at all tanks and occupied areas: averaged 1234  $\mu\text{R/hr}$ 
  - 2008 average reading of all tanks 2174  $\mu\text{R/hr}$
4. Clean area surveys: averaged 6.5 dpm Alpha and 5.7 dpm removable contamination (Action Limit 250dpm/100 cm)
  - 2008 we did not have any clean areas above the action limit
5. Process area surveys: averaged 36-4399 dpm Alpha survey and 0-174 dpm removable contamination (Action Limit 200,000 dpm/100cm)
  - 2008 we did not have any process areas above the action limit

It was determined that the clean up of the process area was adequate and the clean areas remained under the action limits as per the confirmation surveys and sampling conducted on January 12, 2009.

The operators that were on shift the night of the incident as well as the operators involved with the clean up of the building submitted a bioassay sample on January 12, 2009. A second sample was also provided on January 13, 2009 in the event that the first sample on January 12, 2009 had detectable amounts of uranium. Results of all provided bioassays were reported as non-detect through an independent accredited laboratory.

In addition, new TLD badges were ordered on January 12, 2009 for the involved employees. The employees began wearing the first quarter TLD's on January 5, 2009 and the new badges were received, exchanged and mailed (minus the control badge) on January 19, 2009. The reported exposure is for a maximum of 14 days, including this event (see spreadsheet).

The 2008 total hours and TLD records were reviewed for the employees who were involved with this event. The employees averaged 2024 worked hours and 241 mrem or 0.12 mrem per hour. This average was used to calculate the expected dose from January 5 - 19, 2009 (see spreadsheet).

CR uses two methods to measure radon daughter concentrations. The Modified Kusnetz method is used to determine internal exposure. The Prism III Radon Monitoring System is used continuously to assess transient radon daughter levels at various work places throughout the project and is used to augment the monitoring program.

In order to estimate the radon daughter concentrations during this event a 2008 comparison for satellites and the Central Processing Plant (CPP) was made with the Modified Kusnetz method and the Prism III Radon Monitoring System to verify that the two methods had similar results.

	<u>Modified Kusnetz</u>	<u>Prism III Radon Monitoring System</u>
CPP	0.009 WL	0.014 WL
Satellite No. SR-2	0.005 WL	0.005 WL
Satellite No. 3	0.006 WL	0.009 WL
Satellite No. 2	0.013 WL	0.017 WL

The data indicates that both methods have similar results. Using this information, we estimated the internal dose for the employees involved with this incident. The Prism III Radon Monitoring System works continuously and reports sample results every ten minutes. If the reported values change the alarm and light system will be activated to warn employees of accumulating radon daughters. The alarm levels for Satellite No. 2 are set at the following working levels:

Green	0-0.1 WL
Yellow	0.1-0.2 WL
Red	0.2 > WL

The employees stated that although the doors were open and a steady breeze moved through the building the Prism III Radon Monitoring System indicated 0.1-0.2 WL (yellow) and several occasions indicated 0.2 > WL (red) for a ten minute cycle during the incident and clean up. Because the detector changed from yellow to red on a few occasions we have estimated the internal dose on the 0.2 WL. Although the detector indicated red 0.2 > WL it is highly unlikely that the Prism III Radon Monitoring System would have readings higher than the 0.2 WL during this incident. If the detector had readings that were consistently higher the 0.2 WL, than the detector would not likely change back to yellow in a ten minute cycle. Based on this information and the verification that the two methods provide similar results, we have estimated the internal exposures on the 0.2 WL (see spreadsheet).

Cameco Resources has estimated the TEDE exposures from this event based on TLD badges (noting the badges were worn for a maximum of 14 days, including this event) plus the internal exposures determined from the Prism III Radon Monitoring System (see spreadsheet).

In addition to the surveys, sampling and exposure estimates inside the satellite building, soil samples and gamma readings were also obtained outside the satellite area where the released fluids came in contact with the soil including a background sample and survey (see the attached map and the analytical results from an independent accredited laboratory).

### Conclusions

## **Conclusions**

It does not seem likely that employees or members of the public received significant exposure from this event. All results would indicate that employees and members of the public received a dose under the limits (100 mrem members of the public, 5000 mrem occupational workers).

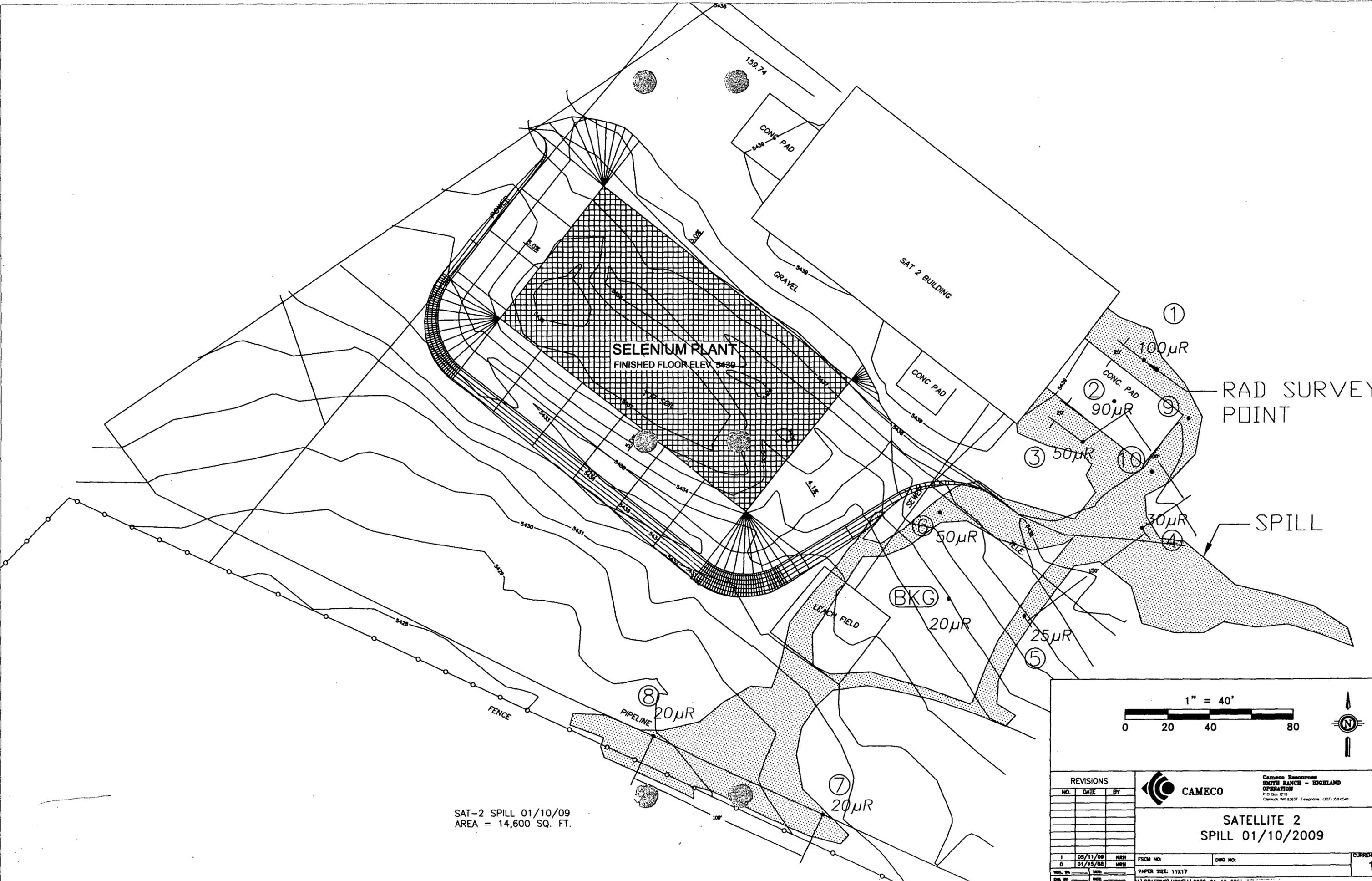
## **Corrective Actions**

As a result of a TapRoot® investigation, several corrective actions are being considered:

- Pre-Employment Screening –Begin utilizing mechanical aptitude assessments as part of screening process for all satellite and plant operator positions. Specific areas to measure include basic arithmetic, ability to read gauges and attention to detail.
- Operator Qualification Program-including written assessments and task observations for all new and current operators.
- Develop a detailed standard operating procedure for emergency shutdown of inflow and outflow from satellites and central processing plant, including distinctive labeling of switchgear and valves as necessary.

These corrective actions are currently being considered by Cameco Resources Management. After a final decision has been made on the above mentioned corrective actions a schedule will be put in place for implementation.

<b>TLD #</b>	<b>Reported TLD 1/5-1/19/09</b> <i>Reported in mrem</i>	<b>Total Hours worked 1/5- 1/19/09</b>	<b>Expected dose</b>  (Total hours worked 1/5- 1/19/09 x 0.12 mrem/hr)  <i>mrem</i>	<b>Estimated external exposure from this event</b> (Reported TLD – Expected dose)  <i>mrem</i>	<b>Hours worked in the area during this event</b>	<b>Estimated radon daughter dose</b> (hours worked during event x 0.2 WL)  <i>mrem</i>	<b>Estimate TEDE for this event</b>  <i>mrem</i>
217	31	105.5	12.7	18.3	7	10.6	28.9
204	18	106	12.7	5.3	8	12.1	17.4
201	33	104	12.5	20.5	11	16.7	37.2
209	28	48	5.8	22.2	10	15.2	37.4
102	19	86	10.3	8.7	6	9.1	17.8
203	35	101.5	12.2	22.8	11	16.7	39.5
303	13	88	10.6	2.4	3	4.6	7.0
930	30	96	11.5	18.5	3	4.6	23.1



SAT-2 SPILL 01/10/09  
 AREA = 14,600 SQ. FT.

1" = 40'

0 20 40 80

N

REVISIONS			FSCM NO.	DWG NO.	CURRENT REV
NO.	DATE	BY			
1	05/11/09	NRH			1
0	01/15/08	NRH			

**CAMECO**

**SATELLITE 2  
 SPILL 01/10/2009**

Cameco Resources  
 SMITH RANCH - ENGLAND  
 OPERATION  
 P.O. Box 1210  
 Clarendon, WV 26037 Telephone: (307) 268-1241

PAPER SIZE: 11X17



## ANALYTICAL SUMMARY REPORT

February 09, 2009

Power Resources dba Cameco Resources  
762 Ross Rd (Douglas 82633)  
Glenrock, WY 82637

Workorder No.: C09010537

Project Name: SR-HUP

Energy Laboratories, Inc. received the following 4 samples for Power Resources dba Cameco Resources on 1/16/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C09010537-001	SAT-2 Spill #1 [0-6]	01/15/09 00:00	01/16/09	Soil	Metals by ICP/ICPMS, Total Digestion For RadioChemistry Digestion, Total Metals for Core Samples Radium 226
C09010537-002	SAT-2 #2 Spill [0-6]	01/15/09 00:00	01/16/09	Soil	Same As Above
C09010537-003	SAT-2 #3 Spill [0-6]	01/15/09 00:00	01/16/09	Soil	Same As Above
C09010537-004	SAT-2 #4 Spill [0-6]	01/15/09 00:00	01/16/09	Soil	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the 4/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

*Stephanie Wilder*



LABORATORY ANALYTICAL REPORT

Client: Power Resources dba Cameco Resources  
 Site Name: SR-HUP

Report Date: 02/09/09

Lab ID: C09010537-001 - Location #14 on map  
 Client Sample ID: SAT-2 Spill #1 [0-6]  
 Matrix: Soil

Collection Date: 01/15/09  
 Date Received: 01/16/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	4.2	mg/kg-dry		0.5		SW6020	01/29/09 04:57 / ts
Selenium	0.7	mg/kg-dry		0.5		SW6020	01/29/09 04:57 / ts
Uranium	3.7	mg/kg-dry		0.5		SW6020	01/29/09 04:57 / ts
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	2.3	pCi/g-dry			E903.0		01/31/09 11:51 / trs
Radium 226 precision (±)	0.2	pCi/g-dry			E903.0		01/31/09 11:51 / trs
Radium 226 MDC	0.08	pCi/g-dry			E903.0		01/31/09 11:51 / trs

Lab ID: C09010537-002 - Location #15 on map  
 Client Sample ID: SAT-2 #2 Spill [0-6]  
 Matrix: Soil

Collection Date: 01/15/09  
 Date Received: 01/16/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	2.5	mg/kg-dry		0.5		SW6020	01/29/09 05:03 / ts
Selenium	ND	mg/kg-dry		0.5		SW6020	01/29/09 05:03 / ts
Uranium	1.3	mg/kg-dry		0.5		SW6020	01/29/09 05:03 / ts
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	0.8	pCi/g-dry			E903.0		01/31/09 13:22 / trs
Radium 226 precision (±)	0.1	pCi/g-dry			E903.0		01/31/09 13:22 / trs
Radium 226 MDC	0.08	pCi/g-dry			E903.0		01/31/09 13:22 / 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.



LABORATORY ANALYTICAL REPORT

Client: Power Resources dba Cameco Resources  
 Site Name: SR-HUP

Report Date: 02/09/09

Lab ID: C09010537-003 Location #32 on map  
 Client Sample ID: SAT-2 #3 Spill [0-6]  
 Matrix: Soil

Collection Date: 01/15/09  
 Date Received: 01/16/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	4.7	mg/kg-dry		0.5		SW6020	01/29/09 05:37 / ts
Selenium	1.6	mg/kg-dry		0.5		SW6020	01/29/09 05:37 / ts
Uranium	8.7	mg/kg-dry		0.5		SW6020	01/29/09 05:37 / ts
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	4.2	pCi/g-dry			E903.0		01/31/09 14:52 / trs
Radium 226 precision (±)	0.3	pCi/g-dry			E903.0		01/31/09 14:52 / trs
Radium 226 MDC	0.08	pCi/g-dry			E903.0		01/31/09 14:52 / trs

Lab ID: C09010537-004 - RKG Sample on map  
 Client Sample ID: SAT-2 #4 Spill [0-6]  
 Matrix: Soil

Collection Date: 01/15/09  
 Date Received: 01/16/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	4.4	mg/kg-dry		0.5		SW6020	01/29/09 05:44 / ts
Selenium	ND	mg/kg-dry		0.5		SW6020	01/29/09 05:44 / ts
Uranium	1.8	mg/kg-dry		0.5		SW6020	01/29/09 05:44 / ts
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	1.1	pCi/g-dry			E903.0		01/31/09 16:22 / trs
Radium 226 precision (±)	0.1	pCi/g-dry			E903.0		01/31/09 16:22 / trs
Radium 226 MDC	0.08	pCi/g-dry			E903.0		01/31/09 16:22 / trs

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

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



## QA/QC Summary Report

Client: Power Resources dba Cameco Resources  
 Project: SR-HUP

Report Date: 02/09/09  
 Work Order: C09010537

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b> <span style="float: right;">Batch: R114162</span>									
Sample ID: LCS-21158	Laboratory Control Sample								01/31/09 02:49
Radium 226	14.9	pCi/Filter		100	70	130			
Sample ID: MB-21158	Method Blank								01/31/09 04:19
Radium 226	-0.04	pCi/L							U
Radium 226 precision (±)	0.2	pCi/L							
Radium 226 MDC	0.3	pCi/L							
Sample ID: C09010537-004AMS	Sample Matrix Spike								01/31/09 17:53
Radium 226	4.5	pCi/L		94	70	130			
Sample ID: C09010537-004AMSD	Sample Matrix Spike Duplicate								01/31/09 19:23
Radium 226	5.0	pCi/L		108	70	130	10	22.2	
<b>Method: SW6020</b> <span style="float: right;">Batch: 21197</span>									
Sample ID: MB-21197	Method Blank								01/29/09 04:10
Arsenic	0.007	mg/kg-dry	0.0002						
Selenium	ND	mg/kg-dry	0.0004						
Uranium	0.07	mg/kg-dry	4E-05						
Sample ID: LCS1-21197	Laboratory Control Sample								01/29/09 04:17
Arsenic	67.8	mg/kg-dry	0.50	96	74	147			
Selenium	125	mg/kg-dry	0.50	98	67.8	180			
Uranium	100	mg/kg-dry	0.50	97	60.6	148			
Sample ID: C09010537-004AMS3	Sample Matrix Spike								01/29/09 05:50
Arsenic	16.5	mg/kg-dry	0.50	87	75	125			
Selenium	12.0	mg/kg-dry	0.50	85	75	125			
Uranium	16.2	mg/kg-dry	0.50	104	75	125			
Sample ID: C09010537-004AMSD3	Sample Matrix Spike Duplicate								01/29/09 05:57
Arsenic	16.7	mg/kg-dry	0.50	89	75	125	1	20	
Selenium	12.1	mg/kg-dry	0.50	87	75	125	0.9	20	
Uranium	16.1	mg/kg-dry	0.50	104	75	125	0.8	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration.

# Energy Laboratories Inc

## Workorder Receipt Checklist



Power Resources dba Cameco Resources

C09010537

Login completed by: Edith McPike

Date and Time Received: 1/16/2009 7:00 AM

Reviewed by:

Received by: kw

Reviewed Date:

Carrier name: Drop Box

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	°C NA		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

-----  
Contact and Corrective Action Comments:

Sample #4 does not match. On COC it is listed as Sat-2 #4 Spill 0-6. on sample it is #4 BG 0-6. Called and left voice mail message for Krista Wenzel 1-16-09 @ 7:22. Per phone conversation with Bev on 1-16-09 @ 8:40; use sample ID on COC



CLIENT: Power Resources dba Cameco Resources  
Project: SR-HUP  
Sample Delivery Group: C09010537

Date: 09-Feb-05

## CASE NARRATIVE

### ORIGINAL SAMPLE SUBMITTAL(S)

All original sample submittals have been returned with the data package.

### SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

### GROSS ALPHA ANALYSIS

Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

### RADON IN AIR ANALYSIS

The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

### SOIL/SOLID SAMPLES

All samples reported on an as received basis unless otherwise indicated.

### ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505

Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

### SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

### BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT  
eli-g - Energy Laboratories, Inc. - Gillette, WY  
eli-h - Energy Laboratories, Inc. - Helena, MT  
eli-r - Energy Laboratories, Inc. - Rapid City, SD  
eli-t - Energy Laboratories, Inc. - College Station, TX

### CERTIFICATIONS:

USEPA: WY00002; FL-DOH NELAC: E87641; California: 02118CA  
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

### ISO 17025 DISCLAIMER:

The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER, WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting [www.energylab.com](http://www.energylab.com)

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page [www.energylab.com](http://www.energylab.com).

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

# Energy Laboratories Inc

## Workorder Receipt Checklist



Power Resources dba Cameco Resources

C09020156

Login completed by: Kristina Ward

Date and Time Received: 2/4/2009 7:00 AM

Reviewed by:

Received by: kw

Reviewed Date:

Carrier name: Drop Box

- |   |   |                             |  |
|---|---|-----------------------------|--|
| Shipping container/cooler in good condition?            | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?      | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/>            |
| Custody seals intact on sample bottles?                 | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>                       |
| Chain of custody present?                               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Chain of custody agrees with sample labels?             | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Samples in proper container/bottle?                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Sample containers intact?                               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Sufficient sample volume for indicated test?            | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| All samples received within holding time?               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |  |
| Container/Temp Blank temperature:                       | 8°C                                     |                             |  |
| Water - VOA vials have zero headspace?                  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | No VOA vials submitted <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt?                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/>                    |

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Contact and Corrective Action Comments:

Sample was cancelled because no raw volume was saved when filtering for radiochem and metals. Client is going to resample.

**LABORATORY ANALYTICAL REPORT**

Client: Power Resources dba Cameco Resources  
 Project: SR-HUP  
 Lab ID: C09040356-001 *Location #9 on map*  
 Client Sample ID: Sat-2 #9 [0-6]

Report Date: 05/11/09  
 Collection Date: 04/07/09  
 Date Received: 04/09/09  
 Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	3.0	mg/kg-dry		0.5		SW6020	04/14/09 23:34 / sml
Selenium	ND	mg/kg-dry		0.5		SW6020	04/14/09 23:34 / sml
Uranium	2.1	mg/kg-dry		0.5		SW6020	04/14/09 23:34 / sml
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	2.2	pCi/g-dry			E903.0		04/28/09 18:39 / trs
Radium 226 precision (±)	0.3	pCi/g-dry			E903.0		04/28/09 18:39 / trs
Radium 226 MDC	0.1	pCi/g-dry			E903.0		04/28/09 18:39 / trs

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**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration.  
 MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

**Client:** Power Resources dba Cameco Resources  
**Project:** SR-HUP  
**Lab ID:** C09040356-002 *Location # 10 on map*  
**Client Sample ID:** Sat-2 #10 [0-6]

**Report Date:** 05/11/09  
**Collection Date:** 04/07/09  
**Date Received:** 04/09/09  
**Matrix:** Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Arsenic	5.4	mg/kg-dry		0.5		SW6020	04/14/09 23:41 / sml
Selenium	ND	mg/kg-dry		0.5		SW6020	04/14/09 23:41 / sml
Uranium	2.1	mg/kg-dry		0.5		SW6020	04/14/09 23:41 / sml
<b>RADIONUCLIDES - TOTAL</b>							
Radium 226	1.5	pCi/g-dry			E903.0		04/28/09 20:09 / trs
Radium 226 precision (±)	0.3	pCi/g-dry			E903.0		04/28/09 20:09 / trs
Radium 226 MDC	0.1	pCi/g-dry			E903.0		04/28/09 20:09 / trs

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

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