


United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of: POWERTECH USA, INC. (Dewey-Burdock In Situ Uranium Recovery Facility)	
	ASLBP #: 10-898-02-MLA-BD01
	Docket #: 04009075
	Exhibit #: INT-022A-00-BD01
	Admitted: 8/19/2014
	Rejected:
	Identified: 8/19/2014
	Withdrawn:
	Stricken:
	Other:

INT-022A

June 22, 2012

Mr. Josh Leftwich
 Director of Safety, Health, Environmental
 and Quality
 Cameco Resources
 2020 Carey Avenue, Suite 600
 Cheyenne, WY 82001

SUBJECT: MARCH 15, 2012 REQUEST FOR AN EXEMPTION FROM THE
 REQUIREMENTS OF 10 CFR 40.42, AS APPLIED TO ALTERNATE
 GROUNDWATER RESTORATION SCHEDULES FOR CAMECO'S CURRENT
 AND FUTURE WELLFIELDS AT SMITH RANCH (TAC NO. J00667)

Dear Mr. Leftwich:

In a letter dated March 15, 2012, Power Resources, Inc., doing business as Cameco Resources (Cameco), requested that the U.S. Nuclear Regulatory Commission (NRC) grant a specific exemption pursuant to 10 CFR 40.14 from the requirements of 10 CFR 40.42, as applied to alternate groundwater restoration schedules for Cameco's current and future wellfields at its Smith Ranch facility.

The staff has performed a review of your submittal and has determined that it cannot perform a detailed technical analysis of the request at this time as the request does not fully address the requirements of 10 CFR 40.14(a). As required by 10 CFR 40.14(a), and as discussed in staff guidance, NMSS Policy and Procedures Letter 1-58, "Processing of Exemptions for Material Licenses and Certificate Holders," (NRC's Agencywide Documents Access and Management System (ADAMS) Number (ML11349A312)), the exemption request must contain the following:

- A description of how the exemption, if granted, would not endanger life, property, or common defense and security.
- A description of how the exemption, if granted, would be in the public interest.

In order for the NRC to make the determinations required in 10 CFR 40.14(a), the information above should be provided along with the following information. Sufficient detail such that the staff will be able to determine whether Cameco has identified:

- Compensatory safety measures as necessary and sufficient to ensure a level of health and safety equivalent to the regulation from which the exemption is being requested; and
- All reasonable alternatives for complying with the regulation that the licensee has considered prior to submittal of the exemption request.

J. Leftwich

2

In considering any future submittals related to the exemption request, the staff notes that it would consider, in accordance with 10 CFR 40.42(i)(5), site-specific factors potentially affecting the timely restoration of groundwater. In that regard, staff observes that despite years, and in some cases more than a decade of effort on groundwater restoration for mine units at the Smith Ranch facility, only one mine unit restoration has been approved by the NRC. The staff further notes that, with respect to the Smith Ranch facility, restoration has not proceeded in a timely way, equipment necessary for groundwater restoration has been removed from mine units before restoration has been completed, and restoration plans have not been submitted in a timely fashion. Further, past restoration actions at the Smith Ranch facility have been the subject of enforcement action by the State of Wyoming. In light of this history, in any future submittals regarding the exemption request, Cameco should also describe how, in granting this exemption, the goal of timely restoration would be met.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions concerning the above, please call John Hayes at (301) 415-5928 or via email at John.Hayes@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8964
License No.: SUA-1548

cc: Pam Rothwell, WDEQ

J. Leftwich

2

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If you have any questions concerning the above, please call John Hayes at (301) 415-5928 or via email at John.Hayes@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8964
License No.: SUA-1548

cc: Pam Rothwell, WDEQ

DISTRIBUTION: BSpitzberg/RIV

LGersey/RIV

ML12132A360

Office	DWMEP	DWMEP	DWMEP	DWMEP	OGC	DWMEP
Name	JHayes:	BGarrett	DMandeville	BVonTill	BJones	KMcConnell
Date	5/15/12	5/15/12	5/15/12	5/17/12	6/7/12	6/22/12

OFFICIAL RECORD COPY



**Smith Ranch - Highland
Uranium Project**
P. O. Box 1210
Glenrock, Wyoming USA 82637
Casper: 307-235-1628
Douglas: 307-358-6541
Fax: 307-358-4533

September 23, 2004

Gary S. Janosko – Chief FCFB
c/o Document Control Desk
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
US Nuclear Regulatory Commission
11545 Rockville Pike
Two White Flint
Rockville, MD 20852-2738

RE: Smith Ranch-Highland Uranium Project
NRC License SUA-1548, Docket No. 40-8964
Excursion at Well M-428

Dear Mr. Janosko:

In accordance with License Conditions 9.2 and 12.1, Power Resources, Inc. (PRI) is required to notify the NRC within 48 hours of a confirmed "Wellfield Excursion" and follow up this notification with a written report within 30 days. On September 8, 2004 PRI confirmed an excursion at Well M-428 at Mine Unit 4 at the Smith Ranch Facility. Accordingly, Mr. John Lusher and Mr. Rick Weller of NRC Headquarters Staff and Mr. Steve Ingle of the WDEQ-LQD were notified of this occurrence via e-mail the same day.

In accordance with License Condition 12.1, please consider this correspondence the required "30-Day Report". Well M-428 is a perimeter (Monitor Ring) well that monitors the Production Zone along the southern portion of Mine Unit 4 (see Figure 1). A review of the ground water quality data in the attached monitor well report shows that chloride and alkalinity exceeded their respective UCL's on September 8, 2004. Although the conductivity UCL was not exceeded, an "excursion" exists when two of the three UCL's are exceeded. Therefore, Well M-428 met excursion criteria on September 8, 2004. No uranium was detected at the well.

An investigation was immediately begun on September 8, 2004 to determine the reason for the excursion at Well M-428. It was determined that the wellfield balance in this area of the wellfield (Headerhouse 4-4) was out of balance, which led to over-injection of this area. Changes were immediately made to the injection/production balance and an "over-production" of 20 gpm was begun in order that the injection fluids could be retrieved.



A member of the Cameco group of companies


NMSSO1

As can be seen on the attached monitor well report for Well M-428, the modification to the wellfield balance (over-production of 20 gpm) resulted in an approximate 25 ft decrease in the water level at the well. Therefore, it is apparent that this action reversed the direction of ground water flow back towards the production area. The success of this corrective action is further supported by the subsequent decrease in all UCL's over the next two weeks, such that Well M-428 no longer exceeds any of the three UCL's.

PRI intends to continue with the over-production in this area for at least another 30 days. Well M-428 will continue to be sampled every week. If the water quality data shows continued improvement and the well does not meet excursion criteria after that period, routine wellfield operations and monitoring will resume.

If you have any questions, please call me at 307-358-6541 ext 62.

Sincerely,

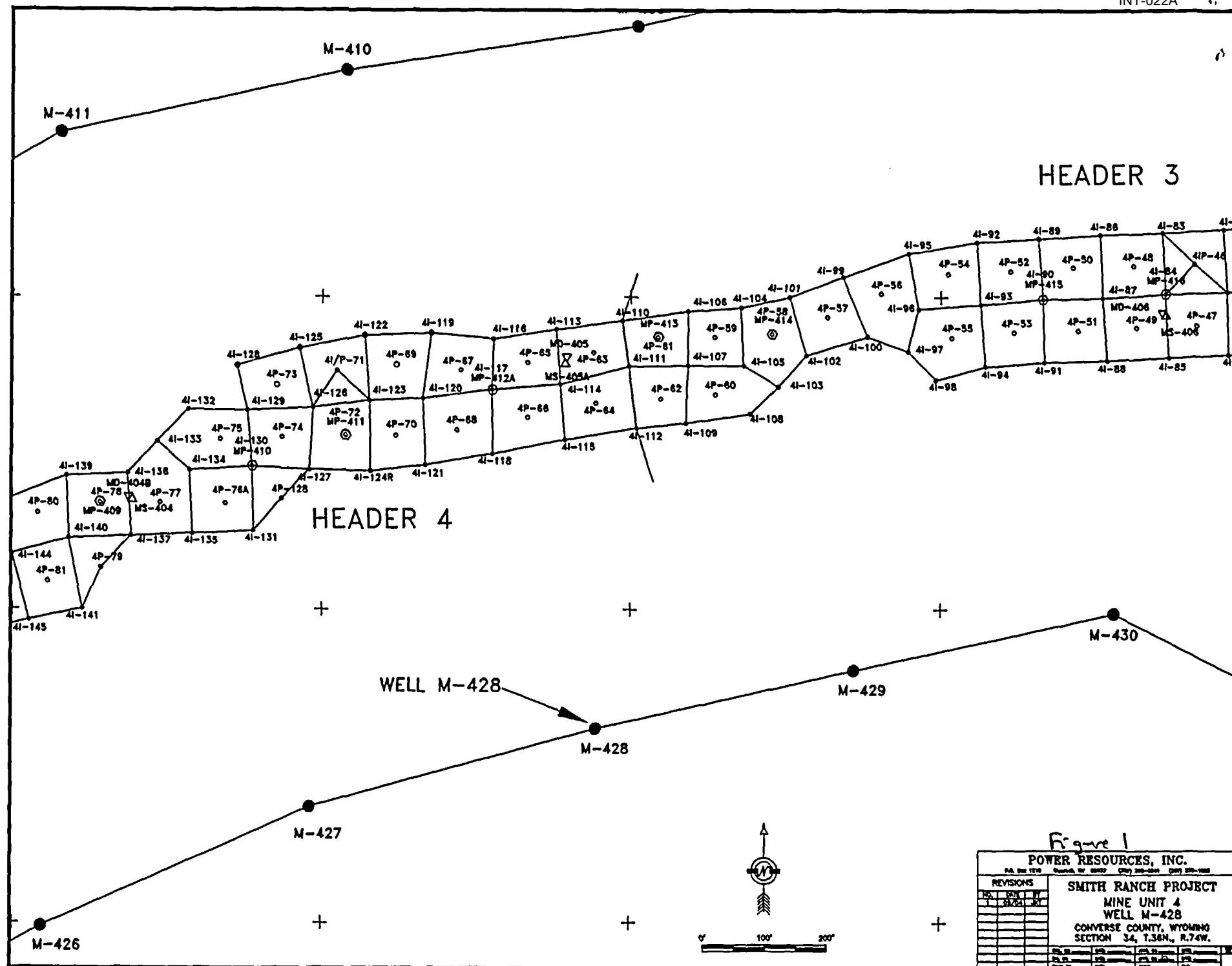


W.F. Kearney
Manager-Health, Safety
& Environmental Affairs

WFK/ksj

attachment

cc:	File SR- 4.6.4.1	R. Knode	K. Milmine
	S. Collings	M. Bryson	



Power Resources Inc.
Monitor Well Report

Well ID: M428

<i>NRC/WDEQ</i> <i>UCL</i>	<i>Chloride</i> <i>(mg/L)</i>	<i>Alkalinity</i> <i>(mg/L CaCO₃)</i>	<i>Conductivity</i> <i>(μMhos/cm)</i>	<i>U_Q</i> <i>(mg/L)</i>	<i>Water Level</i> <i>(ft. MSL)</i>
	19	177	708		
09/21/2004	9	167	563	-0.1	5211.7
09/14/2004	17	184	693	-0.1	5227.82
09/08/2004	27	207	704	-0.1	5278.8
09/08/2004	27	205	703	-0.1	5278.8
09/03/2004	24	189	635		5279.1
08/19/2004	14	170	560		5252.1
08/04/2004	7	161	470		5254.1
07/20/2004	5	155	457		5220.1
07/13/2004	4	158	457		5255.1
06/23/2004	4	160	498		5259.5
06/09/2004	4	160	500		5228.1
05/24/2004	4	157	498		5201.6
05/11/2004	4	160	493		5220.8
04/08/2004	4	158	489		5222.8
03/23/2004	4	155	494		5212.2
03/10/2004	4	161	450		5212.7
02/24/2004	4	159	501		5224.4
02/09/2004	4	158	503		5211.5
01/27/2004	3	159	509		5216.7
01/09/2004	4	159	501		5216.6

From: "Ken Milmine" <kmilmine@vcn.com>
To: "Paul Michalak" <PXM2@nrc.gov>, "Steve Ingle" <single@state.wy.us>
Date: 10/21/05 1:01PM
Subject: Smith Ranch Evaporation Pond leak - Docket 40-8964

Paul and Steve

In accordance with NRC License Condition 12.1 and Smith Ranch LQD Permit Section 5.5.5, please consider this formal notification that the leak detection system at the Smith Ranch Evaporation Pond has detected a leak in the East pond. Samples will be taken and actions and procedures outlined in the License and Permit Applications will be conducted as stated. It is anticipated that the leak occurred during clean-out of the sludge in the pond by a track hoe, which is being done to facilitate planned liner replacement in that pond. PRI believes the Poly liner was inadvertently breached by the track hoe bucket. Initial sample results are not yet available, but PRI believes that the water detected in the leak detection system is from the East Pond due the activities currently taking place. The leak detection system is functioning properly and all leakage has been contained in the system. Water contained in the system will be transferred to the other pond using current procedures in place. As stated previously, the activities at the East Pond are to facilitate replacement of the current liner. The leak will be alleviated once the new liner is installed. A written report will be submitted within 30 days as required. Please let me know if you have any questions.

Sincerely,

Ken Milmine
Manager-Health, Safety, and Environmental Affairs
SR-HUP

CC: "Chuck Foldenauer" <cfoldenauer@vcn.com>

Mail Envelope Properties (43591ED2.E93 : 15 : 20115)

Subject: Smith Ranch Evaporation Pond leak
Creation Date: 10/21/05 1:00PM
From: "Ken Milmine" <kmilmine@vcn.com>

Created By: kmilmine@vcn.com

Recipients

nrc.gov

TWGWPO01.HQGWDO01

PXM2 (Paul Michalak)

vcn.com

cfoldenauer CC (Chuck Foldenauer)

state.wy.us

single (Steve Ingle)

Post Office

TWGWPO01.HQGWDO01

Route

nrc.gov

vcn.com

state.wy.us

Files

MESSAGE

TEXT.htm

Mime.822

Size

1382

2147

5399

Date & Time

10/21/05 01:00PM

Options

Expiration Date:

None

Priority:

Standard

Reply Requested:

No

Return Notification:

None

Concealed Subject:

No

Security:

Standard

From: "Ken Milmine" <kmilmine@vcn.com>
To: "Paul Michalak" <PXM2@nrc.gov>, "Steve Ingle" <single@state.wy.us>
Date: 1/9/06 4:43PM
Subject: Injection Fluid Release

Steve and Paul,

Please consider this formal notification that PRI had a reportable release of injection fluid at mine unit 3, header House 3-3 at the Smith Ranch - Highland Uranium Project. The release was detected at approximately 12:30 am on Monday January 9, 2006 by a Satellite Operator. The release was the result of a blown gasket on the main Injection composite "T" in the header House.

Approximately 6240 gallons of injection fluid was released. Samples were collected and the approximate concentration of uranium was 1.7 mg/l. A final concentration will be reported in the formal report that will be submitted within 7 days. The release did not enter Water of the State. Solution was spread out over an area of lower grade therefore recovery of free standing fluid was minimal.

Please give me a call if you have any questions.

Jon Winter for
Ken Milmine
Manager - Health, Safety and Environmental Affairs
Power Resources, Inc.
Smith Ranch - Highland Uranium Project
307-356-6541

CC: "Chuck Foldenauer" <cfoldenauer@vcn.com>

Mail Envelope Properties (43C2D8F8.886 : 13 : 39046)

Subject: Injection Fluid Release
Creation Date: 1/9/06 4:44PM
From: "Ken Milmine" <kmilmine@vcn.com>

Created By: kmilmine@vcn.com

Recipients

nrc.gov

TWGWPO01.HQGWDO01

PXM2 (Paul Michalak)

vcn.com

cfoldenauer CC (Chuck Foldenauer)

state.wy.us

single (Steve Ingle)

Post Office

TWGWPO01.HQGWDO01

Route

nrc.gov

vcn.com

state.wy.us

Files

MESSAGE

TEXT.htm

Mime.822

Size

994

1928

4762

Date & Time

01/09/06 04:44PM

Options

Expiration Date:

None

Priority:

Standard

Reply Requested:

No

Return Notification:

None

Concealed Subject:

No

Security:

Standard

From: "John McCarthy" <pri_jmccarthy@vcn.com>
To: "Steve Ingle" <single@state.wy.us>
Date: 02/20/2007 11:29:58 AM
Subject: Spill Smith Ranch - 40-8964

Steve and Paul,

I am reporting a spill that happened yesterday (Feb. 19, 2007) at 08:15 A.M. The spill was in wellfield 15 from a failure in well # P-76. The cause is still under investigation and will be submitted to the Smith Ranch Spill Committee for mitigating actions. The spill was reported by a wellfield operator and the well was shut-in. The well will remain off until repairs are completed. The released fluids came from a production well with 32.5 ppm uranium. All surface water was recovered with a Vacuum Truck and disposed of in the Evaporation Pond. The release did not enter nor threaten the Waters of the State. A full report will be forthcoming by week's end.

John McCarthy
Manager, Safety, Health and Environment
Power Resources, Inc.

CC: "Paul Michalak" <PXM2@nrc.gov>

INT-022A

Mail Envelope Properties (45DB21F9.587 : 20 : 58759)

Subject: Spill Smith Ranch
Creation Date 02/20/2007 11:29:04 AM
From: "John McCarthy" <pri_jmccarthy@vcn.com>

Created By: pri_jmccarthy@vcn.com

Recipients

nrc.gov

TWGWPO01.HQGWDO01
PXM2 CC (Paul Michalak)

state.wy.us

single (Steve Ingle)

Post Office

TWGWPO01.HQGWDO01

Route

nrc.gov
state.wy.us

Files

MESSAGE
TEXT.htm
Mime.822

Size

767
1431
4130

Date & Time

02/20/2007 11:29:04 AM

Options

Expiration Date: None
Priority: Standard
Reply Requested: No
Return Notification: None

Concealed Subject: No
Security: Standard

From: "John McCarthy" <pri_jmccarthy@vcn.com>
To: "Steve Ingle" <single@state.wy.us>
Date: 05/22/2007 1:40:43 PM
Subject: Environmental Spill

Steve,

Steve Taylor, our Well Field operator reported a spill at injection well # I-19 in wellfield 15, HH-15-1 at 3:45 yesterday afternoon. The spill involved injection fluids containing 1.2 ppm uranium and the spilled volume was reported at 700 gallons. The reason for the spill as an open petcock valve and the valve was closed upon discovery. The Smith Ranch-Highland Spill Committee will meet to assess the spill and determine the cause(s) and recommend corrective actions. The spill didn't enter nor threaten the Waters of the State. The spill has been reported to Mr. Joe Hunter of WDEQ, Water Quality incident # 070522-1130.

Regards,

John McCarthy
PRI
Smith Ranch-Highland

CC: "Paul Michalak" <PXM2@nrc.gov>

Mail Envelope Properties (46532B0A.87B : 13 : 34939)

Subject: Environmental Spill
Creation Date 05/22/2007 1:39:40 PM
From: "John McCarthy" <pri_jmccarthy@vcn.com>

Created By: pri_jmccarthy@vcn.com

Recipients

nrc.gov

TWGWPO01.HQGWDO01

PXM2 CC (Paul Michalak)

state.wy.us

single (Steve Ingle)

Post Office

TWGWPO01.HQGWDO01

Route

nrc.gov

state.wy.us

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MESSAGE	689	05/22/2007 1:39:40 PM
TEXT.htm	1405	
Mime.822	4037	

Options

Expiration Date: None
Priority: Standard
ReplyRequested: No
Return Notification: None

Concealed Subject: No
Security: Standard

From: "John McCarthy" <pri_jmccarthy@vcn.com>
To: "Steve Ingle" <single@state.wy.us>
Date: 06/22/2007 6:41:10 PM
Subject: Reportable release in H Wellfield 6.22.07 at Smith Ranch Highland site

Steve, this is to inform the State of a solution release at the Smith Ranch Highland facility 6.22.07. The following is a preliminary report on the release with a formal report to follow. I also left a message on your work phone.

A well HI-744 was reworked in the header house (H-12) to direct flow in to a different well. A "T" was installed above the valve on the HI-744 poly line directing flow to HPI-391 within the Header House. The valve leading to HI-744 was shut out. It is believed (investigation pending) that on May 25th when work was done on this line the valve to HI-744 was left in the open position and the well was put back into operation. The HI-744 well had been disconnected at the well head thus allowing water to pump directly to the ground. The HI-744 well is located in a draw and is not easily seen from the Header House thus making the problem more difficult to identify. It is estimated that approximately 198,500 gallons was released with approximately 3,500 gallons recovered at the time of this report. On site lab analysis indicates the uranium concentration to be approximately 8ppm.

Jon Winter
Sr. EH&S Systems Coordinator

CC: "Paul Michalak" <PXM2@nrc.gov>

Mail Envelope Properties (467C4FF0.224 : 0 : 4644)

Subject: Reportable release in H Wellfield 6.22.07 at Smith Ranch Highland site
Creation Date 06/22/2007 6:40:17 PM
From: "John McCarthy" <pri_jmccarthy@vcn.com>
Created By: pri_jmccarthy@vcn.com

Recipients

nrc.gov

TWGWPO01.HQGWDO01
PXM2 CC (Paul Michalak)

state.wy.us

single (Steve Ingle)

Post Office

TWGWPO01.HQGWDO01

Route

nrc.gov
state.wy.us

Files	Size	Date & Time
MESSAGE	1163	06/22/2007 6:40:17 PM
TEXT.htm	4873	
Mime.822	8248	

Options

Expiration Date: None
Priority: Standard
ReplyRequested: No
Return Notification: None

Concealed Subject: No
Security: Standard

Report of Investigation

Operator : Power Resources, Inc.

Facility : Smith Ranch - Highland Uranium Project
Mine Permit #603 (Highland) and #633 (Smith Ranch)

Prepared By : Mark Moxley, LQD District 2 Supervisor

Date : November 21, 2007

Background:

This investigation was conducted at the request of Rick Chancellor, LQD Administrator, in response to concerns over recent spills and the slow pace of groundwater restoration at the Smith Ranch-Highland ISL operation. PRI's operation is located in Converse county in LQD District 1. An investigator was brought in from LQD District 2 with the intention of having a fresh pair of eyes look at the operation. The investigation was intended to identify and focus on "big picture" issues, not specific details. The investigation proceeded as follows:

- Review of permit documents and annual reports
- Interviews with LQD District 1 staff
- Site tour and interviews with PRI staff
- Interviews with LQD District 3 staff
- Follow-up reviews and discussions

PRI began producing in 1988 and is currently the only significant producer of uranium in Wyoming. They are currently producing at capacity levels (2 million pounds of yellow-cake in 2006 and they are expecting similar production in 2007). PRI has applied for a mine permit amendment to add the Reynolds Ranch property and they are also planning to consolidate the Smith Ranch and Highland permits. This will result in a combined mine permit area some 41,000 acres in size. PRI is planning to increase their throughput capacity next year and add approximately 30 people to their current staff of 100. They are also considering adding facilities to provide toll milling services to process feedstock from other operators.

Given that PRI's operation has for many years been the major uranium producer in Wyoming, there is an expectation that the operation might serve as a model for excellence in ISL mining. Unfortunately, this is not the case. There are a number of major long-standing environmental concerns at this operation that demand immediate attention. Recommendations are made as to how to address these concerns.

Currently the uranium industry is experiencing a major boom. Drilling and pre-permitting investigations are proceeding on many different properties around the state, including several owned by PRI. The LQD is expecting numerous new ISL mine permit applications within the coming 12-18 months. This increase in workload will be a major challenge for the LQD staff. Achieving regulatory effectiveness and efficiency will be a high priority for LQD and it will require the cooperation of the industry.

Major Regulatory Issues and Concerns with Permits 603 & 633:

1. Mine Permit:

The mine permit document is the primary regulatory mechanism governing the operation. The mine and reclamation plan should describe in detail how the operation will be conducted so as to comply with all of the major regulatory requirements. The mine and reclamation plans should be updated and maintained so as to be a definitive reference for the operator, the regulatory agencies, and also the public. Having a definitive mine and reclamation plan is particularly important for new staff. In the case of the Smith Ranch - Highlands operation (mine permits #603 and #633), the plans contained in the permit document are out of date and incomplete in several important areas. The following major deficiencies were noted:

- A. The approved mining and reclamation schedules are not being followed and are not current. PRI is not conducting contemporaneous restoration as required by their permit and WDEQ-LQD regulations. See discussion under item 2, below.
- B. Spill detection, reporting, delineation, remediation, follow-up and tracking protocols are not defined in the permit and should be. PRI experiences spills on a routine basis. See discussion under item 3 below.
- C. Groundwater restoration processes, facilities and procedures (incorporating and defining BPT), flow rates and time schedules should be thoroughly described in the permit so that expectations are clear. This has implications for bonding also.
- D. Waste disposal facilities and processes should be clearly defined for all waste streams. One example of inaccurate information in permit #603 (on pages OP-15 and 19) states that byproduct solid waste materials will be disposed at the ANC Gas Hills facility (which closed in 1994). This waste actually goes to the Pathfinder Shirley Basin facility.
- E. Construction details and specifications should be thoroughly described for critical process installations, including wells, pipelines, header houses, ponds, etc. One example of inaccurate information in permit #603 (on page OP-24) states that well casing joints are fastened with screws. This practice is not consistent with the regulations and was discontinued years ago.
- F. Topsoil protection procedures are not adequately defined to assure that disturbance is minimized and that the soil resource is protected. PRI's typical wellfield installation procedures result in the near total disturbance of the native vegetation and soils. This is not consistent with the regulation that allows for "minor disturbance" without topsoil stripping. More definitive procedures should be implemented to restrict and consolidate disturbance from roadways and pipelines and to insure careful topsoil salvage from well sites, mud pits, pipelines, roadways, etc.

With the permit updates required by Chapter 11 and the proposed consolidation of the Highland and Smith Ranch permits, now is an opportune time to correct permit deficiencies and construct a permit that is informative and useful to all parties.

2. Contemporaneous Reclamation:

One of the fundamental requirements for any mining operation is that reclamation be conducted concurrently with mining. Not only is this the most efficient operational strategy but it also insures that the reclamation liability is kept at a reasonable and manageable level. This approach ensures that the public is protected in the event of a forfeiture.

The schedule in permit #603, Highland, dates from 2005. An identical schedule was provided in the July, 2007 annual report. That schedule shows that restoration of the C wellfield should have been completed in 2006 and decommissioning should now be in progress. In actuality the restoration of the C wellfield has been on-going for ten years and the RO treatment phase has only just recently begun. According to the schedule, restoration of the D wellfield should have commenced in 2006 and restoration of the E wellfield should have commenced in early 2007. The annual report states that both the D and E wellfields are still in production. According to the schedule there should now be five wellfields in production (D-ext, F, H, I & J), two in restoration (D & E) and three restored (A, B & C). In fact there are currently 7 wellfields in production, one in restoration (C), and only 2 restored (A & B) at Highland.

The schedule contained in permit #633, Smith Ranch, dates from 1998. A more current schedule was provided in the July, 2007 annual report, yet even this recent schedule is not being followed. According to that schedule, wellfields 1, 3 and 4/4A should now be in restoration. Production from these wellfields was started in 1997, 1998 and 1999 respectively. Restoration of wellfield 1 is to be complete by mid 2008 and restoration in wellfield 2 is to commence in early 2008. However, as reported in the annual report only wellfield 1 is in restoration (no completion date stated) and no mention is made of any other planned restoration. In addition, a new wellfield (K) went into production this year and it does not even appear on the schedule. According to the schedule there should now be three wellfields in production (2, 15 & 15A) and three in restoration (1, 3 & 4/4A). In fact there are currently five wellfields in production and only one in restoration. No wellfields have been restored at Smith Ranch.

It is readily apparent that groundwater restoration is not a high priority for PRI. Reclamation is not contemporaneous with mining. A total of 12 wellfields are now in production and restoration is proceeding (slowly) in only 2 wellfields. Only 2 wellfields (A and B) have been restored in 20 years of operation. The permits project that production will typically last for 3-5 years per wellfield and restoration will take 3-5 years per wellfield. It appears in reality that both production and restoration timeframes have doubled or tripled and yet additional wellfields are being brought into production.

It is recommended that a notice of violation be issued to PRI for failure to conduct concurrent reclamation and failure to follow the approved schedules. A rigorous compliance schedule should be implemented to accelerate restoration. A thorough re-evaluation of the operation schedules is warranted. As pointed out below, new deep disposal wells (DDW's) and RO units will be required to support restoration operations. LQD approval of the Reynolds Ranch amendment as well as any new wellfields should be contingent on installation of appropriate DDW's and RO units and completion of restoration in existing wellfields.

3. Spills, Leaks and Excursions:

Over the years there have been an inordinate number of spills, leaks and other releases at this operation. Some 80 spills have been reported, in addition to numerous pond leaks, well casing failures and excursions. Unfortunately, it appears that such occurrences have become routine. The LQD currently has two large three- ring binders full of spill reports from the Smith Ranch - Highland operations.

Protocols for spill detection, reporting, control, delineation, remediation and tracking should be defined in the mine plan to cover all potential fluid types (injection fluids, production fluids, waste fluids, chemicals and petroleum products) and all potential sources (buried pipelines, surface pipelines, wellhead fittings, headerhouses, ponds, well casing failures, etc.). Protocols should include mapping and delineation of the extent of soil and/or groundwater contamination associated with each occurrence. A GIS system should be developed to facilitate long term tracking of all spills and releases. An updated cumulative spill map showing all historic spills and releases should be presented in each annual report along with documentation of follow-up actions. Excursion protocols are addressed in some detail in the permit, but excursions should be tracked on a cumulative basis in the annual report.

Cumulative tracking of spills and releases is important to insure appropriate follow-up on every incident. Some of the spills may have little impact individually, but cumulatively they might have a significant effect on soils and/or groundwater. A cumulative record will also assist in pinpointing potential problem areas and developing appropriate preventative measures. PRI should develop and implement an inspection and maintenance program designed to prevent future spills. Spills should not and need not be an accepted consequence of ISL mining.

4. Reclamation Cost/Bonding:

The reclamation cost estimates contained in PRI's annual reports assume completion of all groundwater and surface reclamation in 4 years with a staff of 26 people (1/4 of current staff), using the existing facilities with the addition of only 2 new 400gpm RO units. This scenario is totally infeasible and unsupported by any critical path timeline or water balance. Rough calculations based primarily on PRI's figures reveal an alarming scenario.

- Adding the pore volumes for all of the existing wellfields gives a total pore volume (PV) for the project (excluding restored wellfields A&B) of 5,133 Ac.Ft.
- PRI's bond calculation includes only one PV of groundwater sweep, vs three PV's specified in the permit. [Removal of this volume of water from the aquifer would be problematic and warrants further evaluation.] PRI's four existing deep disposal wells (DDW's) have a combined capacity of approximately 600gpm (@100% availability). Disposal of one PV would take more than 5 years! This is not an acceptable schedule. A more reasonable scenario would require at least doubling the disposal capacity (1,200gpm), which would require 4 or 5 new DDW's. These would also be needed for disposal of RO brine and should be included in the bond.

- PRI's bond calculation includes only 3 pore volumes of RO treatment. The approved reclamation plan specifies circulation of a total of 6 PV's (3 groundwater sweep and 3 RO). It is likely that at least 5 PV's of RO treatment would be required if only one PV of groundwater sweep was completed. Using the five existing RO units on the site, plus two new 400 gpm units included in the bond calculation, producing a combined total of 1,360gpm of permeate (@80/20 permeate to brine ratio @100% availability), it would take 854 days (2.3 years) to treat one PV! It would take at least 11.5 years to treat 5 pore volumes. This is a not an acceptable schedule. A more realistic reclamation scenario would require increasing the RO capacity by 2-3 times (3,000 - 4,000 gpm permeate production). The additional RO units, as well as the additional building space, ancillary treatment facilities and piping, should be included in the bond.
- Using the existing RO units (plus the two bonded RO units) and existing DDW's, reclamation would take 20+ years, assuming groundwater restoration was achieved without any problems. (5 years for one PV of GW sweep + 11.5 years for 5 PV's of RO treatment + 1 year stability monitoring + 1 year decommissioning + 1 year of surface reclamation). Clearly this is not an acceptable schedule, but it does point out the need for reevaluation of the reclamation plan, restoration schedule and the bond calculation.
- PRI's bond calculation includes minimal funds for new infrastructure, maintenance, replacement and repair. Only two new 400 gpm RO units are included in the bond estimate. The need for new wells, including DDW's, water storage and treatment ponds, additional RO units, membranes, pumps, piping and general wellfield renovation should be anticipated and included in the bond calculation.
- PRI's bond calculation assumes a staff of only 26 people, with 22 of them on a salary of only \$34,000 per year! If their current operations require a staff of 100 people then it will take at least 1/2 to 2/3 of that staff to conduct restoration. The restoration operations will look very similar to production operations. Operation of RO units, in particular, is very high maintenance and labor intensive. Retaining competent staff will require that wages and benefits be at least \$50,000 per year.
- Considering that reclamation will take several times longer, require at least twice the staff with higher wages and require much greater investments in infrastructure than PRI has estimated, a realistic reclamation cost estimate for this site would likely be on the order of \$150 million, as compared to PRI's current calculation of \$38,772,800. PRI is presently bonded for a total of only \$38,416,500. No bond adjustments have been made since 2002. Clearly the public is not protected. It is recommended that PRI's bond be immediately raised to a level of \$80 million until a thorough evaluation, including critical path analysis, can be completed and an appropriate bonding level established. No permit amendments should be approved or new wellfields authorized until the bonding situation is corrected.

5. Regulatory compliance:

Achieving environmental compliance at an operation of the size and complexity of PRI's Smith Ranch - Highland Mine requires a high level of commitment from both the company and the regulatory agency. PRI's environmental efforts have suffered from inadequate staffing, high turnover, lack of institutional memory and a low level of corporate commitment. There has been a lack of continuity and follow-through on many issues. At this point in time, overall environmental compliance at this operation is poor. PRI should retain a full-time environmental staff of 4-5 qualified people, including a groundwater hydrologist to manage the groundwater restoration. It is recommended that LQD immediately assign a staff person full-time to manage this project as their #1 priority, and that monthly inspections be conducted to get a handle on the issues identified in this investigation.

End of Report

**DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF WYOMING**

NOTICE OF VIOLATION

**IN THE MATTER OF THE NOTICE OF
VIOLATION ISSUED TO**

POWER RESOURCES, INC.

P.O. BOX 1219

GLENROCK, WY 82637

Re: Insitu Uranium Operation, Permit #603

Re: Insitu Uranium Operation, Permit #633

DOCKET NO. 4231-08

NOTICE

NOTICE IS HEREBY GIVEN THAT:

1. Notice of Violation is being sent to you pursuant to W.S. §35-11-701(c) which requires that a written notice shall be issued in the case of failure to correct or remedy an alleged violation specifying the provision of the act, rule, regulation, standard, permit, license, or variance alleged to be violated.
2. As a result of Land Quality Division (LQD) concerns over the slow pace of groundwater restoration of wellfields at Power Resources, Inc. Permits 603 and 633 Insitu Uranium Mine, an investigation was conducted of the mine and reclamation plans in the approved permits, plus information provided in annual reports. This investigation was conducted by LQD staff during October and November of 2007. In addition to the violations cited below, LQD identified serious deficiencies with both permits. The plans contained in the permit documents are dated and incomplete in numerous ways: spill detection, reporting, and follow-up protocols are not defined in the permit; groundwater restoration procedures, necessary facilities, and time schedules for restoration must be thoroughly described; waste disposal facilities and processes must be described for all waste streams; all critical process installations need thorough construction details and specifications; and topsoil protection procedures are not adequately defined. As a consequence of the inadequacies of the permits, both operations are seriously under-bonded.
3. The investigation found that PRI failed to conduct concurrent reclamation which is a violation of Chapter 3, Section 2(k)(i)(D) requiring concurrent reclamation; and that PRI failed to follow the approved permits, which is a violation of W.S. §35-11-415(a). The following lists the specific violations:

Permit 603

- a. Wellfield C was in production for approximately ten years. The approved Mine Plan states, "*Once a wellfield is installed it takes approximately one to three years to recover the leachable uranium from a production area.*" Extending the production time period has become a routine practice and is not in compliance with the approved permit or the requirement for concurrent reclamation.
- b. In addition to the production phase, Wellfield C has now been in restoration for ten years. The 2007 Annual Report states that the ground water quality is similar to "*end of mining*" wellfield conditions. The permit states that restoration and stability are estimated to take approximately five years. This restoration delay is not in compliance with the approved permit or the requirement for concurrent reclamation.
- c. Wellfield E has removed 100% of the leachable reserves, and in recent years wellfield production has slowed to maintenance levels. This rate of production delays completion of mining and restoration of this wellfield

unit. This is not in compliance with the approved permit, and is a violation of Chapter 2, Section 2(b)(ii) which requires coordination of the Mine and Reclamation Plans to facilitate orderly development and reclamation.

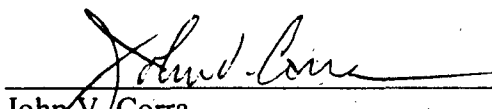
- d. The timetable listing the schedule of mining-related activities in the permit (Figure A, page OP-3A) and the timetable provided in the 2007 annual report both indicate that PRI is not in compliance with their restoration schedules for Wellfields C, D, and E. The schedule shows that Wellfield C should be decommissioning instead of in restoration, and that Wellfields D and E should be in restoration instead of production.

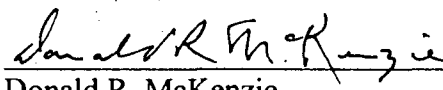
Permit 633

- a. The permit indicates that "An updated schedule will be supplied with the annual report if the mining or restoration schedule varies from Table 3-1." The timetable commitments in the permit are not consistent with wellfield status. Therefore, the table in the annual report is the schedule that PRI is committed to for wellfield status. Based on this table, PRI is not in compliance with their restoration schedules for Wellfields 2, 3, and 4/4A. The annual report text indicates that Wellfield 2 will continue to be in production, while the annual report schedule referred to in the permit shows that it will be in restoration in 2008. Wellfields 3 and 4/4a should be in restoration instead of production.
 - b. The permit states that it generally takes "three years for uranium production, and three years for aquifer restoration." Actual times for wellfield production and restoration are, thus far, 2-3 times longer than permit commitments.
4. Wyoming Statute §35-11-901(a) provides that any person who violates any provision of the Environmental Quality Act or any rule, standard, permit, license or variance adopted hereunder is liable to a penalty of ten thousand dollars (\$10,000.00) for each day of violation, which penalty may be recovered in a civil action brought by the Attorney General in the name of the People of the State of Wyoming.

NOTHING IN THIS NOTICE shall be interpreted to in any way, limit or contravene any other remedy available under the Environmental Quality Act, nor shall this Order be interpreted as being a condition precedent to any other enforcement action.

SIGNED this 7th day of March, 2008


 John V. Corra
 Director
 Department of Environmental Quality


 Donald R. McKenzie
 Administrator
 Land Quality Division

Please direct all inquiries regarding this Notice of Violation to Mr. Donald R. McKenzie, Administrator, Land Quality Division, Wyoming Department of Environmental Quality, 122 West 25th Street, Cheyenne, WY 82002. Telephone No. (307) 777-7046.

cc: Lowell Spackman, District I
 Mark Moxley, District II
 Docket # 4231-08
 Doug Mandeville, NRC



Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

March 10, 2008

CERTIFIED MAIL, RETURN RECEIPT REQUESTED #7005 1820 0005 1478 8828

Mr. John McCarthy
Power Resources, Inc.
P.O. Box 1210
Glenrock WY 82637


RE: Insitu Uranium Permits 603 and 633, Notice of Violation, Docket No. 4231-08

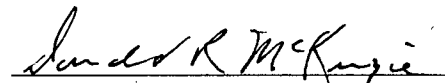
Dear Mr. McCarthy:

Enclosed you will find a Notice of Violation issued under the provisions of W.S. § 35-11-415(a) and (b)(ii). The Notice of Violation is based on the investigation conducted Mr. Mark Moxley during the fall of 2007. The investigation found that PRI failed to conduct concurrent reclamation which is a violation of Chapter 3, Section 2(k)(i)(D), and that PRI failed to follow the approved permits.

The Wyoming Department of Environmental Quality/Land Quality Division (LQD) is attempting to resolve this issue without further enforcement action, and requires that you contact Mr. Donald R. McKenzie, LQD Administrator at 307-777-7046 **within fifteen (15) days of receipt of this letter** to schedule a meeting to resolve this enforcement action. Should resolution of this enforcement action be reached as a result of this meeting, a Settlement Agreement including a penalty assessment will be signed by both parties.

Respectfully,


John V. Corra
Director
Department of Environmental Quality


Donald R. McKenzie
Administrator
Land Quality Division

Enclosures: Notice of Violation
Investigation Report

cc: Lowell Spackman, District I w/attachments
Mark Moxley, District II w/attachments
Docket # 4231-08 w/attachments
Doug Mandeville, NRC w/attachments

Herschler Building • 122 West 25th Street • Cheyenne, Wyoming 82002 • <http://deq.state.wy.us>

ADMIN/OUTREACH
(307) 777-7758
FAX 777-3810

ABANDONED MINES
(307) 777-6145
FAX 777-6462

AIR QUALITY
(307) 777-7391
FAX 777-5616

INDUSTRIAL SITING
(307) 777-7368
FAX 777-6937

LAND QUALITY
(307) 777-7756
FAX 777-5864

SOLID & HAZ. WASTE
(307) 777-7752
FAX 777-5973

WATER QUALITY
(307) 777-7781
FAX 777-5973



**WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND QUALITY DIVISION**

SETTLEMENT AGREEMENT

The Wyoming Department of Environmental Quality, Land Quality Division (DEQ) and Power Resources, Inc. (PRI) doing business as Cameco Resources enter into this Settlement Agreement to fully and finally resolve without litigation the violations alleged in Notice of Violation (NOV) Docket No. 4231-08, dated March 7, 2008, regarding Highland, Permit 603, and Smith Ranch, Permit 633, insitu uranium mines. The NOV alleges non-concurrent restoration at both mines. DEQ rules and the respective mine permits require concurrent restoration or, if concurrent restoration is not possible, earliest possible restoration consistent with the orderly and economic development of the property. The Highland and Smith Ranch mines are located in Converse County.

Wyoming Statute (W.S.) §35-11-901(a)(ii) authorizes the DEQ to attempt to eliminate the cause of the violations by settlement, in lieu of litigation. To that end, PRI and the DEQ stipulate and agree as follows:

- 1/24 The DEQ pursuant to W.S. §35-11-104, is a department in the executive branch of the state government of Wyoming and is located in Cheyenne, Wyoming. DEQ is the agency responsible for administering the Wyoming Environmental Quality Act and the DEQ rules and regulations.
- 2/24 PRI is the permit holder and operator of DEQ Permits 603 and 633 for uranium mining operations located in parts of Townships 35 and 36 North, Ranges 73 to 75 West in Converse County.
- 3/24 DEQ rules and the Highland and Smith Ranch mine permits require concurrent restoration or, if concurrent restoration is not possible, earliest possible restoration consistent with the orderly and economic development of the property. Failure to comply with this requirement is a violation of DEQ rules and the respective mine permits.
- 4/24 PRI shall cease land application activities on or before October 15, 2009, unless PRI demonstrates wastewater disposed of via land application has an average selenium level of 0.1 mg/L or less.
- 5/24 PRI will bond Highland and Smith Ranch for eighty million dollars (\$80,000,000.00) within 45 days of the execution of this Settlement Agreement by increasing the bond for Highland, Permit 603, to \$48,000,000.00 and increasing the bond for Smith Ranch, Permit 633, to \$32,000,000.00.
- 6/24 PRI will submit Highland and Smith Ranch permit revisions for revised restoration plans including restoration schedules for the existing permit approved mine units by August 1, 2008. The revision will include discussion of extraction rates, number of pore volumes of groundwater sweep and reverse osmosis treatments, and a water balance demonstrating the volumes available to conduct restoration as well as the waste water capacity to support the disposal of these volumes.
- 7/24 PRI will submit by August 1, 2008, a capital improvement plan. The capital improvement plan will provide for a minimum of eight million dollars (\$8,000,000.00) to be spent by December 31, 2010 to accelerate restoration and reclamation activities.
- 8/24 DEQ will review the Highland and Smith Ranch revised restoration plans, restoration schedules, and the capital improvement plan within 45 days of receipt and either approve the permit revisions for insertion into the respective permits or provide review comments to PRI.
- 9/24 In the event DEQ issues review comments on the Highland and Smith Ranch revised restoration plans, restoration schedules, or capital improvement plan, PRI will respond to the DEQ within 45 days of receipt of the review comments.
- 10/24 Both PRI and the DEQ commit to finalizing the Highland and Smith Ranch revised restoration plans, restoration schedules, and capital improvement plan by December 31, 2008. Upon approval, the restoration plans and restoration schedule will be inserted into the respective

SETTLEMENT AGREEMENT BETWEEN DEQ AND PRI.

permits and the capital improvement plan will be filed with the Settlement Agreement. Upon approval, PRI also will recalculate the bond amount for Highland and Smith Ranch and submit this information to the DEQ for review no later than February 28, 2009.

11/24 PRI will accelerate restoration activities in accordance with the following schedule:

Commencement Date	Site Reference	Restoration Activity
August 1, 2008	Mine Unit C	Accelerate restoration by replacing the membranes on the existing reverse osmosis unit thereby increasing the restoration capacity of the unit by 70 gpm, which is anticipated to result in an increase in the annual average flow rate to approximately 390 gpm. PRI will maintain the pertinent flow rate data on site.
October 1, 2008	Mine Unit 1	Accelerate restoration by increasing reverse osmosis treatment capacity by 200 gpm, which is anticipated to result in an increase in the annual average flow rate to approximately 390 gpm. PRI will maintain the pertinent flow rate data on site.

12/24 Subject to PRI fully complying with this Settlement Agreement, Permit 603 and Permit 633, and other applicable laws and regulations, PRI may maintain uranium mining activities at an annual production level equal to PRI's average annual production of U_3O_8 for the years 2006 and 2007 (not more than 2,000,000 pounds annually), and PRI may file applications for permit revisions to bring Mine Units 9, 10, 11, 12, K, and/or J-Extension into production as necessary to maintain this level of production. DEQ will not authorize PRI to increase U_3O_8 production at Highland and Smith Ranch mines over the average annual production for 2006 and 2007 before March 1, 2009.

13/24 PRI agrees to pay a penalty of nine hundred thousand dollars (\$900,000) as stipulated settlement as partial resolution to this matter in lieu of litigation under W.S. § 35-11-901(a)(ii). PRI will pay five hundred thousand dollars (\$500,000) directly to the DEQ upon execution of the signed Settlement Agreement. Four hundred thousand dollars (\$400,000) will be suspended if PRI satisfies the terms of the Settlement Agreement. In the event PRI does not satisfy the terms of the Settlement Agreement, four hundred thousand dollars (\$400,000) will be due within thirty (30) days notice by the DEQ. Payment to the DEQ shall be by check and made payable to the Wyoming Department of Environmental Quality/Land Quality Division, and shall be sent to: Donald R. McKenzie, Administrator, WDEQ, LQD, Herschler Building, 3 Fl-West, 122 West 25th Street, Cheyenne, WY 82002.

14/24 Upon execution of the signed Settlement Agreement, PRI also will pay five hundred thousand dollars (\$500,000.00) to the DEQ to fund future, unspecified Supplemental Environmental Projects (SEP's). SEP's shall be determined by the DEQ and shall address groundwater restoration, protection, monitoring, or pollution reduction issues related to in situ uranium mining. Payment of the SEP funds shall be made by check and made payable to the Wyoming Department of Environmental Quality.

15/24 PRI's full compliance with this signed Settlement Agreement including payment by PRI as specified above shall constitute full satisfaction for and resolution of all claims by the DEQ against PRI based on the violations alleged in NOV Docket No. 4231-08. Contingent upon PRI compliance with the terms of this Settlement Agreement, the DEQ will refrain from taking further enforcement action against PRI for these particular violations cited in this Settlement Agreement. By this Settlement Agreement, the parties intend to resolve with prejudice all allegations that were asserted in NOV Docket No. 4231-08.

- 16/24 PRI waives any statute of limitations which may apply to an enforcement action by the DEQ involving the specific matters described here in, in the event that PRI fails to fulfill its obligations under this Settlement Agreement.
- 17/24 Neither party shall be liable for failure to perform under this Agreement if such failure to perform arises out of causes beyond the control and without the fault or negligence of the nonperforming party. Such causes may include, but are not limited to, acts of God or the public enemy, fires, floods, epidemics, quarantine restrictions, freight embargoes, and unusually severe weather. This provision shall become effective only if the party failing to perform promptly notifies the other party of the extent and nature of the problem, limits delay in performance to that required by the event, and takes all reasonable steps to minimize delays.
- 18/24 Nothing in this agreement precludes DEQ from taking additional enforcement action, including the issuance of a NOV, and/or pursuing additional penalties, should PRI violate Wyoming Statutes or applicable rules and regulations in the future.
- 19/24 This Settlement Agreement shall be admissible by either party without objection by the other party in any subsequent action between these parties.
- 20/24 Notwithstanding any other language in this Settlement Agreement, the State of Wyoming and the DEQ do not waive sovereign immunity by entering into this Settlement Agreement with PRI and specifically retain all immunity and all defenses available as sovereigns under state and federal law.
- 21/24 Each party is responsible for its own costs, including attorney fees through the signing of this Settlement Agreement.
- 22/24 This Settlement Agreement is binding upon PRI successors and assigns, and upon the DEQ.
- 23/24 The persons signing this Settlement Agreement certify that they are duly authorized to bind their respective parties to this Settlement Agreement.
- 24/24 This Settlement Agreement shall become binding when signed by all parties.

FOR POWER RESOURCES, INC.:

Signed: Stephen P. Collings

Date: July 8, 2008

Title: President

FOR THE WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY:

John V. Corra
John V. Corra, Director, DEQ

7/7/08
Date

Donald R. McKenzie
Donald R. McKenzie, Administrator, LQD

07-07-08
Date

xc: Becky Brosius, NOV Files (603 & 633), Lowell Spackman, LQD, Doug Mandeville, NRC

3872076_5.DOC

DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF WYOMING

NOTICE OF VIOLATION

IN THE MATTER OF THE NOTICE OF)	
VIOLATION ISSUED TO)	DOCKET NO. 4314-08
Power Resources Inc.)	
P.O. Box 1219)	
Glenrock, Wyoming 82637)	
RE: Drilling Notification DN236)	

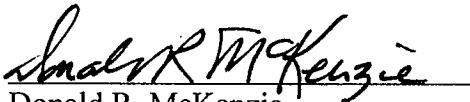
NOTICE

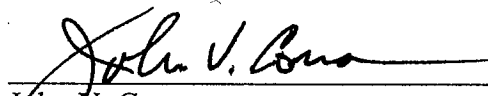
NOTICE IS HEREBY GIVEN THAT:

1. Notice of Violation (NOV) is being sent to you pursuant to the Environmental Quality Act (ACT), Wyoming Statute (W.S.) §35-11-701(c)(i), which requires that a written notice be issued in the case of failure to correct or remedy an alleged violation.
2. On June 26, 2008 an inspection of Drilling Notification (DN) 236 was conducted by Jennifer Bowers of the Wyoming Department of Environmental Quality, Land Quality Division (LQD), District I office. The areas covered during the inspection were located in Township 35N, Range 74W, Section 18 and Township 37N, Range 74W, Section 35 and 36 in converse County.
3. Drill holes were not properly abandoned. This is a violation of W.S. § 35-11-404(c)(i-iii).
4. Drill holes were not immediately capped following drilling. This is a violation of W.S. § 35-11-404(h).
5. Monitoring wells lacked a proper well cap and inadequate surface seals, which are violations of Chapter 11 Section 6 (b) (A) (ii) and (c) of the LQD Noncoal Rules and Regulations.
6. Drill hole sites were not properly backfilled, contoured and seeded for surface restoration. This is a violation of W.S. § 35-11-404(c)(v).
7. Plugging and abandonment had not occur as reported in the 2007 abandoned drill hole report and drill holes were incorrectly reported in the DN236 2007 abandoned drill hole report. This is a violation of W.S. § 35-11-901(k).
8. In addition, a records search found PRI has failed to submit abandoned drill hole reports to the LQD for 2002, 2003 and 2004 report periods. This is violation of W.S. § 35-11-404 (e).
9. W.S. § 35-11-901(a) provides that any person who violates any provision of the ACT or any rule, standard, permit, license or variance adopted there under is liable to a penalty of ten thousand dollars (\$10,000.00) for each day of violation, which penalty may be recovered in a civil action brought by the Attorney General in the name of the People of the State of Wyoming.

NOTHING IN THE NOTICE shall be interpreted to in any way limit or contravene any other remedy available under the ACT, nor shall this NOV be interpreted as being a condition precedent to any other enforcement action.

DATED THIS 17 day of July, 2008.


Donald R. McKenzie
Administrator
Land Quality Division


John W. Corra
Director
Department of Environmental Quality

PLEASE DIRECT ALL INQUIRIES regarding this Notice of Violation to Lowell Spackman, Land Quality Division District 1 Supervisor, 122 West 25th Street, Cheyenne, WY 82002, telephone (307) 777-7052.

Attachment: June 26, 2008 Inspection Report



November 24, 2008

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES
Smith Ranch-Highland
Operation

Mall:
P.O. Box 1210
Glenrock, WY
82637 USA

Tel: (307) 358-6541
Fax: (307) 358-4533
www.cameco.com

RE: Highland Uranium Project
Permit to Mine No. 603
Excursion at Monitor Well CM-15

Dear Mr. Spackman:

In accordance with License Condition No. 11.5 and Section 8.4 of the approved Operations Plan for the Highland Uranium Project, Cameco Resources (CR) is providing written notification that Monitor Well CM-15 appeared to be on excursion status November 18, 2008. Consistent with Section 8.4 of the Operations Plan, Ms. Pam Rothwell of your staff and Mr. Doug Mandeville of the USNRC were notified of this potential excursion by telephone on November 20, 2008.

Well CM-15 was sampled on November 18, 2008, with results received November 19, 2008, indicating excursion parameters were exceeded. As per license condition, the well was re-sampled within 24 hours to confirm the potential excursion. The confirmation results were received November 20, 2008.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (µMhos/cm)
	UCL 18	UCL 202	UCL 852
11/18/08	21	219	766
11/19/08	21	225	852

As stipulated in License Condition 11.5 of Materials License SUA 1548 and Section 8.4 of the Operations Plan, sampling frequency for UCL parameters and Uranium will become weekly until the excursion is controlled and verified by sampling results.

Monitor Well CM-15 is located in Mine Unit-C, which is currently in restoration. CR is in the process of analyzing historical data on this well and evaluating methods to control the excursion and return the water quality to within normal parameters.

Well CM-15 is depicted on the attached map. This information will also be added to CR's site status map and included in the annual report.

If you have any questions, please call me at your earliest convenience at (307) 358-6541, Ext. 62

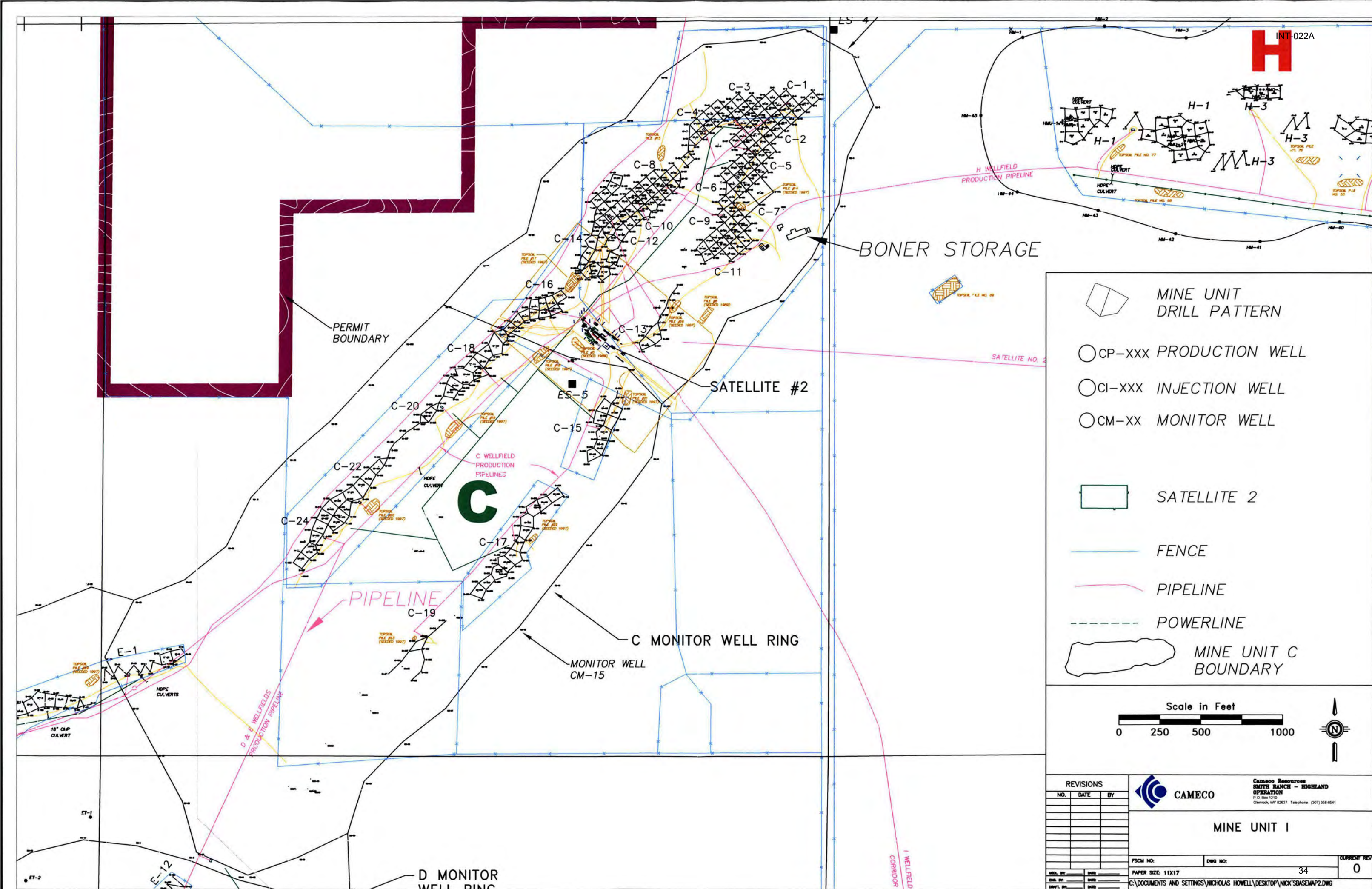
Sincerely,



Krista Wenzel
Manager-Environment,
Health and Safety Department

Atta: Map

cc: Tom Cannon
Scott Bakken
D. Mandeville, USNRC
File HUP-4.6.4.1





UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

November 25, 2008

John McCarthy, Manager
Safety, Health and Environment
Power Resources, Inc.
P.O. Box 1210
Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/08-002 AND NOTICE OF VIOLATION

Dear Mr. McCarthy:

This refers to the unannounced inspection conducted on September 23-25, 2008, at the Smith Ranch facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection, and the final inspection findings were presented to you by telephone on November 4, 2008. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. The first violation involves an exceedance of the public dose limit for radiation exposures in unrestricted areas. The second violation involves the failure to store byproduct materials in a restricted area. The third violation involves your failure to control and maintain constant surveillance of licensed material at a satellite facility. These violations were evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are being cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your

Power Resources, Inc.

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response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey at (817) 860-8299, or the undersigned at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket No.: 040-08964

License No.: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08964/08-002
3. NRC Information Notice 96-28

cc w/Enclosures 1&2:

Ms. Carol Bilbrough
Program Manager
Wyoming Department of Environmental Quality
Land Quality Division
122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Herschler Building - Third Floor West
122 West 25th
Cheyenne, Wyoming 82002

Wyoming Radiation Control Program Director

bcc w/enclosures 1 and 2 via e-mail:

CCain

JWhitten

LMGersey

RJEvans

EAStriz, FSME/DWMEP/DURLD

DTMandeville, FSME/DWMEP/DURLD

RBurrows, FSME/DWMEP/DURLD

RWVonTill, FSME/DWMEP/DURLD

FEE Coordinator

MLxxxxxxxxx

SUNSI Review Completed: LMG ADAMS: ☒ Yes ☐ No Initials: LMG

☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

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LMGersey	RJEvans	DTMandeville	JEWhitten
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11/25/08	11/25/08	10/28/08	11/25/08

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NOTICE OF VIOLATION

Power Resources, Inc.
Converse County, Wyoming

Docket No. 040-08964
License No. SUA-1548

During an NRC inspection conducted on September 23-25, 2008, three violations of NRC requirements were identified. In accordance with the Enforcement Policy, the violations are listed below:

- A. 10 CFR 20.1301(a)(2) requires that the licensee conduct operations so that the dose in any unrestricted area from external sources does not exceed 2 millirem in any one hour.

Contrary to the above, on September 25, 2008, the byproduct storage bins at satellite Sat-3 and satellite Sat-2 were found to have exposures rates of 3.5 millirems in any one hour at one foot from the surfaces of the bins. Both byproduct bins were located in unrestricted areas.

This is a Severity Level IV violation (Supplement IV).

- B. License Condition 10.1.6 requires, in part, that the licensee maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal.

Contrary to the above, on September 25, 2008, the byproduct storage bins at satellite Sat-3 and satellite Sat-2 contained items contaminated with licensed radioactive material, in storage pending disposal, and were located in unrestricted areas.

This is a Severity Level IV violation (Supplement IV).

- C. 10 CFR 20.1802 requires that the licensee control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Contrary to the above, on September 25, 2008, the licensee did not control and/or maintain constant surveillance of uranium contained in the T-207 transfer storage tank in the satellite SR-1 building, which is a controlled area. The area around this tank was a posted radiation area. The satellite SR-1 building and the immediate area around the T-207 transfer storage tank were unoccupied by employees, the doors to the SR-1 building were unlocked, and the overhead bay doors were open allowing uncontrolled access to licensed source materials.

This is a Severity Level IV violation (Supplement IV).

Pursuant to the provisions of 10 CFR 2.201, Power Resources, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region IV, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response.

ENCLOSURE 1

If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you are required to post this Notice within two working days.

Dated this 25th day of November 2008

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 040-08964

License No.: SUA-1548

Report No.: 040-08964/08-002

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: September 23-25, 2008

Inspectors: Linda M. Gersey, Health Physicist
Nuclear Materials Safety Branch B

Douglas T. Mandeville, PE, Geotechnical Engineer
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Elise A. Striz, Hydrogeologist
Decommissioning and Uranium Recovery Licensing Directorate
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Accompanied by: Ronald Burrows, Senior Health Physicist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Approved by: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/08-002

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation, and radioactive waste management.

Management Organization and Controls

- The organizational structure and staffing levels met license requirements and were sufficient for the work in progress (Section 1).
- The annual radiation protection program audit had been satisfactorily completed (Section 1).

In-Situ Leach Facilities

- Site operations were, in general, conducted in accordance with the performance-based license and regulatory requirements (Section 2).
- One violation was identified related to the exceedance of the public dose limit for radiation exposures in unrestricted areas. A second violation was identified related to the failure to store byproduct material in a restricted area. A third violation was identified related to the licensee's failure to maintain control over or surveillance of licensed material that was located in a controlled area and not in storage (Section 2).
- Two previous Unresolved Items were closed. The first involved uranium recovery operations that commenced in Mine Unit K and in the Southwest Area prior to NRC approval, and the second involved the determination of the exact content of the waste water streams to purge storage reservoir number 2 (Section 2).
- One previous Unresolved Item related to whether purge storage reservoir number 2 was leaking was left open pending further review by the NRC (Section 2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license, with the three exceptions described in Section 2 of this report (Section 3).
- One previous Unresolved Item was closed involving the licensee's use of a conversion factor to determine the weekly soluble uranium intake in milligrams (Section 3).

Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee did not release effluents into the environment during the first and second quarters of 2008, in quantities exceeding regulatory limits (Section 4).

- The reports related to groundwater and environmental monitoring programs were submitted to the NRC as required. No findings of significance were identified during the review of the environmental monitoring data (Section 4).

Inspection of Transportation Activities and Radioactive Waste Management

- The licensee was conducting transportation and waste disposal operations in accordance with regulatory requirements (Section 5).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc (PRI) was mining uranium through in-situ leach recovery operations in a number of wellfields. Three satellite facilities (Sat-2, Sat-3, and SR-1) were in service and supporting wellfield operations. Construction activities at satellite facility SR-2 were nearing completion, and the licensee was conducting equipment checks during the inspection. Uranium processing and drying operations were in progress at the Smith Ranch central processing plant (CPP). Operations had been previously discontinued by PRI at Satellite No. 1 and the Highland CPP.

The licensee was developing Mine Unit 9 for uranium extraction and is currently waiting for approval from the Wyoming Department of Environmental Quality (WDEQ) before initiating in-situ leach uranium recovery operations in this area. The initial processing of uranium-laden fluids from Mine Unit 9 will occur at satellite facility SR-2.

The licensee was also conducting limited work at its other licensed satellite facilities. Ore body delineation was in progress at the Reynolds Ranch satellite. The licensee anticipates initiation of in-situ leach uranium recovery operations at Reynolds Ranch sometime in 2009. The licensee was also in the process of delineating ore bodies at the Gas Hills satellite, and the licensee plans to submit a revised operations plan to the NRC for this satellite during 2009. The North Butte satellite remains on standby, and the licensee plans to submit a revised operations plan for this satellite in 2009. The Ruth site continues to remain in standby.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organization structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. The inspectors determined that the licensee's current organizational structure was in agreement with the structure specified in Figure 9-1. The licensee had hired 14 new employees since the previous NRC inspection in March 2008. Among the 14 new employees, the licensee had hired a new training supervisor, two coordinators who assisted in report writing, and a new Assistant Manager of Safety, Health and Environment. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

b. Safety and Environmental Review Panel and Audits

License Condition 9.4 of the performance based-license requires, in part, that the licensee establish a Safety and Environmental Review Panel (SERP). No SERP evaluations have been performed in 2008.

The annual radiation protection program audit for calendar year 2007 was conducted in April 2008. The audit identified several cases in satellite Sat-2 where the administrative action level for airborne radon daughters had been exceeded. The cause of the radon daughter exceeding the airborne action levels was due to leaks in the reverse osmosis system and the ongoing maintenance activity undertaken by the licensee. The inspectors determined, that once identified, appropriate corrective actions had been taken by the licensee in satellite Sat-2 to reduce the airborne levels.

1.3 Conclusions

The organizational structure and staffing levels met license requirements and were sufficient for the work in progress. The annual radiation protection program audit had been satisfactorily completed.

2 **In-Situ Leach Facilities (89001)**

2.1 Inspection Scope

Determine if operating activities were being conducted in accordance with regulatory and license requirements.

2.2 Observation and Findings

a. Site Tours

The NRC inspectors conducted site tours to observe in-situ leach operations in progress. Areas toured by the NRC inspectors included the Smith Ranch CPP, satellites SR-1, SR-2, Sat-1, Sat-2, and Sat-3, radium ponds, wellfields, Purge Storage Reservoir 2 (PSR 2), irrigator 2, header houses, the east and west evaporation ponds, and an area used for storage of old equipment (referred to as the "boneyard"). Also during the site tours, the inspectors observed the condition of tanks, valves, yellowcake thickener, fences, and gates.

At the time of this inspection, 13 mine units were actively in operation. The WDEQ and the NRC have approved restoration activities at Mine Unit A. The WDEQ approved restoration activities at Mine Unit B in early 2008, and the licensee plans to submit a report documenting restoration activities for this mine unit to the NRC in the near future. In addition, Mine Units C and 1 were in restoration. The licensee plans to submit to the NRC a decommissioning plan for satellite Sat-1 and associated features in late 2008 or early 2009.

The inspectors conducted independent radiological surveys using a NRC-issued portable survey meter. The surveys were conducted using a Ludlum Model 19 microRoentgen meter (NRC No. 015525 with a calibration due date of 02/14/09, calibrated to radium-226). The ambient gamma exposure rates noted by the inspectors varied from the background exposure rate of 15 micro-Roentgen per hour ($\mu\text{R/hr}$) up to greater than 5000 $\mu\text{R/hr}$ observed in the processing areas of the CPP and satellite structures. The dose rates observed by the inspectors were consistent with licensee's measurements, and all areas with exposure rates in excess of 5 millirems per hour were posted as radiation areas as required by regulations.

During the site tour, the inspectors conducted radiological surveys of the byproduct storage bins located at satellites Sat-2 and Sat-3. The licensee was using the byproduct storage bins to store byproduct waste material, such as used filters or contaminated equipment, prior to disposal. The stored wastes collected in the bins will eventually be sent offsite for disposal in a licensed 11e.(2) disposal cell. The highest exposure rate from these bins was found to be 3.5 millirems per hour at one foot from the surfaces of the bins. The storage bins were posted as radiation areas, although there existed no control of personnel access to the areas where the bins were located. Furthermore, the bins were located in areas that were designated by the licensee as radiologically unrestricted areas. These inspection findings were identified as two violations. One violation (040-08964/0802-01) pertains to exceedance of the dose limit for members of the public specified in 10 CFR 20.1301(a)(2). This regulation requires, in part, that the licensee conduct operations so that the dose in any unrestricted area from external sources does not exceed 2 millirems in any one hour. The second violation (040-08964/0802-02) pertains to failures to adhere to License Condition (LC) 10.1.6, which requires, in part, that the licensee maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal. The storage bins were located outside of the restricted area, contrary to the requirements of the license.

During the site tour of the satellite SR-1 building, the inspectors conducted radiological surveys of the T-207 transfer storage tank. The highest exposure rate on this tank was measured as 3.5 millirems per hour at one foot from the surface. The tank was posted as a radiation area, and the licensee considered the location of the transfer storage tank as a radiologically restricted area (a controlled area). At the time of the site tour, the satellite building was unattended by licensee employees, the doors were unlocked, and the bay overhead doors were open allowing unfettered access to licensed material. This finding was identified as a violation (040-08964/0802-03) of 10 CFR 20.1802, which requires, in part, that the licensee control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

During the visit to the east evaporation pond, the inspectors were able to observe the vacuum truck used to remove sediment from the bottom of the dewatered pond. The licensee had developed a radiation work permit for this activity and was developing a standard operating procedure for the use of the vacuum truck. Upon completion of sediment removal, the licensee plans to install a new liner in the pond. NRC staff will review the status of the east evaporation pond following sediment removal during the next inspection.

The inspectors visited the "boneyard" area near the Smith Ranch CPP. The inspectors noted general improvement in the visual appearance of the "boneyard" as the licensee continues to improve the conditions of this portion of the facility. The licensee had sorted equipment by size and had placed some equipment in bins or on elevated wooden pallets. In discussions with the inspectors, the licensee indicated that they plan to continue sorting and disposing of this equipment over the remainder of 2008 and into 2009. NRC staff plans to review the licensee's progress in the "boneyard" during the next inspection.

Mine Units K, 15, and 15 A are the newest wellfields to go into operation. The licensee was in the process of installing piping in Mine Unit 9. The licensee had submitted a hydrogeological test report for Mine Unit 9 to WDEQ and was awaiting approval by the State of Wyoming before starting operations in this area.

The inspectors noted that the semiannual effluent monitoring report was updated to reflect the wellfield bleed taken at satellite SR-1 and the Smith Ranch CPP. This issue was identified as an inspection finding during a previous inspection. This change to the semiannual effluent monitoring report allowed the inspectors to verify that a wellfield bleed is being maintained and documented by the licensee.

The Federal Energy Regulatory Commission (FERC), along with NRC staff, participated in a Dam Safety Inspection of the facility on June 24, 2008. This inspection focused on the embankment at PSR 2. At FERC's request, the details of this inspection are not being made publicly available as it contains critical energy infrastructure information. As a follow up to the FERC inspection, the licensee had a professional engineer perform a third party evaluation of the embankment. Follow up activities related to the FERC inspection and the professional engineer's evaluation were completed by the licensee in August 2008.

The license specifies that the licensee will conduct routine inspections of PSR 2. The NRC inspectors reviewed the PSR 2 inspection logs for the period May through August 2008. The inspection logs reviewed indicated that the licensee had performed the required freeboard checks; however, the inspectors did note that there were inconsistent records related to visual embankment checks on the log sheets. At the exit briefing, the licensee agreed to update and improve the log sheet and to provide enhanced training to ensure that the individuals conducting the routine dam inspections were aware of the need to identify and document potential purge storage reservoir deficiencies.

- b. (Closed) Unresolved Item 040-08964/0801-01: Uranium recovery operations commenced in Mine Unit K and in the Southwest Area prior to NRC approval

During the March 2008 inspection, the NRC identified an Unresolved Item related to uranium recovery operations that may have commenced in Mine Unit K and in the Southwest Area prior to NRC review and approval, as required by LC 9.13. In a letter dated June 24, 2008, the licensee responded to the Unresolved Item. The licensee's letter contained the following information in response to the Unresolved Item: (i) a clarification of the timeline of activities in Mine Unit 9; (ii) the timing of Amendment 11 to source material license SUA-1548 (which included LC 9.13); and (iii) specific discussion of the applicability of LC 9.13 to Mine Unit K. The NRC staff reviewed the licensee's response to this Unresolved Item and found that it adequately addressed the staff's concerns.

- c. (Closed) Unresolved Item 040-08964/0801-02: Determine the exact content of the waste water streams to PSR 2

During the March 2008 inspection, the NRC identified an Unresolved Item related to verification by the licensee that the wastewater streams being sent to PSR 2 were consistent with the waste streams approved in the license. The licensee's June 24, 2008, response stated, in part, that they were using PSR 2 in a manner that is consistent with LC 10.1.8. The NRC staff reviewed the licensee's response to this Unresolved Item and found that it adequately addressed the staff's concerns.

- d. (Discussed) Unresolved Item 040-08964/0801-03: Demonstrate that PSR 2 is not leaking into neighboring areas

During the March 2008 inspection, the NRC identified an Unresolved Item related to PSR 2 and its potential for leakage into neighboring areas. The NRC inspectors noted that no leak detection systems existed in or around PSR 2, and no baseline water quality data was available for review during the inspection. To resolve this issue, the NRC requested the licensee provide additional information to demonstrate that PSR 2 was not leaking into adjacent areas. In a letter dated June 24, 2008, the licensee provided a response to this Unresolved Item. The staff reviewed the licensee's response and determined that the licensee's response did not contain sufficient documentation for the NRC staff to conclude that PSR 2 was not leaking into neighboring areas. Therefore, this Unresolved Item remains open.

2.3 Conclusions

Site operations were, in general, conducted in accordance with the performance-based license and regulatory requirements. One violation was identified related to the exceedance of the public dose limit for radiation exposures in unrestricted areas. A second violation was identified related to the failure to store byproduct material in a restricted area. A third violation was identified related to the licensee's failure to maintain control over or surveillance of licensed material that was located in a controlled area and not in storage. Two previous Unresolved Items were closed. The first involved uranium recovery operations that commenced in Mine Unit K and in the Southwest Area prior to NRC approval, and the second involved the determination of the exact content of the waste water streams to PSR 2. One previous Unresolved Item related to whether PSR 2 was leaking was left open pending further review by the NRC.

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine if the licensee's radiation protection program was conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records through the second quarter of 2008. Approximately 48 employees were monitored for external exposures with thermoluminescent dosimeters exchanged on a quarterly basis. Occupationally monitored employees included Smith Ranch CPP operators, satellite/restoration operators, radiation technicians, and maintenance employees. The highest deep dose equivalent exposure through the second quarter 2008 was 208 millirems.

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's air sampling records for radon-222 and uranium particulates performed since March 2008 and confirmed that the licensee had conducted sampling at the required intervals.

The licensee collected bioassay samples to assess the potential for intake of uranium. The inspectors reviewed the bioassay program to verify compliance with LCs 11.2 and 11.3. Since the March 2008 NRC inspection, three bioassay sample results exceeded

the action level of 15 micrograms per liter ($\mu\text{g/L}$), the action level specified in LC 11.2 for the implementation of corrective actions. All three sample results were less than 35 $\mu\text{g/L}$ of uranium, the action level specified in LC 11.3 where intakes must be reported to the NRC. Each occupationally exposed individual was assigned a dose, with the highest assigned dose being 1.2 millirems.

The licensee determines an occupationally exposed individual's internal exposure by using the combined totals from radon sampling, particulate sampling, personnel lapel monitoring, and bioassays for that individual. The highest total effective dose equivalent observed by the licensee (the sum of the internal and external doses) through the second quarter 2008 was 284 millirems. The inspectors verified that the current occupational doses were below the regulatory limit of 5,000 millirems.

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations to verify radiation area postings and to assess external radiation conditions. The licensee was currently conducting the gamma radiation surveys on a weekly frequency. The inspectors verified that the licensee had performed the required routine surveys during the first and second quarters of 2008. The inspectors also observed a radiation technician performing the weekly gamma survey in the CPP.

Alpha contamination surveys were conducted on a weekly frequency in clean areas of the site and in the process areas, even though Section 9.13 of the license application requires monthly process area surveys. Equipment, materials, and trash leaving the site were also routinely surveyed as required, and the licensee maintained records of the contamination surveys. A review of the survey records by the NRC inspectors indicated that nothing appeared to have left the site with contamination in excess of the licensee's prescribed release limits.

c. Training

The licensee conducts required training in accordance with LC 9.7 for contractors and new employees, and annual refresher training for current employees. As of the date of the inspection, 36 employees and contractors were provided training in radiation safety during 2008. The annual radiation safety refresher training was conducted in March 2008. The inspectors reviewed radiation safety training records of five current employees, five new employees hired since March 2008, as well as several U.S. Department of Transportation (DOT) training records. All training activities were conducted in accordance with the requirements of the license and NRC regulations. The NRC inspectors reviewed records associated with training activities conducted by the licensee and the records reviewed appeared to have been maintained in accordance with the NRC license and regulatory requirements.

d. Instrumentation

The NRC inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation instruments. The inspectors also examined the operability, calibration process, and records maintained by the licensee for a representative sample of breathing zone pumps. Further, the inspectors reviewed the quality control process

used by the licensee for counting air samples. Quality control procedures and instrumentation calibrations appeared to be appropriate.

- e. (Closed) Unresolved Item 040-08964/0801-04: Conversion factor used to determine the weekly soluble uranium intake in milligrams

During the March 2008 inspection, the NRC identified an Unresolved Item related to the conversion factor used for calculating the weekly soluble uranium intake in milligrams from the total derived air concentration hours. In a letter dated June 24, 2008, the licensee provided a response to this Unresolved Item. The licensee used the derived air concentration conversion as provided in 10 CFR Part 20, Appendix B. The NRC staff reviewed the licensee's response to this Unresolved Item and found that it adequately addressed the staff's concerns.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license, with the three exceptions described in Section 2 of this report. One previous Unresolved Item was closed involving the licensee's use of a conversion factor to determine the weekly soluble uranium intake in milligrams.

4 **Environmental Monitoring and Maintaining Effluents from Materials Facilities ALARA (88045)**

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.60. The inspectors reviewed the semiannual environmental monitoring report for the first half of 2008. The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, surface water, soil, and vegetation sampling.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station, and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in air. None of the sample results for the first and second quarters of 2008, exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B.

The licensee also sampled for radon-222 concentrations in air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the

first and second quarters of 2008. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations. For the first and second quarters of 2008, all sample results were comparable to background levels established by the licensee.

b. Groundwater and Environmental Water Sampling

The inspectors reviewed surface water, groundwater, and effluent monitoring data for the Highland and the Smith Ranch sites. The most recent reports included data from both surface water sites and groundwater monitoring wells, Irrigator 1 & 2 soil data, Irrigator 1 & 2 vegetation, Irrigator 1 & 2 water, satellites Sat-2 and Sat-3 radium filter press effluents, Irrigator 1 & 2 lysimeters, and PSR 2 groundwater monitoring data.

The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application. The monitoring consisted of quarterly sampling for natural uranium and radium-226 in groundwater wells and surface water sites used for livestock or for domestic water located within 1 kilometer of the operating wellfields. The latest semi-annual effluent monitoring report for January 1 through June 30, 2008, provided sample data for 12 out of 20 possible samples. (The 10 locations are sampled every quarter, which equates to 20 possible samples). For the remaining eight samples, the sample locations were dry and no samples were available for analysis. All reported values for natural uranium and radium-226 were within the respective effluent concentration limits. Only nine of the 20 groundwater wells were sampled for the same time period, as 12 windmills were not running. All of the wells reviewed by the inspectors were in compliance with radium-226 and uranium limits specified in the surface and groundwater monitoring program.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment.

The licensee had reported three spills since the last inspection. The dates of the spills were July 18, August 17, and September 17, 2008. The inspectors found that spill reporting, investigation, and corrective actions were being satisfactorily undertaken and in compliance with license conditions. No new pond leaks have been reported since the last inspection, although the PSR 2 monitoring wells currently exceed the groundwater protection standards for selenium (0.01 milligrams per liter) and natural uranium (30 picocuries per liter). As noted in Section 3.2 above, Unresolved Item 040-08964/0801-03 remains open pending licensee evaluation of the groundwater conditions near PSR 2. This evaluation by the licensee is necessary to demonstrate that the pond is not leaking into the adjacent areas.

The licensee indicated that two wells are currently on excursion status. The inspectors verified that the licensee, in response to these excursions, has increased monitoring and

implemented appropriate corrective actions at these two wells. Monitoring well DM-3 has been on excursion since January 29, 2002. Corrective actions taken by the licensee since that time had not been successful in removing the well from excursion status. Based on discussions with the licensee, this specific well is apparently under the influence of contaminated water originating from an old underground mine. The licensee continues to monitor the well on a weekly basis. Monitoring well CM-32 was placed on excursion status on July 3, 2007. Corrective actions taken by the licensee since that time have not been successful in bringing monitoring wells CM-32 off excursion status. The licensee's staff continues to monitor this second well on a weekly basis.

4.3 Conclusions

The licensee did not release effluents into the environment during the first and second quarters of 2008, in quantities exceeding regulatory limits. The reports related to groundwater and environmental monitoring programs were submitted to the NRC as required. No findings of significance were identified during the review of the environmental monitoring data.

5 **Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)**

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

The licensee's transportation records maintained since the March 2008 inspection were reviewed by the NRC inspectors. Trucks with tanker trailers were utilized by the licensee to transport resin to and from the satellite buildings. The inspectors reviewed selected resin tanker trailer shipping papers. For the shipping papers reviewed by the NRC inspectors, the licensee had provided all the pertinent information required by DOT regulations.

License Condition 9.6 allows the licensee to dispose of byproduct material at an offsite location. Equipment that is contaminated with 11e.(2) material, such as piping and pumps, is shipped offsite to a facility licensed to dispose of this material. Through September 2008, 21 shipments had been made by the licensee to a licensed disposal facility. The inspectors reviewed a select sample of the shipping records for the most recent disposal shipments and found them to be complete.

The licensee also ships licensed material off site. Through September 2008, approximately 34 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. The inspectors reviewed a select sample of shipping records and found them to be complete.

5.3 Conclusions

The licensee was conducting transportation and waste disposal operations in accordance with regulatory requirements.

6 Exit Meeting Summary

The inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 25, 2008. The final exit briefing was held telephonically with the licensee on November 4, 2008. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Cannon, General Manager
 J. McCarthy, Manager, Safety, Health & Environment, Radiation Safety Officer
 A. Crook, Assistant Radiation Safety Officer
 K. Wenzel, Assistant Manager, Safety, Health & Environment

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/0802-01	VIO	Exceeding the dose limit for members of the public near the byproduct storage bins
040-08964/0802-02	VIO	Failure to store byproduct storage bins in a restrictive area
040-08964/0802-03	VIO	Failure to control a restricted area

Closed

040-08964/0801-01	URI	Uranium recovery operations commenced in Mine Unit K and in the Southwest Area prior to NRC approval
040-08964/0801-02	URI	Determine the exact content of the waste water streams to PSR 2
040-08964/0801-04	URI	Conversion factor used to determine the weekly soluble uranium in milligrams

Discussed

040-08964/0801-03	URI	Demonstrate that PSR 2 is not leaking into neighboring areas
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LIST OF ACRONYMS USED

CPP	central processing plant
DOT	U.S. Department of Transportation
IP	inspection procedures
LC	license condition
µg/L	micrograms per liter
µR/hr	microRoentgens per hour
NOV	Notice of Violation
PRI	Power Resources, Inc.
PSR 2	purge storage reservoir number 2
SERP	Safety and Environmental Review Panel
URI	unresolved item
VIO	violation
WDEQ	Wyoming Department of Environmental Quality



January 16, 2009

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES
Smith Ranch-Highland
Operation

Mall:
P.O. Box 1210
Glenrock, WY
82637 USA

Tel: (307) 358-6541
Fax: (307) 358-4533
www.cameco.com

RE: Permit to Mine No. 633, Release of Solutions Report

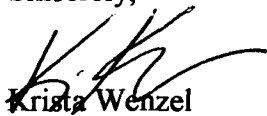
Dear Mr. Spackman:

As reported to Ms. Pam Rothwell of Wyoming Department of Environmental Quality, Land Quality Division (WDEQ/LQD), Mr. Doug Mandeville, Nuclear Regulatory Commission (NRC), and Joe Hunter WDEQ, Water Quality Division (WDEQ/WQD), by voice mail, January 9, 2009 Power Resources, Inc. d/b/a Cameco Resources (CR) had a release of production solutions at the Smith Ranch-Highland Uranium Project in Converse County, Wyoming. Voice contact with Pam Rothwell and Doug Mandeville was made on January 12, 2009. Approximately 2,169 gallons were released from Mine Unit 15, well 15P-122. Approximately 2,000 gallons was recovered and disposed of via deep disposal well. A solution sample was collected upon discovery of the release and analysis showed 11 ppm U_3O_8 . Soil samples have been collected for background, at the release point and at the end point of the spill. A gamma survey of the release area has been conducted using a MicroR meter and recorded on the spill map in $\mu R/hr$. Well 15P-122 is located SESW of Section 10, T.35N., R.74W, Converse County, Wyoming. A field map is included in this package.

The leak was detected at approximately 15:00 pm on January 9, 2009 by a Wellfield Operator. A 1 1/2" transition at well 15P-122 in Mine Unit 15 was discovered leaking from rusted threads. The solution did enter a drainage and proceeded to the edge of a roughly 30-foot diameter runoff pond. The solution pooled next to the pond and breached a small berm separating the pooled solutions and the pond. The solutions were recovered from the pooled area with a vacuum truck and the runoff pond backflowed into the pooled area and was also recovered. Soil samples were collected at representative areas at 0-6" for analysis with an accredited outside laboratory and a gamma survey will be performed across the spill area. The fluid is not considered hazardous material under RCRA and is not reportable under SARA.

CR's Spill Committee meets monthly and after each spill to discuss preventive measures to minimize the potential of releases from Smith Ranch-Highland Operations, and to assess and make recommendations to potentially mitigate re-occurrences. All transitions of this type will be visually inspected and replaced as needed. Please call me at (307) 358-6541 ext. 62 if you have questions.

Sincerely,



Krista Wenzel
Manager, Environment, Health and Safety

Attachment: Map

cc: Doug Mandeville – NRC Project Manager (2-copies) T. Cannon
M. Bryson File SR 4.3.3.1 File SR 4.6.4.4
S. Bakken D. Kolkman B. Johnson
S. Miller Joe Hunter – Water Quality Division

SEC. 04 _____
 DIV. 04 _____
 CRAFT NO. _____

**DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF WYOMING**

NOTICE OF VIOLATION

**IN THE MATTER OF THE NOTICE OF
VIOLATION ISSUED TO
CAMECO RESOURCES
SMITH RANCH-HIGHLAND OPERATION
P.O. BOX 1210
GLENROCK, WY 82637**

DOCKET NO. 4419-09

Re: Insitu Uranium Operation, Permit #603

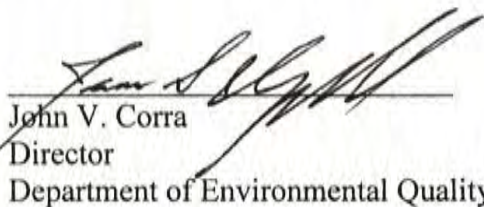
NOTICE

NOTICE IS HEREBY GIVEN THAT:

1. Notice of Violation is being sent to you pursuant to W.S. §35-11-701(c) which requires that a written notice shall be issued in the case of failure to correct or remedy an alleged violation specifying the provision of the act, rule, regulation, standard, permit, license, or variance alleged to be violated.
2. As a result of the Land Quality Division (LQD) investigation of the Highland Uranium Project (HUP) 2008 Third Quarter Monitoring Report on November 20, 2008, an excursion was discovered by LQD in sampling data reported on September 4, 2008. The report indicated well CM-14 had exceeded all upper control limit parameters during that sampling event.
3. According to the WEQA § 35-11-429 (a)(i), an operator is required to give verbal notice of an excursion as soon as practical after the excursion is confirmed. The Land Quality Division (LQD) Noncoal Rules and Regulations (R&R), Chapter 11, Section 12 (b) defines confirmation of an excursion as any detected excursion followed by a second or third repeat sample within 24 hours of the original detection which confirms the excursion. The R&R Chapter 11 Section 12 (c) requires the operator to verbally report any confirmed excursion within 24 hours of confirmation and submit a written report within five days of the confirmation, detailing the procedures for mitigating or controlling the excursion.
4. The HUP Mine Plan, Section 8.4 defines an excursion when any two of the three Upper Control Limit (UCL) parameters chloride, bicarbonate, and conductivity, are exceeded. It further states that a verification sample is taken within 24 hours of the determination that a sample has exceeded two of the three UCL values. The verification sample is split and analyzed in duplicate to assess analytical error.
5. CR failed to the conduct the confirmation sample for CM-14 within 24 hours of the original detection violating R&R Chapter 11, Section 12(b).
6. Wyoming Statute §35-11-901(a) provides that any person who violates any provision of the Environmental Quality Act or any rule, standard, permit, license or variance adopted hereunder is liable to a penalty of ten thousand dollars (\$10,000.00) for each day of violation, which penalty may be recovered in a civil action brought by the Attorney General in the name of the People of the State of Wyoming.

NOTHING IN THIS NOTICE shall be interpreted to in any way, limit or contravene any other remedy available under the Environmental Quality Act, nor shall this Order be interpreted as being a condition precedent to any other enforcement action.

SIGNED this 23rd day of January, 2009


John V. Corra

Director

Department of Environmental Quality


Donald R. McKenzie

Administrator

Land Quality Division

Please direct all inquiries regarding this Notice of Violation and Order to Mr. Lowell Spackman, Wyoming Department of Environmental Quality, Land Quality Division, Cheyenne Office, 122 West 25th Street, Cheyenne, WY 82002, Telephone No. (307) 777-7052.

Cc: Lowell Spackman, District I
File Docket # 4419-09
Doug Mandeville, NRC



February 13, 2009

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

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

RE: Permit to Mine No. 633, Release of Solutions Report

Dear Mr. Spackman:

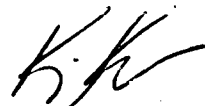
As reported to Ms. Pam Rothwell of Wyoming Department of Environmental Quality, Land Quality Division (WDEQ/LQD), Mr. Doug Mandeville, Nuclear Regulatory Commission (NRC), and Laura Asberry, WDEQ, Water Quality Division (WDEQ/WQD), on February 9, 2009, Power Resources, Inc. d/b/a Cameco Resources (CR) had a release of production solutions at the Smith Ranch-Highland Uranium Project in Converse County, Wyoming. Approximately 14,600 gallons were released from a valve station in Wellfield 2. Approximately 3,800 gallons was recovered and disposed of via deep disposal well. A solution sample was collected upon discovery of the release and analysis showed 7 ppm U₃O₈. Soil samples have been collected and a gamma survey of the release area has been conducted using a MicroR meter and recorded on the spill map in μ R/hr. The valve station is located in the SE SE of Section 26, T.36N., R.74W, Converse County, Wyoming. A field map is included in this package.

The leak was detected at approximately 8:30 am on February 9, 2009 by a Wellfield Operator. A 16" steel tee on the main pipeline between Satellite SR 1 and the Central Processing Plant was discovered leaking due to corrosion. The fluid is not considered hazardous material under RCRA and is not reportable under SARA.

CR's Spill Committee meets bi-monthly and as needed to discuss preventive measures to minimize the potential of releases from Smith Ranch-Highland Operations and to assess and make recommendations to potentially mitigate re-occurrences. The Spill Committee met to discuss this spill and corrective actions. CR already had a list of this type of valve station prioritized based on risk of a leak. The details from this spill will be used to refine that list and implement repairs as necessary.

Please call me at (307) 358-6541 ext. 462 if you have questions.

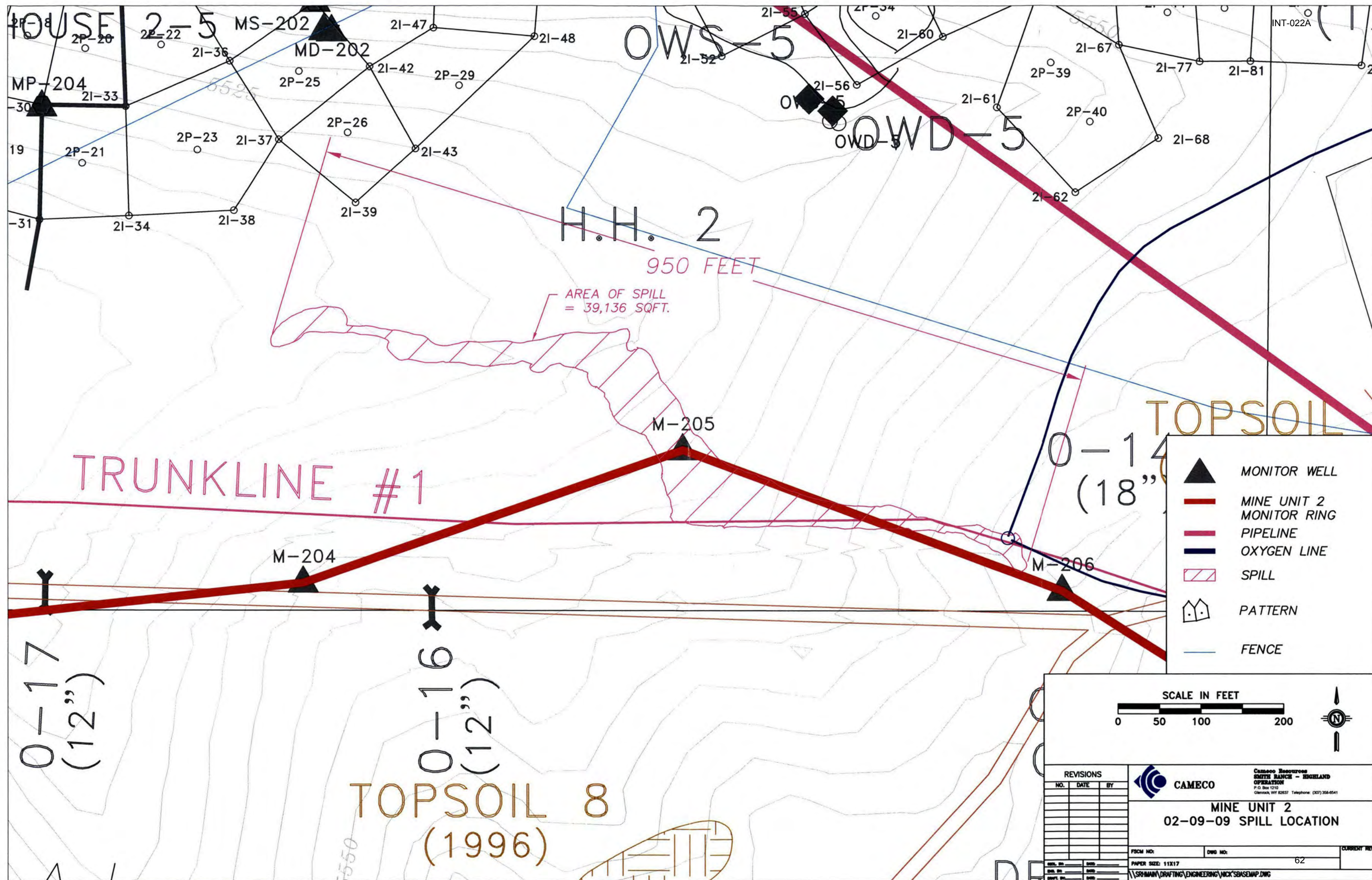
Sincerely,



Krista Wenzel
Manager, Environment, Health and Safety

Attachment: Map

cc: Doug Mandeville – NRC Project Manager (2-copies) T. Cannon
M. Bryson File SR 4.3.3.1 File SR 4.6.4.4
S. Bakken D. Kolkman B. Johnson
S. Miller B. Kluchewski Joe Hunter – Water Quality Division





February 18, 2009

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

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

RE: Highland Uranium Project, Permit to Mine No. 603, Excursion at Monitor Well IM-10

Dear Mr. Spackman:

In accordance with NRC License Condition No. 11.5 and Section 8.4 of the approved Operations Plan for the Highland Uranium Project, Power Resources, Inc. d/b/a/ Cameco Resources (CR) is providing written notification that Monitor Well IM-10 appeared to be on excursion status February 13, 2009. Two of the three parameters (chloride and alkalinity) exceeded the UCL, thus defining an excursion.

Monitor Well IM-10 is on a bi-monthly sampling schedule and the analytical results of February 12, 2009 for the routine sample taken on February 11, 2009 indicated an exceedance in two of the three approved UCLs.

Following discovery of the February 12, 2009 exceedance, CR collected a confirmation sample from the well and analyzed it with a quality assurance duplicate on February 13, 2009. Results of the laboratory analyses confirmed the well to be on excursion.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO₃)	Conductivity (µMhos/cm)
	UCL 17	UCL 211	UCL 928
2/13/09	23	225	779
2/11/09	21	226	757

Monitor Well IM-10 is located in Mine Unit-I and depicted on the attached map. Well IM-10 will also be added to CR's site status map and included in the annual report.

Injection wells in the vicinity of the excursion have been shut off and are depicted in blue on the attached map. This well configuration has been in place for the past two months. CR's hydrologist will examine the balance and flows to further optimize the available well resources. A groundwater flow model of the mine unit is being designed to show the direction of flow using

particle tracking. Additionally, the hydrologist will examine the sampling pumping rate and duration and apply this data to the model to assist in determining potential causes and corrective actions. The model can also be used to simulate optimal pumping and injection rates to prevent excursions.

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

Sincerely,



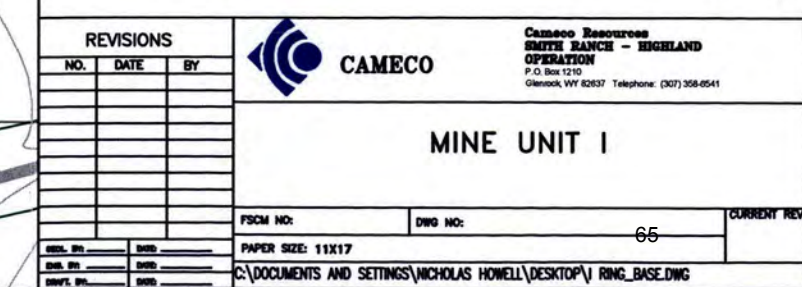
Krista Wenzel
Manager-Environment, Health and Safety

Atta: Map

cc: T. Cannon
T. Hewitt

S. Bakken
File HUP 4.6.4.1

D. Mandeville, USNRC (2 copies)





February 27, 2008

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 West 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES
Smith Ranch-Highland
Operation

Mall:
P.O. Box 1210
Glenrock, WY
82637 USA

Tel: (307) 358-6541
Fax: (307) 358-4533
www.cameco.com

RE: Permit to Mine 633, License SUA-1548, Docket 40-8964
Report of East Storage Pond Leak and Corrective Actions

Dear Mr. Spackman:

Power Resources, Inc. d/b/a Cameco Resources (CR) is herein reporting a leak in the East Storage Pond at the Smith Ranch Facility. Following confirmation results, the leak was reported to Ms. Pam Rothwell of the Land Quality Division, Wyoming Department of Environmental Quality and Mr. Doug Mandeville, USNRC Project Manager, on February 27, 2008.

The cause of the leak is unknown so corrective actions have not been identified. The pond has been lowered below the leak.

Initial and Confirming Sample Results

Sample E. Sump	U ₃ O ₈ (ppm)	Chloride (g/L)	Bicarb (g/L)	Sulfate (g/L)	Conductivity (mS/cm)
2/26/09	263	0.7	0.8	1.3	4.3

If you have questions or need additional information please call me at (307) 358-6541, ext. 462.

Sincerely,

Krista Wenzel
Manager, Environment, Health and Safety

cc: D. Mandeville, NRC Project Manager (2 copies) T. Cannon
M. D. Bryson S. Bakken File SR-4.3.3.4

**WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND QUALITY DIVISION**

SETTLEMENT AGREEMENT – DOCKET NO. 4419-09

The Wyoming Department of Environmental Quality, Land Quality Division (LQD) and Cameco Resources (CR) authorized to do business in Wyoming, enter into this Settlement Agreement to fully and finally resolve without litigation the violations alleged in **Notice of Violation (NOV) Docket No. 4419-09 dated January 23, 2009**. The NOV alleges that CR, 1) failed to conduct confirmation sampling for monitoring well CM-14 within the required 24 hours of detection period. The original sample collected on September 4, 2008 (as reported in the quarterly monitoring records) indicated the well had exceeded the upper control limits (UCLs) used for monitoring excursions.

Wyoming Statute (W.S.) §35-11-701(c) authorizes the WDEQ/LQD to attempt to eliminate the cause of the violations by conference and conciliation, in lieu of litigation. To that end, CR and the WDEQ/LQD hereby stipulate and agree as follows:

1. The WDEQ/LQD pursuant to W.S. §35-11-104 is a department in the executive branch of the state government of Wyoming and is principally situated in Cheyenne, Wyoming. DEQ is the agency with the responsibility for administering the Wyoming Environmental Quality Act including all provisions of the WDEQ/LQD Rules and Regulations (R&R).
2. CR is the permittee for Permit 603, an insitu uranium mine associated with the NOV. Monitor well CM-14 is included in wellfield C, which is located primarily in Township 36 North, Range 73 West, Section 14, Converse County. Wellfield C is in the restoration phase, with reverse osmosis occurring at the time of the potential excursion.
3. LQD R&R, Chapter 11, Section 12 (c) requires the operator to verbally report any confirmed excursion within 24 hours of confirmation and submit a written report within five days of the confirmation, detailing the procedures for mitigating or controlling the excursion. Chapter 11, Section 12 (b) defines confirmation of an excursion as any detected excursion followed by a second or third repeat sample within 24 hours of the original detection which confirms the excursion.
4. LQD staff noted a potential excursion in Wellfield C at monitoring well CM-14 during review of the 2008 third quarterly monitoring report submitted on October 23, 2008. Investigation into the potential excursion discovered repeat sampling had not occurred to determine whether the well was on excursion. This is a violation of R&R Chapter 11, Section 12(b).
5. The next bi-monthly routine sample collected on November 10, 2008 indicated two of the three UCL's had dropped to acceptable levels. CR repeated the sampling on November 24, with similar results.
6. To partially mitigate the unreported potential excursion CR agrees to the following corrective actions:

6-A A section addressing excursions will be added to the permit Reclamation Plan similar to the section on excursions in the Mine Plan. The section shall include discussion of sampling and reporting for confirmed excursions. The revision shall be submitted for LQD review by April 30, 2009.

6-B CR will provide monitoring data in "pdf" electronic format for more efficient reviews of the Quarterly Monitoring Reports beginning with the 2009 First Quarter data.

6-C CR will submit a detailed report of the procedures currently in effect and any new procedures proposed to be implemented to minimize the potential for recurrence of this incident by April 30, 2009.

6-D CR will update their Environment, Health and Safety, Standard Operating Procedure (SOP) with revised detection and reporting procedures for LQD review during any site inspection occurring after April 30, 2009.

7. Subject to the waiver hereafter set forth, CR agrees to pay Five Thousand Dollars (\$5000.00) as a stipulated settlement as partial resolution to this matter in lieu of litigation under W.S. §35-11-901(a)(ii). Payment in the amount Five Thousand Dollars (\$5000.00) shall accompany this Settlement Agreement with your signature. This signed agreement and payment are due no later than March 4, 2009. In the event that CR does not satisfy the terms of this Settlement Agreement, an additional Ten Thousand Dollars (\$10,000) will be due within thirty (30) days notice by the DEQ. The payment noted above is a reflection of CR's cooperation and the steps that have been taken to limit the potential for excursion detection and reporting errors. Payment to WDEQ/LQD shall be by check made payable to the Wyoming Department of Environmental Quality/Land Quality Division and shall be sent to: Donald R. McKenzie, Administrator, Wyoming Department of Environmental Quality, Land Quality Division, Herschler Building, 3 Floor-West, 122 West 25th Street, Cheyenne, Wyoming 82002.
8. This signed Settlement Agreement by CR as specified above shall constitute full satisfaction for and resolution of all claims by the WDEQ/LQD against CR based on the violations alleged in this Settlement Agreement. Contingent upon CR compliance with the terms of this Settlement Agreement, the WDEQ/LQD will refrain from taking further enforcement action against CR for these particular violations cited in this Settlement Agreement.
9. CR waive any statute of limitations which may apply to an enforcement action by the WDEQ/LQD involving the specific matters described herein, under item Nos. 3 and 4 above, in the event that CR fail to fulfill their obligations under this Settlement Agreement.
10. Nothing in this agreement precludes WDEQ/LQD from taking additional enforcement action, including the issuance of a NOV, and/or pursuing additional penalties, should CR violate the Wyoming Statutes or applicable R&R in the future.
11. This Settlement Agreement shall be admissible by either party without objection by the other party in any subsequent action between these parties.
12. Notwithstanding any other language in this Settlement Agreement, the State of Wyoming and WDEQ do not waive sovereign immunity by entering into this Settlement Agreement with CR and specifically retain all immunity and all defenses available as sovereigns under state and federal law.
13. This Settlement Agreement is binding upon CR successors and assigns, and upon the WDEQ/LQD.
14. The persons signing this Settlement Agreement certify that they are duly authorized to bind their respective parties to this Settlement Agreement.

FOR CAMECO RESOURCES:Signed: Stephen P. CollingsDate: 3/9/2009Typed: Stephen P. CollingsTitle: President**FOR THE WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY:**

John V. Corra
John V. Corra, Director
Wyoming Department of Environmental Quality

Date: 3/4/09

Donald R. McKenzie
Donald R. McKenzie, Administrator
Land Quality Division

Date: 03/02/09

JVC/DRM/pcr

cc: Becky Brosius, NOV Files (DN 603)
Lowell Spackman, LQD District 1 Supervisor



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

April 3, 2009

Mr. Lowell Spackman, District I Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 122 W. 25th Street
 Cheyenne, WY 82002

RE: Highland Uranium Project, Permit to Mine No. 603, Excursion at Monitor Well IM-14

Dear Mr. Spackman:

In accordance with NRC License Condition No. 11.5 and Section 8.4 of the Operations Plan for the Highland Uranium Project, Power Resources, Inc. d/b/a/ Cameco Resources (CR) is providing written notification that Monitor Well IM-14 monitoring results showed it to be on excursion status on March 30, 2009. Ms. Pam Rothwell from WDEQ/LQD and Mr. Doug Mandeville from the NRC were notified by telephone on March 30, 2009.

Monitor Well IM-14 is on a bi-monthly sampling schedule. Analytical results of March 30, 2009 for the routine sample taken on March 27, 2009 indicated an exceedance in two of the three Upper Control Limits (UCLs). CR collected a confirmation sample from the well and analyzed it with a quality assurance duplicate on March 30, 2009. Results of the laboratory analyses confirmed the well to be on excursion as shown below.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (µMhos/cm)
	UCL 17	UCL 211	UCL 928
3/30/08	18	226	742

Monitor Well IM-14 is located in Mine Unit I and depicted on the attached map. The excursion at Well IM-14 will be added to CR's site status map and included in the annual report.

The well will be sampled weekly to monitor UCLs. Injection wells in the vicinity of the excursion that have been shut off are depicted in blue on the attached map. Pumping rates in other nearby wells have also been reduced. CR is examining the balance and flows to optimize available well resources and is continuing to develop a groundwater flow model of the mine unit. Additionally, CR plans to examine the sampling pump rate and duration to assist in determining potential causes and corrective actions. The model can also be used to simulate optimal pumping and injection rates to prevent excursions.

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

Sincerely,



Krista Wenzel

Manager, Environment, Health and Safety

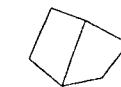
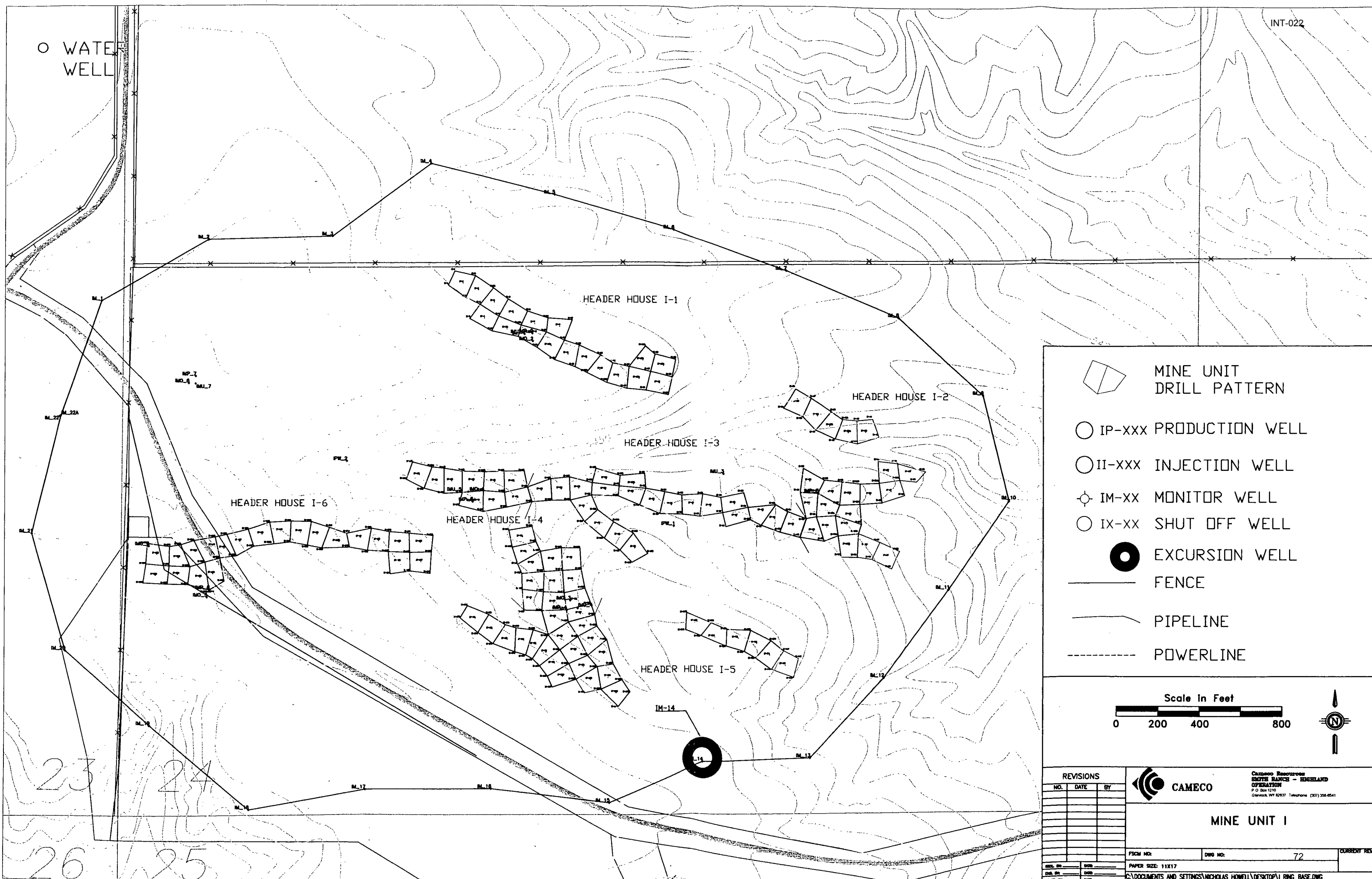
Attachment: Map

cc: T. Cannon
T. Hewitt

S. Bakken B. Johnson
D. Mandeville, USNRC (2 copies)

File HUP 4.6.4.1

○ WATER WELL



MINE UNIT
DRILL PATTERN

○ IP-xxx PRODUCTION WELL

○ II-xxx INJECTION WELL

⊕ IM-xx MONITOR WELL

○ IX-xx SHUT OFF WELL



EXCURSION WELL

— FENCE

— PIPELINE

- - - POWERLINE

Scale In Feet



REVISIONS

NO.	DATE	BY



CAMECO

Cameco Resources
SOUTH RANCH - HIGHLAND
OPERATION
P.O. Box 1210
Glenn, WY 82837 Telephone (307) 356-0541

MINE UNIT I

FSCM NO:

DWG NO:

72

CURRENT REV

PAPER SIZE: 11X17

C:\DOCUMENTS AND SETTINGS\NICHOLAS HOWELL\DESKTOP\RING_BASE.DWG



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

April 21, 2009

Mr. Lowell Spackman, District I Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 122 W. 25th Street
 Cheyenne, WY 82002

RE: Highland Uranium Project, Permit to Mine No. 603, Excursion at Monitor
 Well IM-8

Dear Mr. Spackman:

In accordance with NRC License Condition No. 11.5 and Section 8.4 of the Operations Plan for the Highland Uranium Project, Power Resources, Inc. d/b/a/ Cameco Resources (CR) is providing written notification that Monitor Well IM-8 monitoring results showed it to be on excursion status on April 16, 2009. Ms. Pam Rothwell from WDEQ/LQD and Mr. Doug Mandeville from the NRC were notified by telephone on April 16, 2009.

Monitor Well IM-8 is on a semi-monthly sampling schedule. Analytical results of April 15, 2009 for the routine sample taken on April 14, 2009 indicated an exceedance in two of the three Upper Control Limits (UCLs). CR collected a confirmation sample from the well on April 15, 2009 and analyzed it with a quality assurance duplicate on April 16, 2009. Results of the laboratory analyses confirmed the well to be on excursion as shown below.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (μMhos/cm)
	UCL 17	UCL 211	UCL 928
4/15/09	23	220	818
4/14/09	23	216	803

Monitor Well IM-8 is located in Mine Unit-I and depicted on the attached map. The excursion at Well IM-8 will be added to CR's site status map and included in the annual report.

The well will be sampled weekly to monitor UCLs. Injection wells in the vicinity of the excursion that have been shut off are depicted in blue on the attached map. Pumping rates in other nearby wells have also been reduced. CR is examining the balance and flows to optimize available well resources and is continuing to develop a groundwater flow model of the mine unit. Additionally, CR plans to examine the sampling pump rate and duration to assist in determining

potential causes and corrective actions. The model can also be used to simulate optimal pumping and injection rates to prevent excursions.

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

Sincerely,

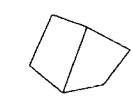
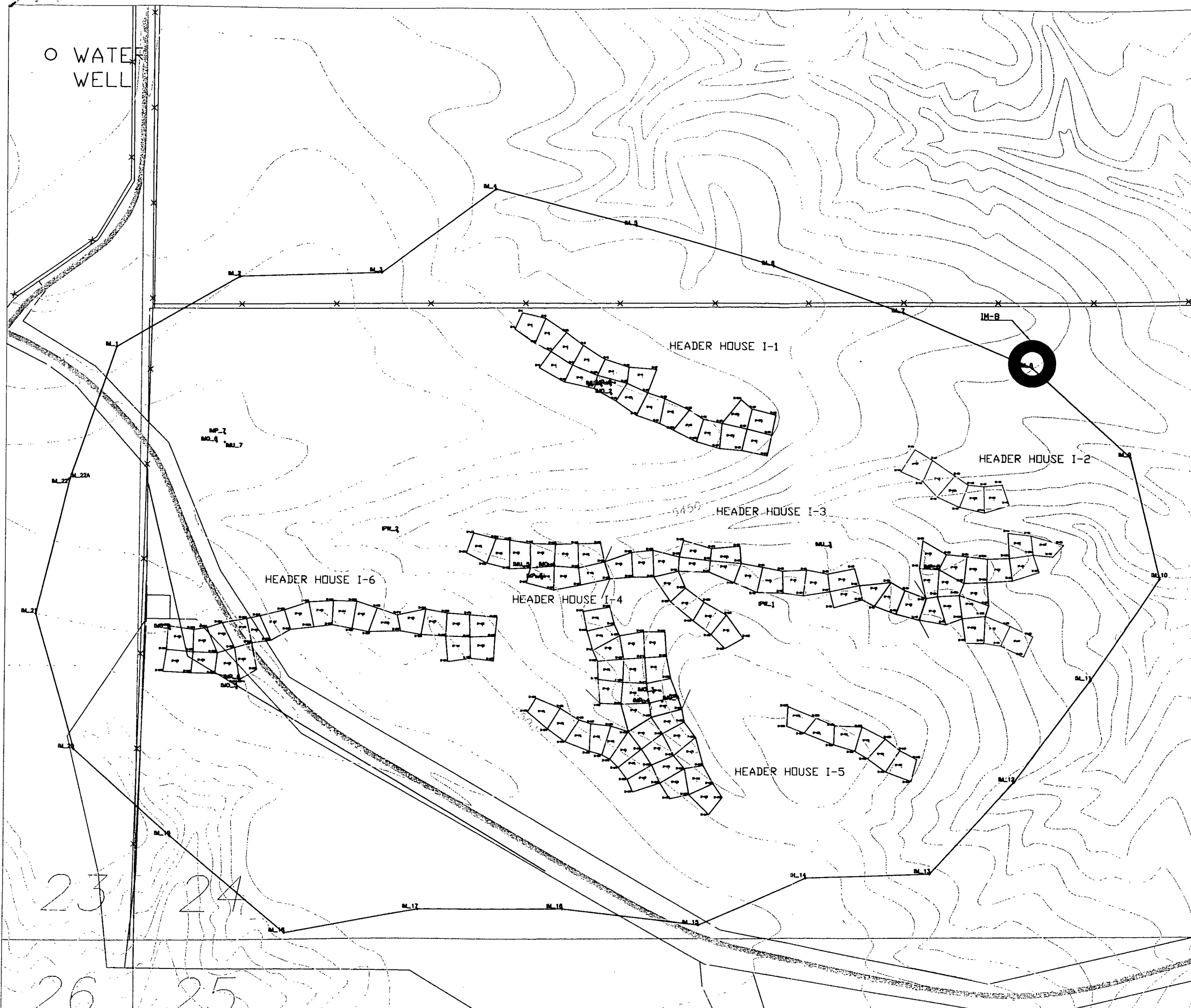


Krista Wenzel
Manager, Environment, Health and Safety

Attachment: Map

cc: T. Cannon S. Bakken D. Kolkman T. Hewitt
D. Mandeville, USNRC (2 copies) File HUP 4.6.4.1

○ WATER
WELL



MINE UNIT
DRILL PATTERN

○ IP-xxx PRODUCTION WELL

○ II-xxx INJECTION WELL

⊕ IM-xx MONITOR WELL

○ IX-xx SHUT OFF WELL

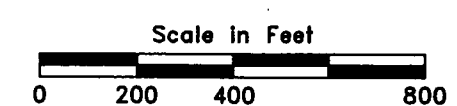


EXCURSION WELL


— FENCE

— PIPELINE

- - - POWERLINE



REVISIONS		
NO.	DATE	BY

**CAMECO**

Cameco Resources
SUTTE RANGE - HIGHLAND
OPERATION
P.O. Box 1210
Glenrock, WY 82637 Telephone (307) 358-0541

MINE UNIT I

PSOM NO: _____ DWS NO: _____ 75 CURRENT REV: _____

DRG. BY: _____ DATE: _____
CHK. BY: _____ DATE: _____
APP. BY: _____ DATE: _____

Y:\RING_BASE IM-8.DWG

23 24
26 25



CAMECO RESOURCES
 Smith Ranch-Highland
 Operation
 Mail:
 P.O. Box 1210
 Glenrock, WY
 82637 USA

April 28, 2009

Mr. Lowell Spackman, District I Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 122 W. 25th Street
 Cheyenne, WY 82002

Tel: (307) 358-6541
 Fax: (307) 358-4533
 www.cameco.com

RE: Permit to Mine 633, License SUA-1548, Docket 40-8964, East Storage Pond
 Leak and Corrective Actions

Dear Mr. Spackman:

Power Resources, Inc. d/b/a Cameco Resources (CR) is herein reporting a leak in the East Storage Pond at the Smith Ranch Facility. Following confirmation results, the leak was reported to Ms. Pam Rothwell of the Land Quality Division, Wyoming Department of Environmental Quality and Mr. Doug Mandeville, Nuclear Regulatory Commission Project Manager, on April 23, 2009.

The leak was discovered after the replacement of the stationary dock with a pre-fabricated floating platform. A hole in the liner was noticed after installation and confirmed with sump sampling. The pond fluid level was lowered below the observed hole and repairs are planned for this week.

Initial and Confirming Sample Results

Sample E. Sump	U ₃ O ₈ (ppm)	Chloride (g/L)	Bicarb (g/L)	Sulfate (g/L)	Conductivity (mS/cm)
4/22/09	510	1.07	1.18	2.35	5.01
4/22/09	468	0.95	1.10	2.38	5.14

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

Sincerely,

Krista Wenzel
 Manager, Environment, Health and Safety

cc: T. Cannon
 File HUP 4.3.3.1

S. Bakken
 D. Mandeville, USNRC (2 copies)

M. Bryson



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

May 18, 2009

Mr. Lowell Spackman, District 1 Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 Herschler Building
 122 West 25th Street
 Cheyenne, WY 82002

RE: Permit to Mine No. 603, Release of Solutions Report

Dear Mr. Spackman:

As reported to Ms. Pam Rothwell of Wyoming Department of Environmental Quality, Land Quality Division (WDEQ/LQD), Mr. Doug Mandeville, Nuclear Regulatory Commission (NRC), and Joe Hunter, WDEQ, Water Quality Division (WDEQ/WQD), on May 12, 2009, Power Resources, Inc. d/b/a Cameco Resources (CR) had a release of production solutions at the Smith Ranch-Highland Uranium Project in Converse County, Wyoming. Approximately 6500 gallons were released with 5600 gallons recovered from J-3 Headerhouse in Mine Unit J. A solution sample was collected upon discovery of the release and analysis showed 19.8 ppm U₃O₈. Soil samples were collected and a gamma survey of the release area was conducted using a MicroR meter. The samples have been sent to an outside laboratory for analysis. The release is located in the NE NW of Section 20, T.36N., R.73W, Converse County, Wyoming. A field map is attached.

The leak was detected at approximately 11:45 PM on May, 11, 2009 by a Wellfield Operator. Upon returning from a wellfield inspection the operator noticed an apparent change in flow from the headerhouse and investigated. The release was resulted from a failed gasket. Most of the released fluid was contained within the headerhouse basement and recovered (5600 gallons). An Apparent Cause Investigation will be completed and results maintained on file for review during future inspections. The fluid is not considered hazardous material under RCRA and is not reportable under SARA.

CR's Spill Committee meets bi-monthly and as needed to discuss preventive measures to minimize the potential of releases from Smith Ranch-Highland Uranium Operations and to assess and make recommendations to potentially mitigate re-occurrences. The Spill Committee will discuss this spill and proposed corrective actions.

Please call me at (307) 358-6541 ext. 462 if you have questions.

Sincerely,



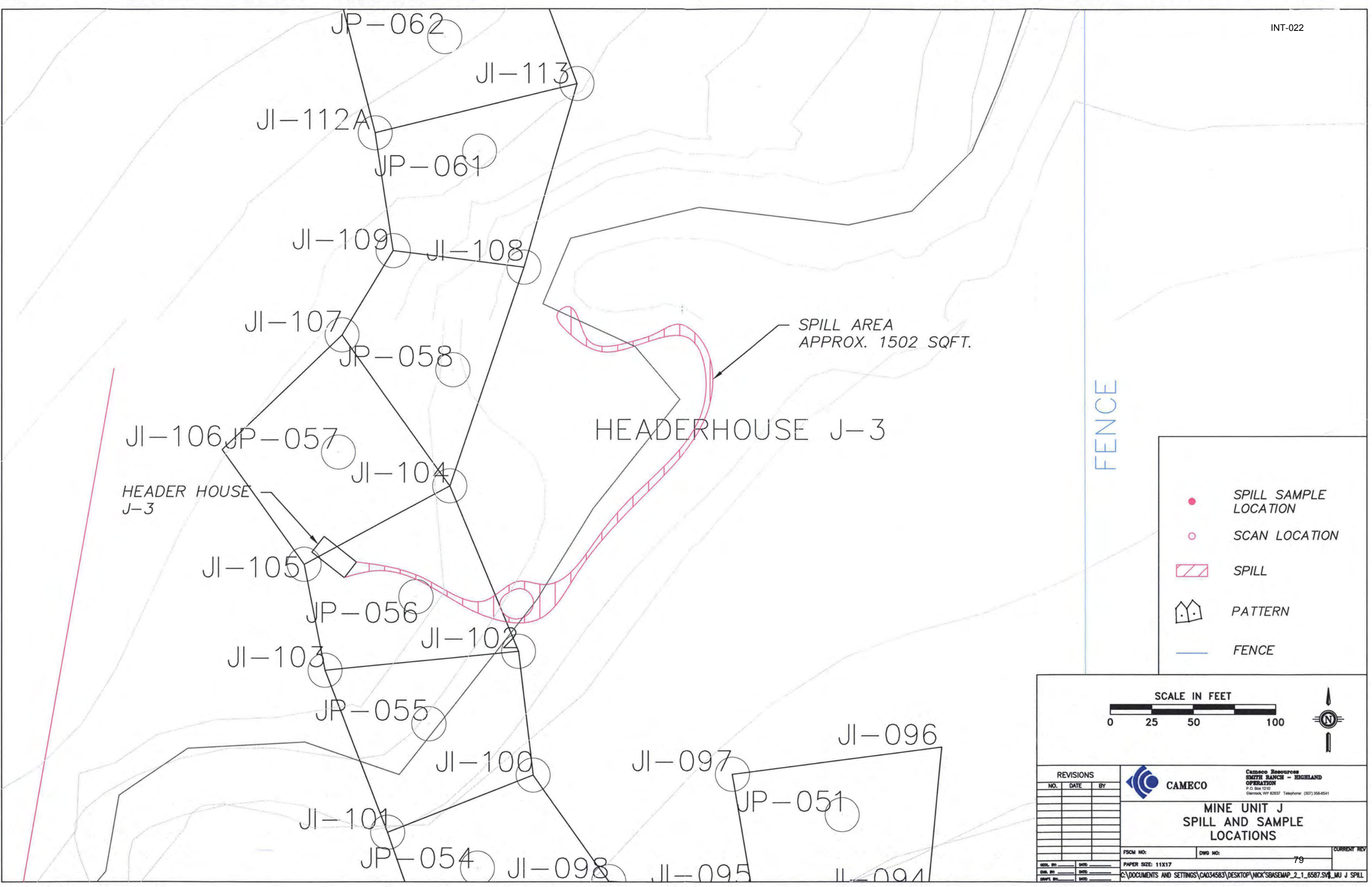
Krista Wenzel
Manager, Environment, Health and Safety

Attachment: Map

cc: T. Cannon M. Bryson S. Bakken D. Kolkman
S. Miller J. Jarrell B. Kluchewski File SR 4.3.3.1
File SR 4.6.4.4 Doug Mandeville – NRC Project Manager (2 copies)
Joe Hunter – Water Quality Division

[illegible][illegible][illegible][illegible]

- [illegible]

[illegible]



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

May 26, 2009

Mr. Lowell Spackman, District I Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 122 W. 25th Street
 Cheyenne, WY 82002

RE: Highland Uranium Project, Permit to Mine No. 603, Excursion at Monitor Well IM-8

Dear Mr. Spackman:

In accordance with NRC License Condition No. 11.5 and Section 8.4 of the Operations Plan for the Highland Uranium Project, Power Resources, Inc. d/b/a/ Cameco Resources (CR) is providing written notification that Monitor Well IM-8 monitoring results showed it to be on excursion status on May 21, 2009. Ms. Pam Rothwell from WDEQ/LQD and Mr. Doug Mandeville from the NRC were notified by telephone on May 22, 2009.

Analytical results of May 21, 2009 for the routine sample taken on May 20, 2009 indicated an exceedance in two of the three Upper Control Limits (UCLs). CR collected a confirmation sample from the well on May 21, 2009 and analyzed it with a quality assurance duplicate on May 22, 2009. Results of the laboratory analyses confirmed the well to be on excursion as shown below.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (μMhos/cm)
	UCL 17	UCL 211	UCL 928
5/21/09	25	231	833
5/20/09	26	224	807

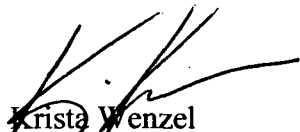
Monitor Well IM-8 is located in Mine Unit-I and depicted on the attached map. The excursion at Well IM-8 has been added to CR's site status map and included in the annual report.

The well will be sampled weekly to monitor UCLs. The operation of injection and production pumping rates has been optimized to balance flows in the well field. Wells in the vicinity of the excursion that have been shut off are depicted in blue on the attached map. CR continues to examine the balance and flows to further develop the groundwater flow model of the mine unit. Additionally, CR continues to examine the sampling pump rate and duration to assist in

determining potential causes and corrective actions. The model can also be used to simulate optimal pumping and injection rates to prevent excursions.

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

Sincerely,



Krista Wenzel
Manager, Environment, Health and Safety

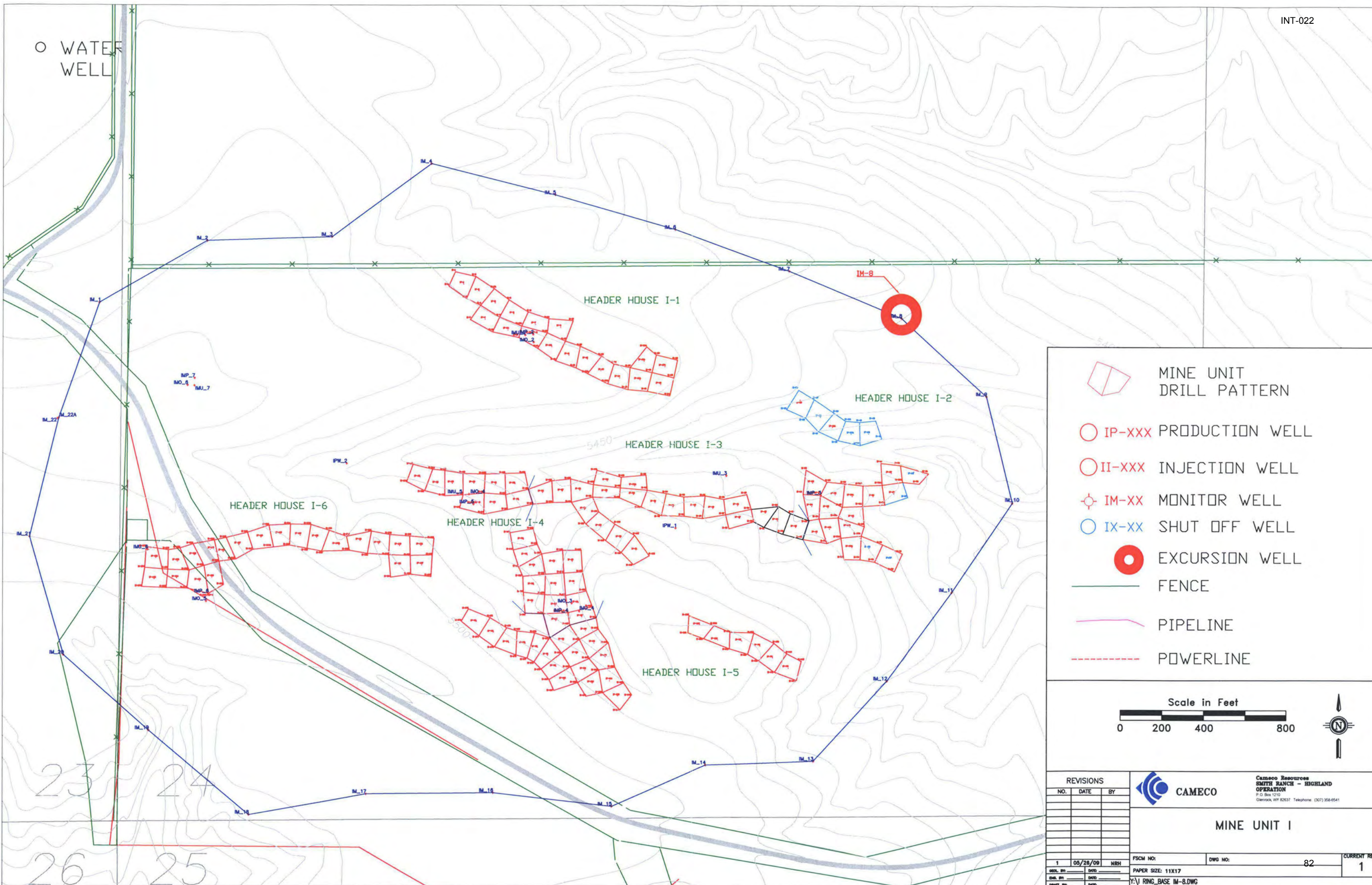
Attachment: Map


cc: T. Cannon
T. Hewitt

S. Bakken
D. Mandeville, USNRC (2 copies)

B. Johnson

File HUP 4.6.4.1



REVISIONS			 CAMECO	Cameco Resources SMITH RANCH - HIGHLAND OPERATION P.O. Box 1210 Glenrock, WY 82637 Telephone: (307) 358-6541
NO.	DATE	BY		
			MINE UNIT I	

FSCM NO:	DWG NO:	CURRENT REVISION
	82	1
PAPER SIZE: 11X17		
Y:\I RING_BASE IM-8.DWG		



UNITED STATES
NUCLEAR REGULATORY COMMISSION
 REGION IV
 612 EAST LAMAR BLVD, SUITE 400
 ARLINGTON, TEXAS 76011-4125

November 16, 2009

John McCarthy, Assistant Manager
 Safety, Health and Environment
 Power Resources, Inc.
 P.O. Box 1210
 Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/09-002

Dear Mr. McCarthy:

This refers to the announced, routine inspection conducted from September 15-17, 2009, at the Smith Ranch facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection. The final exit briefing was conducted with you by telephone on October 20, 2009.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred related to the failure to decommission mine units within 24 months and failure to request an alternate decommissioning schedule as required by 10 CFR 40.42. This violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited because it was identified by the NRC, rather than being identified by the licensee. Also, the violation is being cited to ensure that you provide to us the corrective actions necessary to prevent recurrence.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Based on the results of this inspection, the NRC has also determined that two additional Severity Level IV violations of NRC requirements occurred. These violations involve the failure of a plant operator to provide a monthly bioassay sample and the failure to collect a confirmatory sample for a potential excursion, both of which are required by your license. These non-repetitive, licensee-identified, and corrected violations are being treated as Non-

Power Resources, Inc.

- 2 -

Cited Violations (NCVs), consistent with Section VI.A.8 of the Enforcement Policy. The NCVs are further described in the subject inspection report. If you contest the violations or significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region IV, and the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey at (817) 860-8299, or the undersigned at (817) 860-8197.

Sincerely,

/RA R. J. Evans

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket: 040-08964
License: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08964/09-002
3. NRC Information Notice 96-28

cc w/enclosures 1&2:
Ms. Carol Bilbrough
Program Manager
Wyoming Department of Environmental Quality
Land Quality Division
122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Herschler Building - Third Floor West
122 West 25th
Cheyenne, Wyoming 82002

Wyoming Radiation Control Program Director

bcc w/enclosure via e-mail:

A. Howell, D:DNMS
 C. Cain, DD:DNMS
 J. Whitten, C:NMSB-B
 L. Gersey, NMSB-B
 R. Evans, NMSB-B
 T. Youngblood, FSME/DWMEP/DURLD
 D. Mandeville, FSME/DWMEP/DURLD
 J. Saxton, FSME/DWMEP/DURLD
 T. Lancaster, FSME/DWMEP/DURLD
 R. VonTill, FSME/DWMEP/DURLD
 Fee Coordinator, DRMA, RIV

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ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> SUNSI Rev Complete	Reviewer Initials:	LMG
Publicly Avail	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive Value:		
RIV:DNMS:NMSB-B	FSME:DWMEP	C:NMSB-B		
LMGersey	DTMandeville	JEWhitten		
/RA/	/RA Emailed	/RA RJ Evans for/		
11/13/2009	11/06/2009	11/16/2009		

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

NOTICE OF VIOLATION

Power Resources, Inc.
Converse County, Wyoming

Docket 040-08964
License SUA-1548

During an NRC inspection conducted on September 15 through September 17, 2009, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 40.42 (h)(1) requires, in part, that licensees shall complete decommissioning of outdoor areas as soon as practicable but no later than 24 months following the initiation of decommissioning.

10 CFR 40.42 (i) states, in part, that the Commission may approve a request for an alternate schedule for completion of decommissioning of outdoor areas, if the Commission determines that the alternative is warranted.

Contrary to the above, the licensee failed to complete decommissioning of Mine Units 1 and C within 24 months and failed to request an alternate decommissioning schedule. Specifically, the licensee began decommissioning of Mine Unit 1 during July 2006 and Mine Unit C during May 1999, both of which continue to be decommissioned, and the licensee had not requested an alternate decommissioning schedule until August 13, 2009.

This is a Severity Level IV violation (NRC Enforcement Policy Supplement VI, Enforcement Manual Section 8.5).

Pursuant to the provisions of 10 CFR 2.201, Power Resources, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> to the extent possible, it should not include any personal privacy, proprietary or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your

ENCLOSURE 1

response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 16th day of November 2009

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08964

License: SUA-1548

Report: 040-08964/09-002

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: September 15-17, 2009

Lead Inspector: Linda M. Gersey, Health Physicist
Nuclear Materials Safety Branch B

Accompanied by: Douglas T. Mandeville, PE, Geotechnical Engineer
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Thomas Youngblood, CHP, Health Physicist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

John L. Saxton, Hydrogeologist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Thomas R. Lancaster, Hydrogeologist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Pete Hernandez, General Scientist, NSDPD
Division of Nuclear Materials Safety, RIV

Approved by: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/09-002

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation and radioactive waste management, and emergency preparedness. Additionally, the inspection closed one Unresolved Item related to the potential for a purge storage reservoir to leak into the neighboring groundwater.

Management Organization and Controls

- The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress (Section 1.2.a).
- The Safety and Environmental Review Panel evaluations that were conducted by the licensee appeared to have been completed in accordance with license requirements (Section 1.2.b).

In-Situ Leach Facilities

- The licensee appeared to have conducted site operations at the licensee's in-situ recovery facilities in accordance with the performance-based license and regulatory requirements, with one exception (Section 2).
- One violation of 10 CFR 40.42 was identified related to the failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule (Section 2).
- One Unresolved Item was closed related to Purge Storage Reservoir 2 and its potential to leak into neighboring groundwater (Section 2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3).
- One Non-Cited Violation was identified related to the failure of a worker to provide a routine monthly bioassay sample (Section 3.2.a).

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee did not release effluents into the environment during the first and second quarters of 2009 in quantities exceeding regulatory limits (Section 4).
- The groundwater and environmental monitoring program reports were submitted to the NRC as required by the license (Section 4).

- The licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence (Section 4.2.c).
- One Non-Cited Violation was identified related to failure to resample a monitoring well within 24 hours after two upper control limits were exceeded, as required by the license (Section 4.2.c).

Inspection of Transportation Activities and Radioactive Waste Management

- The licensee conducted transportation and waste disposal operations in accordance with license and regulatory requirements (Section 5).

Emergency Preparedness/ Emergency Procedures/Fire Protection

- The licensee maintained an emergency preparedness program that was adequate for current operations (Section 6).
- The licensee updated the emergency reporting procedure to include the correct annual limit on intake for natural uranium (Section 6).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was mining uranium through the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1 and SR-2) were in service and supporting 10 operating wellfields. Two wellfields are in active restoration and the licensee is preparing three additional wellfields for restoration in calendar year (CY) 2010. The licensee indicated that before the end of CY 2009 they anticipate adding additional wells and header houses in Mine Unit 9. Uranium processing and drying operations were in progress at the Smith Ranch central processing plant (CPP). Uranium recovery operations are on standby at Satellite No. 1 and the Highland CPP.

The licensee was also conducting limited work at its other licensed satellite facilities. In order to initiate operations at the Reynolds Ranch satellite, the licensee was in the process of obtaining approval for its plan of operations from the Bureau of Land Management. The licensee has installed the monitor well ring in Mine Unit 27 at Reynolds Ranch. Construction activities at Reynolds Ranch are planned for the spring of 2010 (with remaining regulatory approval). The licensee's Gas Hills, Ruth, and North Butte satellites remain in standby.

1 **Management Organization and Controls (88005)**

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organization structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. The inspectors determined that the licensee's current organizational structure was in agreement with the structure specified in Figure 9-1. At the time of the inspection, the licensee had 141 employees on staff, which is an increase of 21 staff members since the previous inspection in March 2009. New staff included a third environmental coordinator and a new dryer operator. The licensee hired a new manager of safety, health and environment who was scheduled to start the week following this inspection, and the former manager is now the manager of radiation safety and licensing. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

b. Safety and Environmental Review Panel

License Condition (LC) 9.4 of the performance-based license requires, in part, that the licensee establish a Safety and Environmental Review Panel (SERP) to evaluate if any program changes require a NRC license amendment prior to the licensee's implementation. At the time of the inspection, the licensee had performed three SERP evaluations in 2009. The first SERP evaluation, dated January 7, 2009, addressed bioremediation activities in Mine Unit C, which was reviewed by the inspectors during the

March 2009 inspection and was found to be adequate. The second SERP evaluation, dated March 3, 2009, addressed the startup of the Mine Unit K extension. The third SERP evaluation, dated April 16, 2009, was related to refresher training for the radiation safety officer. The findings for the evaluations were submitted to the NRC as required by LC 9.4(e), and the licensee concluded that the changes did not require a NRC license amendment. The inspectors reviewed the March 3 and April 16, 2009, SERPs and concurred with both SERP conclusions.

During the March 2009 inspection, the staff identified one minor violation of LC 9.4(e) pertaining to the licensee's failure to submit a SERP dated July 14, 2006 to the NRC. This SERP provided a summary of the safety and environmental evaluation of start up for Mine Unit K. The inspectors reviewed the July 14, 2006 SERP during the on site inspection and concurred with the conclusions presented in the SERP documentation.

1.3 Conclusions

The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress. The SERP evaluations that were conducted by the licensee appeared to have been completed in accordance with license requirements.

2 **In-Situ Leach Facilities (89001)**

2.1 Inspection Scope

Determine if in-situ recovery activities were being conducted by the licensee in accordance with the NRC's regulatory requirements and the license. Evaluate the four new monitoring wells near the Purge Storage Reservoir 2 (PSR2). Ensure compliance with decommissioning of wellfields as required by 10 CFR 40.42.

2.2 Observation and Findings

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured by the NRC inspectors included the Smith Ranch CPP, Satellites SR-2, Sat-2, and Sat-3, the Reynolds Ranch future processing area and associated deep disposal well location, Deep Disposal Well DDW-1 for Smith Ranch, the Highland Uranium project area (which is in standby), various wellfields, the new selenium plant, PSR2, irrigator 2, header houses in Mine Units C, D, E and 9, the east and west Storage ponds, and an area used for storage of old equipment (referred to as the "boneyard") and the nearest residence environmental station. During the site tours, the inspectors observed the condition of tanks, valves, yellowcake thickener, fences, radiation postings, and gates.

At the time of this inspection, 10 mine units were actively in operation. The Wyoming Department of Environmental Quality (WDEQ) and the NRC had approved restoration activities at Mine Unit A. The WDEQ approved restoration activities at Mine Unit B in early 2008. The licensee submitted its groundwater restoration completion report for Mine Unit B to the NRC in June 2009, which at the time of the inspection, is under review by the staff. Restoration activities are being performed at Mine Units C and 1, with Mine Units D, D-extension, E, F, and 4/4A being prepared for restoration.

During the inspection, the inspectors reviewed the licensee's compliance with the decommissioning requirements specified in 10 CFR 40.42, as it relates to wellfields. One violation of NRC requirements was identified related to failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule for wellfields that required greater than 24 months to decommission. Specifically, the licensee began decommissioning Mine Unit C during May 1999 and Mine Unit 1 during July 2006. Both Mine Units C and 1 continued to be decommissioned as of August 13, 2009, when the licensee formally requested an alternate decommissioning schedule. This is a violation (VIO 040-08964/0902-01) of 10 CFR 40.42 (h)(1) and 10 CFR 40.42 (i).

The inspectors conducted independent radiological surveys using NRC-issued portable survey meters. The surveys were conducted using a Ludlum Model 19 microRoentgen meter and a Ludlum Model 2401-P meter (NRC No. 015544 with a calibration due date of 04/04/10, calibrated to radium-222 and NRC No. 232484 with a calibration due date of 10/30/09, calibrated to cesium-137, respectively). The ambient gamma exposure rates observed by the inspectors varied from the background exposure rate of 15 microRoentgen per hour ($\mu\text{R/hr}$) up to greater than 5000 $\mu\text{R/hr}$ observed in the processing areas of the CPP and near some structures inside the satellite buildings. The dose rates observed by the NRC inspectors were consistent with licensee's measurements, and all areas with exposure rates in excess of 5 millirems per hour (5000 $\mu\text{R/hr}$) were posted as radiation areas as required by regulations.

The inspectors visited the boneyard area near the Smith Ranch CPP. The inspectors noted that the licensee had made significant improvement in the visual appearance of the boneyard since the March 2009 NRC inspection. Specifically, the licensee has been surveying equipment in the boneyard and any items found to be contaminated with byproduct materials is disposed of at an off-site 11e.(2) disposal facility. The volume of equipment in the boneyard has been reduced and the licensee has reseeded approximately 1 acre of the southern boneyard area. The licensee indicated to the inspectors that at a minimum these boneyard reduction efforts will continue through the remainder of 2009 and into 2010. The NRC staff will review the licensee's progress in reducing the boneyard inventory during the next inspection.

The inspectors visited the PSR2 impoundment to verify the condition of the embankment along the southern and eastern side of the reservoir. The repairs made by the licensee in 2008 continue to appear to be effective. The inspectors observed that the water levels in PSR2 were near the bottom of the intake structure for the irrigation system.

In response to Unresolved Item 040-08964/0801-03, identified by the NRC during the March 2008 inspection, in letter dated June 22, 2009, the licensee committed to installing four monitoring wells near PSR2 to determine if PSR2 was leaking into the surrounding groundwater. The inspectors were able to verify the presence and location of the four monitoring wells and review the installation records for these wells. The licensee stated that that groundwater sampling from the wells has been performed although the results were not available during the inspection. The Unresolved Item has been closed, and the inspectors plan to review the groundwater sampling results during the next inspection.

2.3 Conclusions

The licensee appeared to have conducted site operations at the licensee's in-situ recovery facilities in accordance with the performance-based license and regulatory requirements, with one exception. One violation of 10 CFR 40.42 was identified related to the failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule. One unresolved item was closed related to the PSR2 and its potential to leak into neighboring groundwater.

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine if the licensee's radiation protection program was conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records through the second quarter of CY 2009. Approximately 64 employees were monitored for external exposures with thermoluminescent dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included Smith Ranch CPP operators, satellite/restoration operators, radiation technicians, and maintenance employees. The highest deep dose equivalent through the second quarter of 2009 was 264 millirem.

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's air sampling records for radon-222 and uranium particulates that were performed from March 2009 through September 2009. Through a review of air sampling records, the inspectors confirmed that the licensee had conducted sampling at the required intervals.

The licensee collected bioassay samples to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with LCs 11.2 and 11.3. Since the March 2009 NRC inspection, no bioassay sample results exceeded the action level of 15 micrograms per liter, which is the action level specified in Chapter 9 of the licensee's approved license application, for the implementation of corrective actions.

During the inspection, the licensee discussed with the inspectors a self-identified violation. In July 2009, a new CPP operator failed to provide a routine monthly bioassay sample. This is a violation (NCV 040-08964/0902-02) of LC 9.7, which states, in part, that the licensee will follow the guidance in NRC Regulatory Guide 8.22, "Bioassay at Uranium Recovery Facilities", and of Section 9.9 of the NRC approved license application. Regulatory Guide 8.22 and Section 9.9 both require monthly urinalysis for employees working in yellowcake areas. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A.8 of the NRC Enforcement Policy. The licensee's corrective actions include changing their procedure to require workers to submit routine bioassays within the first two weeks of every month. If a worker does not submit a bioassay within the first two weeks of a month, an e-mail notice from the radiation safety staff is sent to

the employee's supervisor as a reminder. This procedure ensures that the employee, the employee's supervisor, and the radiation safety staff are aware if an individual had not provided a bioassay sample within the month. The inspectors concluded that the revised procedure was adequate.

The licensee determines an occupationally exposed individual's internal exposure by using the combined totals from radon sampling, particulate sampling, personnel lapel monitoring, and bioassays for that individual. The highest total effective dose equivalent determined by the licensee (the sum of the internal and external doses) through the second quarter of 2009 was 333 millirems, which was assigned to a CPP operator. The annual regulatory limit for occupationally exposed individuals is 5,000 millirems.

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations throughout the satellite buildings and CPP areas to verify radiation area postings and to assess external radiation conditions. At the time of the inspection, the inspectors determined that the licensee was conducting the gamma radiation surveys on a weekly frequency. The inspectors verified that the licensee had performed the required routine quarterly gamma radiation surveys during the second and third quarters of 2009.

Alpha contamination surveys were conducted by the license on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application requires monthly process area surveys. Equipment, materials, and trash prior to leaving the licensee's site were also routinely surveyed as required, and the licensee maintained the corresponding records for these contamination surveys. A review of the contamination survey records by the inspectors indicated that nothing appeared to have left the site with contamination in excess of the licensee's prescribed release limits.

c. Training

The licensee conducts required training in accordance with LC 9.7 and Section 9.6 of the license application for its contractors and new employees, and provides annual refresher training for current employees. From March 2009 through September 2009, 25 new employees and contractors were provided training in radiation safety. The annual radiation safety refresher training occurred during June 2009. The inspectors reviewed radiation safety training records for four current employees, four new employees hired since March 2009, as well as several U.S. Department of Transportation (DOT) training records. All training activities and records were in accordance with the requirements of the license, NRC, and DOT regulations.

d. Instrumentation

The inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation survey instruments. On an annual basis, the licensee sends all portable survey instruments to an outside vendor for calibration. The inspectors reviewed instrument calibration certificates for several portable survey instruments and found the calibration certificates to be adequate, and the instruments currently calibrated. The inspectors observed survey meters being used by the licensee's

employees when exiting restricted areas. The survey instruments examined by the inspectors were found to be in calibration and were being used appropriately by the licensee's staff.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. One NCV was identified related the failure of a worker to provide a routine monthly bioassay sample.

4 **Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA (87102 and 88045)**

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment. Ensure the licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence.

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.65. The inspectors reviewed the licensee's Semiannual Effluent and Environmental Monitoring Report for January 1 through June 30, 2009, dated August 26, 2009, (referred to in this report as "semiannual report"). The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, and surface water. As part of the licensee's wastewater land application permit from the WDEQ, monitoring of soil and vegetation, irrigation fluid and radium treatment system samples, soil water samples at the irrigation areas, and monitor wells at Purge Storage Reservoir 1 and PSR2 are sampled.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station, and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in air. None of the sample results for the first quarter of 2009 exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B. The results from the second quarter 2009 were not available at the time of the inspection.

The licensee also sampled for radon-222 concentrations in air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the first and second quarters 2009. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations using thermoluminescent dosimeters. For the first and second quarters of 2009, all sample results were comparable to background levels.

b. Groundwater and Environmental Water Sampling

The inspectors reviewed surface water, groundwater, and effluent monitoring data for the Highland and the Smith Ranch sites contained in the semiannual report and the quarterly monitoring wells report. Irrigator 1 did not operate during the monitoring period; therefore, irrigator 1 fluid was not analyzed. Additionally, Irrigator 1 and 2 lysimeter samples were not analyzed due to insufficient water for sampling.

The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application. The monitoring consisted of quarterly sampling for natural uranium and radium-226 in groundwater wells and surface water sites used for livestock or for domestic water located within 1 kilometer of the operating wellfields. The sampling consists of 10 surface water (stock) ponds, 7 windmills (groundwater) and 11 wells (groundwater). The semiannual report provided sample data for 16 out of 20 possible surface water samples (10 locations sampled two quarters; 4 samples were not collected because the surface water was dry). For the groundwater locations, the semiannual report provided sample data for 13 out of 36 possible groundwater samples (23 samples were not collected because the windmill or well was not operating at the time of sample collection). All reported values for natural uranium and radium-226 were within the respective effluent concentration limits.

The semiannual report also included data from the Irrigator 2 water data for the months of May and June 2009, the Satellites Sat-2 and Sat-3 radium filter press effluents, and PSR2 shallow groundwater monitoring data. The soil and vegetation sampling results at the irrigators were not available at the time of the inspection.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment.

The licensee reported five spills that had taken place since the last inspection. The spills occurred on April 2, May 12, May 26, June 10, and August 26, 2009. All five of these spills were located in the wellfields. The total volume of fluids released (i.e., not including any fluids recovered) ranged from 190 gallons to 6,500 gallons. Uranium concentrations of the spilled fluids ranged from 0.7 to 19.8 milligrams per liter.

During the March 2009 inspection, the inspectors discussed the January 10, 2009, spill that occurred at Satellite 2 with the licensee. Due to operator error, the spill occurred during a transfer of uranium-laded resins from an ion exchange vessel to a transport tanker truck. The spill released approximately 1,800 gallons of production fluid outside the Satellite 2 building. The licensee reported this spill to the NRC project manager, as required by LC 12.1, although the follow up report dated January 19, 2009, did not

address the licensee's corrective actions and the results achieved, as required by the license. The licensee had not completed their investigation by the conclusion of the March 2009 onsite inspection. The licensee had agreed to provide a supplemental report to the January 2009 letter when their investigation was complete. NRC received a supplemental report on June 22, 2009, which addressed the corrective actions which followed the investigation. The licensee determined that the underlying cause of the spill was inadequate mechanical aptitude and inadequate training for the individual involved in the incident. To prevent recurrence of this type of event, the licensee has committed to utilize an improved pre-employment screening for all satellite and plant operator positions and develop a standard operating procedure for emergency shutdown of inflow and outflow from satellites and CPP. The inspectors determined that the corrective actions were adequate.

The licensee reported four new excursions since March 2009. All four of the reported excursions occurred in Mine Unit I. Well IM-8 has been on and off excursion status several times since the last inspection. The licensee has retained a consulting hydrogeologist to investigate potential corrective actions in Mine Unit I.

License Condition 10.1.6 requires, in part, that the licensee maintain 4 feet of freeboard for the purge storage reservoirs. Purge Storage Reservoir 1 was not in service since the previous inspection. Purge Storage Reservoir 2 was in use since the March 2009 NRC inspection, and the inspectors reviewed the on-site log reports for the PSR2 weekly inspections. The inspectors concluded that the minimum 4-foot freeboard was maintained since the previous inspection.

License Condition 10.1.6 requires, in part, that the licensee maintain 3 feet of freeboard for the storage ponds. Two storage ponds (East and West ponds) were utilized by the licensee since the previous inspection. The inspectors reviewed the on-site logs for the daily inspections of the ponds. Based on the licensee's records, the minimum 3-foot freeboard was maintained for both ponds since the previous inspection.

The inspectors reviewed the daily visual inspection log records for the storage ponds, as required by LC 11.4. The NRC was notified on all occasions when the column exceeded the 6-inch minimum requirement and the sampling results indicated that the liquid in the leak detection system was from water in the pond (versus condensation). The inspectors noted that the licensee had revised the storage pond inspection procedures to record sampling results, when sampling is performed.

License condition 10.1.3 requires, in part, that a well integrity test (mechanical integrity test (MIT)) be performed prior to an injection or recovery well being brought into service. The inspectors observed an MIT being performed on well 15I-686. The inspectors noted that the MIT test was performed in accordance with the facility's Standard Operating Procedure 6614, and the well passed the MIT. All wells are required to have MITs performed every 5 years. Based on a review of the quarterly reports, the inspectors concluded that the licensee was performing the MIT tests in accordance with license.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. The licensee has approximately 1,300 groundwater monitoring wells that are sampled during a typical month using six field sampling personnel. The inspectors reviewed the groundwater sampling records and

concluded that groundwater monitoring was being conducted as required by the license, with one exception discussed below.

During the inspection, the licensee discussed with the inspectors a self-identified violation. On July 7, 2009, two constituents at monitoring well FM-8 exceeded the upper control levels (UCLs) for alkalinity and conductivity. The UCL for alkalinity is 180 milligrams per liter, but the monitoring well FM-8 sample result was found to be 182 milligrams per liter. The UCL for conductivity is 972 micromhos per centimeter, but the monitoring well FM-8 sample result was found to be 1065 micromhos per centimeter. The licensee did not resample monitoring well FM-8 until July 20, 2009. This is a violation (NCV 040-08964/0902-03) of LC 11.5, which states, in part, that if two UCLs are exceeded in a well, the licensee shall take a confirmation water sample within 24 hours and analyze it for the excursion indicators. However, this non-repetitive, licensee-identified and corrected violation is being treated as an NCV, consistent with Section VI.A.8 of the NRC Enforcement Policy. The licensee's corrective actions include updating their monitoring well sampling procedure to have two separate individuals review the sampling results for any exceedances of parameters. The inspectors found the corrective action to be adequate.

4.3 Conclusions

The licensee did not release effluents into the environment during the first and second quarters of 2009 in quantities exceeding regulatory limits. The groundwater and environmental monitoring program reports were submitted to the NRC as required by the license. The licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence. One NCV was identified related to failure to resample a monitoring well within 24 hours after two upper control limits were exceeded, as required by the license.

5 **Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)**

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

The licensee's transportation records maintained since the March 2009 inspection were reviewed by the inspectors. Trucks with tanker trailers are routinely utilized by the licensee to transport resin to and from the satellite buildings and the CPP. The inspectors reviewed selected resin tanker trailer shipping papers and found them to include the pertinent information required by DOT regulations.

License Condition 9.6 requires, in part, that the licensee possess a waste disposal agreement to dispose of 11e(2) byproduct material at an offsite location. The inspectors verified that the waste disposal agreement was current. Between March and September 2009, a total of 8 waste disposal shipments were made to a licensed waste disposal site. Material sent for disposal consisted of 11e(2) contaminated equipment such as filters,

pipes, and pumps. The inspectors reviewed a selected sample of the shipping records for the most recent disposal shipments and found them to be complete.

The licensee also ships licensed material off site. Between March and September 2009, a total of 28 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with the DOT and NRC regulations. During the inspection, the inspectors observed a loaded trailer of 55-gallon drums containing yellowcake that was being prepared for shipment. The drums were properly secured in the trailer and the appropriate wipe surveys had been performed.

5.3 Conclusions

The licensee was conducting transportation and waste disposal operations in accordance with license and regulatory requirements.

6 **Emergency Preparedness/ Emergency Procedures/Fire Protection (88050/88064/88055)**

6.1 Inspection Scope

Ensure that the licensee's emergency preparedness program was being maintained in a state of readiness. Verify the licensee had updated the emergency reporting procedure to include the correct annual limit on intake for natural uranium (ALI).

6.2 Observations and Findings

Volume VIII of the licensee's Operations Manual details the health physics and safety requirements for emergency preparedness. The inspectors reviewed the licensee's procedures for radiological emergencies and emergency reporting. The inspectors conducted interviews with several CPP operators and determined that they were aware of their responsibilities and the licensee's expectations based on the specific type of emergency or spill that could be encountered. Fire extinguishers and first aid kits were found to be in good order in the CPP and other facilities visited by the NRC inspectors during the course of the inspection.

During the March 2009 inspection, it was noted by the inspectors that the licensee's emergency reporting procedure included an incorrect ALI for natural uranium (10 CFR 20, Appendix B). The licensee had stated that they would update the procedure to include the correct ALI for natural uranium. The inspectors verified that the procedure had been updated and included the correct ALI.

6.3 Conclusions

The licensee has an emergency preparedness program in place that was adequate for current operations. The licensee updated the emergency reporting procedure to include the correct ALI for natural uranium.

7 Exit Meeting Summary

The NRC inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 17, 2009. The final exit briefing was conducted via telephone on October 20, 2009. During the inspection, the licensee did not identify any information reviewed by the NRC inspectors as proprietary that was included in the report.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Cannon, General Manager
 K. Wenzel, Manager, Radiation Safety and Licensing
 J. McCarthy, Assistant Manager, Safety, Health & Environment, Radiation Safety Officer
 A. Faunce, Assistant Radiation Safety Officer

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management
IP 88050	Emergency Preparedness
IP 88064	Emergency Response Procedures
IP 88055	Fire Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/0902-01	VIO	Failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule
040-08964/0902-02	NCV	Failure of a worker to provide a routine monthly bioassay sample
040-08964/0902-03	NCV	Failure to take a confirmatory sample within 24 hours when a monitoring well exceeded two upper control limits

Closed

040-08964/0801-03	URI	Demonstrate that PSR2 is not leaking into neighboring areas
040-08964/0902-02	NCV	Failure of a worker to provide a routine monthly bioassay sample
040-08964/0902-03	NCV	Failure to take a confirmatory sample within 24 hours when a monitoring well exceeded two upper control limits

Discussed

None

LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
CPP	central processing plant
CFR	Code of Federal Regulations
CY	calendar year
DOT	U.S. Department of Transportation
IP	NRC Inspection Procedures
LC	license condition
μR/hr	microRoentgens per hour
MIT	mechanical integrity test
NCV	Non-Cited Violation
NOV	Notice of Violation
PSR2	Purge Storage Reservoir Number 2
SERP	Safety and Environmental Review Panel
UCL	upper control limit
URI	Unresolved Item
VIO	Violation
WDEQ	Wyoming Department of Environmental Quality

**DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF WYOMING**

NOTICE OF VIOLATION

**IN THE MATTER OF THE NOTICE OF
VIOLATION ISSUED TO
POWER RESOURCES, INC.**

DOCKET NO. 4598-09

P.O. BOX 1219

GLENROCK, WY 82637

Re: Highland Uranium Project, Insitu Uranium Operation, Permit No. 603

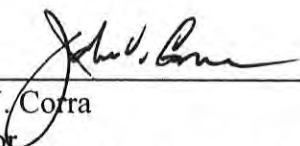
NOTICE

NOTICE IS HEREBY GIVEN THAT:

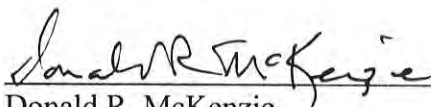
1. Notice of Violation (NOV) is being sent to you pursuant to Wyoming Statute (W.S.) §35-11-701(c)(i) which requires that a written notice shall be issued in the case of failure to correct or remedy an alleged violation.
2. On July 30, 2009 the Land Quality Division (LQD) received a letter from Cameco Resources (CR) describing an unreported monitor well excursion in Monitor Well FM-8, which occurred on July 7, 2009.
 - A. The LQD Noncoal Rules and Regulations (R&R), In Situ Mining, Chapter 11, Section 9(a)(iv) requires proper operation and maintenance of all facilities where treatment and control has occurred. W.S. § 35-11-429(a)(i), requires an operator to give verbal notice of an excursion as soon as practical after the excursion is confirmed. The LQD Noncoal R&R, Chapter 11, Section 12(b) defines confirmation of an excursion as any detected excursion followed by a second or third repeat sample within 24 hours of the original detection which confirms the excursion. Furthermore, the Noncoal R&R Chapter 11, Section 12(c) requires the operator to verbally report any confirmed excursion within 24 hours of confirmation and submit a written report within five days of the confirmation, detailing the procedures for mitigating or controlling the excursion.
 - B. The Highland Uranium Project Mine Plan for Permit 603, Section 8.4 defines an excursion when any two of the three Upper Control Limit (UCL) parameters, chloride, bicarbonate, and conductivity are exceeded. It further states that a verification sample is taken within 24 hours of the determination that a sample has exceeded two of the three UCL values. The verification sample is to be split and analyzed in duplicate to assess analytical error.
3. CR failed to conduct the confirmation sampling for Monitoring Well FM-8 within 24 hours of the original detection, therefore violating the LQD Noncoal R&R Chapter 11, Section 12(b).
4. During the LQD inspection of September 28, 2009, the LQD determined that the topsoil and subsoil had not been removed from the area to be affected during the installation of a pipeline junction or bell hole in Wellfield D, adjacent to Header House D-5.
5. CR failed to protect the topsoil and subsoil from the underlying waste material during the installation of a pipeline conjunction or bell hole in Wellfield D, therefore violating the LQD Noncoal R&R, Chapter 3, Section 2(c)(i)(A) and (ii)(A).
6. W.S. §35-11-901(a) provides that any person who violates and provision of the Environmental Quality Act or any rule, standard, permit, license or variance adopted hereunder is liable to a penalty of ten thousand dollars (\$10,000) for each day of violation, which penalty may be recovered in a civil action brought by the Attorney General in the name of the People of the State of Wyoming.

NOTHING IN THIS NOTICE shall be interpreted in any way, limit or contravene any other remedy available under the Environmental Quality Act, nor shall this notice be interpreted as being a condition precedent to any other enforcement action.

SIGNED this 8 day of Dec, 2009



John V. Corra
Director
Department of Environmental Quality



Donald R. McKenzie
Administrator
Land Quality Division

Please direct all inquiries regarding this Notice of Violation and Order to Ms. Pam Rothwell, Wyoming Department of Environmental Quality, Land Quality Division, Cheyenne Office, 122 West 25th Street, Cheyenne, WY 82002. Telephone No. (307) 777-7048.

cc: Lowell Spackman, District I
Pam Rothwell, District I
Doug Mandeville, NRC



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

July 12, 2010

Mr. Lowell Spackman, District 1 Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 Herschler Building
 122 West 25th Street
 Cheyenne, WY 82002

RE: Permit to Mine No. 633, Release of Solutions Report

Dear Mr. Spackman:

In accordance with WDEQ regulation and NRC License SUA 1548, Power Resources, Inc. d/b/a Cameco Resources (CR) did verbally notify Ms. Pam Rothwell of Wyoming Department of Environmental Quality, Land Quality Division (WDEQ/LQD), Mr. Doug Mandeville, Nuclear Regulatory Commission (NRC), and online documentation to Joe Hunter, WDEQ, Water Quality Division (WDEQ/WQD), that on July 8, 2010 Smith Ranch-Highland Uranium Project in Converse County, Wyoming had a release of restoration recovery fluid. Approximately 1,190 gallons were released from a main pipeline located in Mine Unit 1. A 16-inch main pipeline separated along a fused joint releasing fluid into a culvert and into a drainage north of the main facility road. The well is located in the NE NW of Section 36, T.36N, R.74W, Converse County, Wyoming. A field map is attached. The release will also be updated into the site base map for inclusion in the Annual Report as required by the Settlement Agreement for Notice of Violation Docket No. 4122-07.

A solution sample was collected and resulting analysis indicated 2.4 ppm U₃O₈. The fluid is not considered hazardous material under RCRA and is not reportable under SARA. A gamma survey of the release area will be conducted using a MicroR meter and soil samples (0-6 inches) will be collected for analysis.

CR's Spill Committee will also meet to address this release and make recommendations to mitigate re-occurrence.

Please contact me at (307) 358-6541 ext. 474 if you have questions.

Sincerely,



Angelo Kallas
Safety, Health, Environment, and Quality (SHEQ) Manager

AK/dk

Attachment: Map

cc: J. Brister T. Cannon
Mr. Doug Mandeville – NRC Project Manager (2-copies)
Mr. Joe Hunter – Water Quality Division
File SR 4.3.3.1 File SR 4.6.4.4 File SR 4.6.4.1



Matthew H. Mead, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

INT-022



John Corra, Director

June 20, 2011

Ms. Dawn Kolkman
Cameco Resources, Inc.
PO Box 1210
Glenrock, WY 82637

Subject: April 2011 Inspection Report, Cameco Resources, Permits 603 & 633

Dear Ms Kolkman:

The LQD sent the referenced Inspection Report to you on April 13, 2011. Unfortunately, the report included many typographical and editorial errors. Please replace the previous version of the report with the enclosed corrected report. Please accept my apology for the quality of the previous report. Our goal is to strive for high quality documents but occasionally a poor quality document is sent out. Again, please accept my apology if this has caused an inconvenience to Cameco Resources.

If you have any questions, please do not hesitate to contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,

Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosure

cc: Cameco Resources, Cheyenne, WY w/att
Douglas Mandeville, NRC w/att
Tom Foertsch, BLM-CFO w/att



**APRIL 2011 INSPECTION REPORT
DISTRICT 1/LAND QUALITY DIVISION**

COMPANY: Cameco Resources (CR), Highland Ranch, Permit #603
& Smith Ranch, Permit #633

LOCATION: North of Glenrock, off Ross Road

DATE OF INSPECTION: April 20 & April 21, 2011

DATE OF REPORT : April 22, 2011

REPORT WRITTEN BY: Julie Powell, LQD Project Engineer
Pam Rothwell, Permit Coordinator

INSPECTORS: Pam Rothwell, LQD Permit Coordinator
Julie Powell, LQD Project Engineer

CONDITIONS: Sunny to partly cloudy, 45°, high winds (35-55 mph)

CO. REPRESENTATIVES: Dawn Kolkman, SHEQ Manager
Joe Brister, SHEQ Director
Josh Leftwich, Director of Radiation Safety & Licensing
Dave Moody, Wellfield Superintendent
Tom Cannon, General Manager
Tom Young, Vice President, Operations
Jim Clay, Geochemist
Perry Herschberger, Drilling Supervisor
Craig Hiser, Wellfield Development Supervisor
Cory Griffiths, Satellite #2 Operator

OTHER AGENCY REPS: Tom Foertsch, Bureau of Land Management

INTRODUCTION

The focus of this inspection was to investigate a percentage of abandoned drill holes reported by Cameco Resources in the 2009-2010 Annual Report for Permits #603 & 633. Following the March 2011 inspection, LQD proposed to inspect approximately five percent of abandoned drill holes during the next four or five inspections of 2011. A list of thirty abandoned drill holes randomly selected from the 2009-2010 Annual Report was provided to CR prior to the inspection. LQD requested that the concrete caps remain undisturbed until the LQD investigation. The process of the investigation was to remove the surface soil cover, observe the concrete capping of the hole, and confirm that the hole is plugged two feet below the ground surface (§ 35-11-404 (c)(iii)). Additionally, LQD requested that the plug and abandonment

reports be available during this inspection for all holes reported in Table 10-1 of the Annual Reports for 2009-2010.

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LQD informed CR representatives of the items to be completed during this inspection. This included inspecting drill holes, obtaining more information regarding the well on excursion, Guideline 8 results for the well on excursion, visiting Satellite #2 to verify the mitigation efforts for the well on excursion, obtaining water/selenium test results and general site inspection.

Mr. Cannon explained to the LQD that in January 2011 CR conducted an internal investigation of their drill hole abandonment process and have developed modifications to that process. CR also had an evaluation of their abandonment process completed by third party mud engineers. Based on the evaluation, CR made modifications to include a waiting period of two weeks for the hole to settle before topping it off with plugging material. He stated further that the initial procedure of plugging drill holes resulted in some fall-back up to 100 feet. CR believes their modifications will correct this problem. LQD informed CR that the viscosity of their plugging material should be around 65. CR inquired where this is required in the regulations. The Noncoal Rules and Regulations, Chapter 8 were referenced. Further discussion concluded that the viscosity is not a prescriptive requirement, however, a comparable requirement is prescribed with the ten minute gel strength of at least 20 lbs/100 sq. ft as required in Chapter 8.

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- **MU-7** – Inspected holes #732, 793, 780, 704, 762, 2575 & 2521 (results are tabulated in **Table I**). Procedure for drill-hole inspection was to remove the soil cover with a backhoe or hand dig with a shovel, remove concrete cap, measure down to the plug with a 300' tape measure/probe, and replace concrete cap (**Figures 1-3**). None of the holes were in compliance with the two feet from surface requirement. Of the 20 holes inspected, 13 had the concrete plugs located and removed; 7 were not located. Of the 13 holes measured for depth to plug gel, all exceeded the required depth of two feet below surface. The depth varied from approximately 50 feet to 200 feet below surface. According to CR, they used a "plug gel"

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- MU-3 – Inspected holes #2568, 2475, 2480 & 2559 using same process as above.
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this time using a flow meter for the specified wells (**Figure 4**). Using a Halliburton DR-3 Rate Meter, flows were verified and results are tabulated in **Table 2**.

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Dave Moody, Joe Brister, Dawn Kolkman, Josh Leftwich, Jim Clay, Pam Rothwell and Julie Powell were in attendance. Tasks for the day were outlined to include inspection of more wells, obtain the selenium test results, and Guideline 8 results.

Jim Clay, Cameco Geochemist, addressed the selenium issue. CR took a grab sample of water from the pond and sent to Energy Labs for selenium testing. A copy of the test result was provided to LQD. Jim discussed the difference between total vs. dissolved selenium and that the settlement agreement makes no distinction as to whether the allowable concentration is total or dissolved. Jim believes that the pond is the point of compliance and that CR has addressed the selenium issue stating that the water in the pond is clean. Additional documents and graphs were distributed to LQD by CR. However, LQD decided that further technical discussion was not needed at this time. Pam stated that LQD only requested lab data. Josh asked where LQD made the request for selenium data. Pam indicated this was formally requested in a previous inspection report. Jim asked if it is acceptable for CR to do selenium tests internally. Pam had no objection to CR continuing to evaluate the selenium levels internally. Pam's concerns are that CR has made a determination for the point of compliance without discussion with LQD. A reference to the Settlement Agreement is not necessarily conclusive that the selenium concerns are all satisfied. At this time LQD is only asking for the sampling reports for water discharging from the Selenium plant to the pond.

Pam requested to see the plug and abandonment reports showing the mud weight for all of the wells inspected during this visit. CR indicated they would provide this sometime next week.

Pam requested to view the drilling activity on the west end of the operations; appeared to be exploration drilling. CR indicated that the Casper Exploration Office is doing this work. Additionally, Pam requested to look at disturbance areas in MU-10.

Inspection:

MU-10: During the investigation of the first P&A drill site, LQD observed topsoil salvage and protection at a nearby drill site. The topsoil pile was located on a hillslope and there was no erosion control to protect the downslope side of the pile (**Figure 5a & 5b**). Soil was eroding from the stockpile onto a road leading to the drill site. In addition, sediment control was not installed around the disturbance area allowing sediment from the disturbance to wash onto native areas (**Figure 6**).

Several drill holes could not be located for the P&A inspection. CR requested that they be able to locate the wells ahead of time; they ordered a metal detector. LQD agreed that CR could

locate and mark the sites however they should not excavate the soil cover without LQD being present.

Topsoil piles in and around active drilling operations were inspected in proposed Mine Unit 10. The topsoil piles were absent of any erosion control protection (ditches/berms, wattles, seeding) (**Figure 7**). The topsoil piles were located approximately 20 feet from the drill sites on all the wells observed in the development area (approximately 10-15 sites). It was apparent that the piles were not being combined into a larger pile serving the area of disturbance as was discussed with CR to mitigate previous topsoil compliance concerns. The drilling supervisor indicated that the topsoil piles were not completed yet and they will be adding to them or combining piles. He stated that the piles will be complete sometime next week and erosion control will be added. The stockpiles were not only unprotected but also had vehicle disturbance due to the wellfield activity (**Figure 8**).

It was noted that very little sediment control was installed throughout the entire mine unit disturbance (**Figures 9a & 9b**). Silt fence was noted in two shallow drainages in poor repair, filled with sediment (**Figures 10a & 10b**). As a result of the poor effort in controlling erosion, sediment was washing onto native, unstripped areas throughout the wellfield development area.

LQD requested to view the west side of the operations (west of MU-9) where disturbed areas were observed the previous day while completing drill-hole inspections. Upon inspection of these areas, it was found that drilling activities were not using sediment control, topsoil protection measures, controlling drilling fluid from entering drainages or ensuring stable slopes following the drilling activity (**Figures 11a, 11b, 11c, and 11d**).

In the same area of the drill holes inspected in Figures 10 and 11 above, an open drill hole was discovered. With the drilling activity in the general proximity (approximately 50-75 feet from those drill sites). This hole was easily found, yet no effort was made to cap or plug the hole (**Figure 12**).

Header House 9-13 was inspected with production and injection in progress. The inspection sheet was updated and current. A random leak detection at a well was inspected near the header house and also appeared to be in working order.

The temporary reclamation in Mine Unit 9 near header house 9-11 was thoroughly inspected. Erosion control measures are in place including silt fence and straw wattles. The drill seeding that occurred in fall 2010 was crimp mulched with straw. There was very early indication of seed germination. A large stack of straw blankets was staged in the middle of the reclaimed wellfield and CR reports these will be installed this summer (**Figure 13**).

The natural drainage near header house 9-6 was inspected. This area was temporarily reclaimed two years ago and slope stabilization is in place as well as erosion control. Silt fencing is full of sediment and is over-topping. CR reports this will be cleaned out. A random leak detection unit (P102) was inspected and appears to be in working order.

Drainage work around SR-2 was inspected. Rip-rap, terracing, straw wattles and vegetation is in place. Sediment is accumulating near the top of the slope near the road which appears to be coming from the road. The lower slopes appear stable with little additional accumulation of sediment (Figure 14).

RESULTS

TABLE 1 – Plug & Abandonment Investigation Summary

Mine Unit	Hole Delineation Number	Completion Date	Surface Cap	Depth to Plug
MU-3	3674-26-2475	11/12/09	OK	137'
MU-3	3674-26-2480	12/17/09	OK	104'
MU-3	3674-26-2559	1/19/10	OK	87'
MU-3	3674-26-2568	1/22/10	OK	126'
MU-4 (on-permit)	3574-2-534	9/1/09	OK	63'
MU-4 (on-permit)	3574-3-084	10/22/09	OK	46'
MU-7	3674-26-2521	1/11/10	OK	99'
MU-7	3674-26-2575	3/10/10	OK	98'
MU-7	3674-27-704	1/15/10	OK	185-200'
MU-7	3674-27-732	3/16/10	Not found	
MU-7	3674-27-762	2/24/10	Not found	
MU-7	3674-27-780	2/19/10	OK	167'
MU-7	3674-27-793	3/3/10	OK	145'
MU-10	3574-16-380	10/22/09	Not found	
MU-10	3574-16-404	10/16/09	Not found	
MU-10	3574-17-1004	11/6/09	OK	196'
MU-10	3574-17-1019	11/10/09	Not found	
MU-10	3574-17-1043	11/14/09	Not found	
MU-10	3574-18-1002	11/10/09	OK	94'
MU-10	3574-19-207	12/17/09	Not found	

TABLE 2 - MU-C Well Flows

Header House	Well	Flow
C-24	CP-175	16.1 gpm
C-22	CP-169	17.4 gpm

COMPLIANCE ASSESSMENT

- 1 The abandoned drill holes inspected for the depth to the seal (drilling mud) were found to be at significant depths below surface varying from 46 to 198 feet below surface. CR states that the drill mud, although initially filled to the top of the hole, settles back to the static water level. During the investigation, groundwater was only encountered in two holes and it was questionable whether or not the water was associated with an aquifer or with the drill mud.

If this is the case, the depth to the shallow aquifer is erratic. Within **Mine Unit 3** four drill holes were explored and found to have drill mud at depths ranging from 87 to 137 feet; a **50 foot change in depth across several hundred feet horizontal distance**. Within **Mine Unit 7** the depth to drill mud ranged from 98 feet to 185 feet below surface; an **87 foot change in depths across several hundred feet horizontal distance**. Similarly, in **Mine Unit 10**, the depth to drill mud ranged from 94 feet to 196 feet below surface; a **102 foot change in depths across several hundred feet horizontal distance**. If these depths to the drilling mud represent the fall back to shallow groundwater depths, the groundwater gradients are extremely steep and irregular across the permit.

Therefore, it is not likely that the depths to drill mud correlate to the depths to groundwater. There are other variables that are potentially contributing to the fall back distance including the mud weight used to plug the holes and whether or not the mud was circulated in the hole from bottom to top.

In an evaluation of the Uncased Well Abandonment reports, it becomes apparent that there are inconsistencies or incorrect information reported. As a result of the evaluation several issues are noted as problematic:

- There are three instances where the information provided on the Uncased Well Abandonment reports is incomplete or possibly illegible.
- For all Uncased Well Abandonment reports, there is no indication of the specific type and manner of preparing the plugging materials. LQD attempted to perform calculations in order to determine the volume of plugging material used in each hole. However, without the specific material information, it is impossible to make any calculations and evaluate the information regarding viscosity.
- Drill Hole #3674-26-2559: The drill bit size (diameter) of the hole appears to be 5-7/8". However, this is a diameter not referenced on any other drill holes throughout the mine. The vast majority of drill holes at the Smith-Highland Ranch are 5-5/8". This appears to be a case of illegible hand-writing by the plugging operator. The reports need to be complete and legible, otherwise they are useless for purposes of compliance analysis.

- Drill Hole #3674-23-1: The number of bags of plugging material used is left blank for this 8-3/4" hole on this report. The information provided on the report is incomplete and yet a geologist for the company signed the form. Without providing all the information on the drill report there is no method of correlating data and determining compliance with regulations.
- When comparing the data provided on the Uncased Well Abandonment reports, it becomes apparent that there are inconsistencies or incorrect information. By grouping similar depths of drill holes, the number of bags of plugging material does not make sense. There is a wide range of bags used for similar hole sizes and the same number of bags with the same viscosities reported to be used to fill holes with one-hundred (100) feet difference in hole depth. The following table represents information provided by Cameco and grouped to demonstrate the inconsistencies:

TABLE 3 - Comparison of Same Size Drill Holes (All Holes are 5-5/8" Diameter)

Hole Number	Depth (ft)	Bags (ea)	Viscosity (sec)
3673-19-996	880	11	71
3674-24-469	880	7	75
3674-26-2521	880	12	70
3673-19-986	900	18	80
3674-24-451	900	10	72
3574-19-207	920	12	85
3674-27-780	920	12	64
3674-27-704	940	12	80
3574-18-1002	940	14	70
3574-17-1004	960	10	67
3674-26-2575	960	12	62
3674-27-780	960	12	75
3574-16-404	980	10	65
3674-27-732	980	12	70
3574-8-349	1000	20	87
3574-17-1019	1000	12	75
3674-24-481	1000	10	68
3674-27-793	1000	12	73

In summary the inconsistencies include:

- ❖ The drill holes with depth of 880 feet, seven to twelve bags with very similar viscosities are reported to be used to fill the holes. A variation of five bags of plugging material to fill the same sized hole is not logical.

- ❖ The drill holes with a depth of 900 feet, ten to eighteen bags with a relatively small deviation of viscosity are reported to be used to fill the holes. A variation of eight bags to fill the same size hole is again not logical.
- ❖ The drill holes with a depth of 920 feet, the same number of bags are used to fill the hole. However, the viscosity of this material ranges from 64 seconds to 85 seconds. The variation in viscosity is too large to require the same number of bags to fill the same size hole.
- ❖ The drill holes with a depth of 1000 feet, ten to twenty bags are reported to be used to fill the holes. A variation of ten bags to fill the same size hole is not logical.
- ❖ Twelve bags at a viscosity of 70 seconds are reported to be used to fill two very different size holes; 880 feet and 980 feet. The exact same material being used to fill holes varying in depth of one-hundred (100) feet is not logical.

The Wyoming Environmental Quality Act (WEQA) § 35-11-404 (b)(ii) defines "Sealing" of drill holes as follows: *"Drill holes which have encountered any ground water shall be sealed by leaving a column of drilling mud in the hole or by such other sealing procedure which is adequate to prevent fluid communication between aquifers"*

There is a strong indication that the drilling mud used at CR is not of sufficient mud weight to sufficiently seal the drill holes. The drilling mud is falling back to significant depths below surface indicating the fluid is either going into the rock formations and/or groundwater at depths below the top of the drill fluid column. The fluid could be seeping out of the drill column at any elevation in the column, and there is no way to know where in the column it could be occurring. There is also potential that with the drill fluid seeping into multiple zones throughout the drill column that it is resulting in communication between aquifers. Finally, many of the inspected drill holes are located close to existing wellfields which may be developed into production areas. With a potentially low mud weight there is a chance that the drill mud in these holes will continue to flow into multiple aquifer zones as a result of pumping in the wellfields.

The LQD concludes that with the lack of conclusive plugging records to verify the mud weights are sufficient to seal the drill holes and the evidence of substantial loss of fluid to the formations/aquifers below the top of the drilling mud column, CR is in violation of WEQA § 35-11-404(c)(ii) and therefore, enforcement action is recommended.

- 2 An open drill hole was discovered by the inspectors and subsequently confirmed to have been drilled by a previous operator for the Smith Ranch mining operations. Regardless of the timeframe of the drilling activity, open drill holes on the permit or associated with the

exploration activities of the permit are the responsibility of the operator. The open hole is a violation of WEQA § 35-11-404(c) and enforcement action is recommended.

- 3 Significant deficiency in sediment and erosion control continues to be a very high concern for LQD at the SHRUP mine sites. The lack of sediment control in the Mine Unit 10 development areas and the lack of sediment controls associated with exploration/delineation drilling activities on and/or adjacent to the permit boundaries are a repeat violation that LQD has tried to impress upon the operator as a serious problem. The inspectors have encountered numerous instances of sediment on native areas as a result of mining related disturbances. According to the WEQA, § 35-11-415 (b)(viii), *"The operator...shall...prevent, throughout the mining and reclamation operation...the pollution of surface and subsurface waters on the lands affected..."* and according to the Wyoming Land Quality Division Noncoal Rules and Regulations (R&R), Chapter 3, Section 2(c)(i)(A), *"All topsoil or approved surface material shall be removed from all areas to be affected in the permit area prior to these areas being disturbed..."*. The disturbance in Mine Unit 10 does not include adequate sediment control with significant sediment being deposited on native areas. Also, the exploration/delineation drill sites associated with CR's drilling activities in the southwest area of the permit does not include adequate sediment control resulting in sediment and drilling mud depositing on native areas. Therefore, enforcement action is recommended.
- 4 Salvaged topsoil stockpiles continue to be poorly protected in areas of active drilling operations. The instances noted during the inspection include topsoil stockpiles located on slopes without tow ditches or berms to contain the soil in the stockpile on the downslopes sides of the piles. These instances resulted in loss of soil to the downslope disturbed areas. Failure to protect topsoil is a violation of WEQA, § 35-11-406 (b)(viii). Therefore, enforcement action is recommended.
- 5 The Uncased Well Abandonment records are not completed accurately with a high degree of variability with the number of sacks of Plug Gel used to obtain the reported viscosities. The analysis of the depth to drilling fluid in the inspected drill holes reveals that the records cannot be accurate based on the wide variability of mud subsidence in the holes. The records are not verifiable. False representation or certification of any report is a violation of WEQA § 35-11-901(k). Therefore, enforcement action is recommended.

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INSPECTION SUMMARY (April 21, 2011)

Pre-Inspection Meeting:

Dave Moody, Joe Brister, Dawn Kolkman, Josh Leftwich, Jim Clay, Pam Rothwell and Julie Powell were in attendance. Tasks for the day were outlined to include inspection of more wells, obtain the selenium test results, and Guideline 8 results.

Jim Clay, Cameco Geochemist, addressed the selenium issue. CR took a grab sample of water from the pond and sent to Energy Labs for selenium testing. A copy of the test result was provided to LQD. Jim discussed the difference between total vs. dissolved selenium and that the settlement agreement makes no distinction as to whether the allowable concentration is total or dissolved. Jim believes that the pond is the point of compliance and that CR has addressed the selenium issue stating that the water in the pond is clean. Additional documents and graphs were distributed to LQD by CR. However, LQD decided that further technical discussion was not needed at this time. Pam stated that LQD only requested lab data. Josh asked where LQD made the request for selenium data. Pam indicated this was formally requested in a previous inspection report. Jim asked if it is acceptable for CR to do selenium tests internally. Pam had no objection to CR continuing to evaluate the selenium levels internally. Pam's concerns are that CR has made a determination for the point of compliance without discussion with LQD. A reference to the Settlement Agreement is not necessarily conclusive that the selenium concerns are all satisfied. At this time LQD is only asking for the sampling reports for water discharging from the Selenium plant to the pond.

Pam requested to see the plug and abandonment reports showing the mud weight for all of the wells inspected during this visit. CR indicated they would provide this sometime next week.

Pam requested to view the drilling activity on the west end of the operations; appeared to be exploration drilling. CR indicated that the Casper Exploration Office is doing this work. Additionally, Pam requested to look at disturbance areas in MU-10.

Inspection:

MU-10: During the investigation of the first P&A drill site, LQD observed topsoil salvage and protection at a nearby drill site. The topsoil pile was located on a hillslope and there was no erosion control to protect the downslope side of the pile (**Figure 5a & 5b**). Soil was eroding from the stockpile onto a road leading to the drill site. In addition, sediment control was not installed around the disturbance area allowing sediment from the disturbance to wash onto native areas (**Figure 6**).

Several drill holes could not be located for the P&A inspection. CR requested that they be able to locate the wells ahead of time; they ordered a metal detector. LQD agreed that CR could

locate and mark the sites however they should not excavate the soil cover without LQD being present.

Topsoil piles in and around active drilling operations were inspected in proposed Mine Unit 10. The topsoil piles were absent of any erosion control protection (ditches/berms, wattles, seeding) (**Figure 7**). The topsoil piles were located approximately 20 feet from the drill sites on all the wells observed in the development area (approximately 10-15 sites). It was apparent that the piles were not being combined into a larger pile serving the area of disturbance as was discussed with CR to mitigate previous topsoil compliance concerns. The drilling supervisor indicated that the topsoil piles were not completed yet and they will be adding to them or combining piles. He stated that the piles will be complete sometime next week and erosion control will be added. The stockpiles were not only unprotected but also had vehicle disturbance due to the wellfield activity (**Figure 8**).

It was noted that very little sediment control was installed throughout the entire mine unit disturbance (**Figures 9a & 9b**). Silt fence was noted in two shallow drainages in poor repair, filled with sediment (**Figures 10a & 10b**). As a result of the poor effort in controlling erosion, sediment was washing onto native, unstripped areas throughout the wellfield development area.

LQD requested to view the west side of the operations (west of MU-9) where disturbed areas were observed the previous day while completing drill-hole inspections. Upon inspection of these areas, it was found that drilling activities were not using sediment control, topsoil protection measures, controlling drilling fluid from entering drainages or ensuring stable slopes following the drilling activity (**Figures 11a, 11b, 11c, and 11d**).

In the same area of the drill holes inspected in Figures 10 and 11 above, an open drill hole was discovered. With the drilling activity in the general proximity (approximately 50-75 feet from those drill sites). This hole was easily found, yet no effort was made to cap or plug the hole (**Figure 12**).

Header House 9-13 was inspected with production and injection in progress. The inspection sheet was updated and current. A random leak detection at a well was inspected near the header house and also appeared to be in working order.

The temporary reclamation in Mine Unit 9 near header house 9-11 was thoroughly inspected. Erosion control measures are in place including silt fence and straw wattles. The drill seeding that occurred in fall 2010 was crimp mulched with straw. There was very early indication of seed germination. A large stack of straw blankets was staged in the middle of the reclaimed wellfield and CR reports these will be installed this summer (**Figure 13**).

The natural drainage near header house 9-6 was inspected. This area was temporarily reclaimed two years ago and slope stabilization is in place as well as erosion control. Silt fencing is full of sediment and is over-topping. CR reports this will be cleaned out. A random leak detection unit (P102) was inspected and appears to be in working order.

Drainage work around SR-2 was inspected. Rip-rap, terracing, straw wattles and vegetation is in place. Sediment is accumulating near the top of the slope near the road which appears to be coming from the road. The lower slopes appear stable with little additional accumulation of sediment (**Figure 14**).

RESULTS

TABLE 1 – Plug & Abandonment Investigation Summary

Mine Unit	Hole Delineation Number	Completion Date	Surface Cap	Depth to Plug
MU-3	3674-26-2475	11/12/09	OK	137'
MU-3	3674-26-2480	12/17/09	OK	104'
MU-3	3674-26-2559	1/19/10	OK	87'
MU-3	3674-26-2568	1/22/10	OK	126'
MU-4 (on-permit)	3574-2-534	9/1/09	OK	63'
MU-4 (on-permit)	3574-3-084	10/22/09	OK	46'
MU-7	3674-26-2521	1/11/10	OK	99'
MU-7	3674-26-2575	3/10/10	OK	98'
MU-7	3674-27-704	1/15/10	OK	185-200'
MU-7	3674-27-732	3/16/10	Not found	
MU-7	3674-27-762	2/24/10	Not found	
MU-7	3674-27-780	2/19/10	OK	167'
MU-7	3674-27-793	3/3/10	OK	145'
MU-10	3574-16-380	10/22/09	Not found	
MU-10	3574-16-404	10/16/09	Not found	
MU-10	3574-17-1004	11/6/09	OK	196'
MU-10	3574-17-1019	11/10/09	Not found	
MU-10	3574-17-1043	11/14/09	Not found	
MU-10	3574-18-1002	11/10/09	OK	94'
MU-10	3574-19-207	12/17/09	Not found	

TABLE 2 - MU-C Well Flows

Header House	Well	Flow
C-24	CP-175	16.1 gpm
C-22	CP-169	17.4 gpm

COMPLIANCE ASSESSMENT

- 1 The abandoned drill holes inspected for the depth to the seal (drilling mud) were found to be at significant depths below surface varying from 46 to 198 feet below surface. CR states that the drill mud, although initially filled to the top of the hole, settles back to the static water level. During the investigation, groundwater was only encountered in two holes and it was questionable whether or not the water was associated with an aquifer or with the drill mud.

If this is the case, the depth to the shallow aquifer is erratic. Within **Mine Unit 3** four drill holes were explored and found to have drill mud at depths ranging from 87 to 137 feet; a **50 foot change in depth across several hundred feet horizontal distance**. Within **Mine Unit 7** the depth to drill mud ranged from 98 feet to 185 feet below surface; an **87 foot change in depths across several hundred feet horizontal distance**. Similarly, in **Mine Unit 10**, the depth to drill mud ranged from 94 feet to 196 feet below surface; a **102 foot change in depths across several hundred feet horizontal distance**. If these depths to the drilling mud represent the fall back to shallow groundwater depths, the groundwater gradients are extremely steep and irregular across the permit.

Therefore, it is not likely that the depths to drill mud correlate to the depths to groundwater. There are other variables that are potentially contributing to the fall back distance including the mud weight used to plug the holes and whether or not the mud was circulated in the hole from bottom to top.

In an evaluation of the Uncased Well Abandonment reports, it becomes apparent that there are inconsistencies or incorrect information reported. As a result of the evaluation several issues are noted as problematic:

- There are three instances where the information provided on the Uncased Well Abandonment reports is incomplete or possibly illegible.
- For all Uncased Well Abandonment reports, there is no indication of the specific type and manner of preparing the plugging materials. LQD attempted to perform calculations in order to determine the volume of plugging material used in each hole. However, without the specific material information, it is impossible to make any calculations and evaluate the information regarding viscosity.
- Drill Hole #3674-26-2559: The drill bit size (diameter) of the hole appears to be 5-7/8". However, this is a diameter not referenced on any other drill holes throughout the mine. The vast majority of drill holes at the Smith-Highland Ranch are 5-5/8". This appears to be a case of illegible hand-writing by the plugging operator. The reports need to be complete and legible, otherwise they are useless for purposes of compliance analysis.

- Drill Hole #3674-23-1: The number of bags of plugging material used is left blank for this 8-3/4" hole on this report. The information provided on the report is incomplete and yet a geologist for the company signed the form. Without providing all the information on the drill report there is no method of correlating data and determining compliance with regulations.
- When comparing the data provided on the Uncased Well Abandonment reports, it becomes apparent that there are inconsistencies or incorrect information. By grouping similar depths of drill holes, the number of bags of plugging material does not make sense. There is a wide range of bags used for similar hole sizes and the same number of bags with the same viscosities reported to be used to fill holes with one-hundred (100) feet difference in hole depth. The following table represents information provided by Cameco and grouped to demonstrate the inconsistencies:

TABLE 3 - Comparison of Same Size Drill Holes (All Holes are 5-5/8" Diameter)

Hole Number	Depth (ft)	Bags (ea)	Viscosity (sec)
3673-19-996	880	11	71
3674-24-469	880	7	75
3674-26-2521	880	12	70
3673-19-986	900	18	80
3674-24-451	900	10	72
3574-19-207	920	12	85
3674-27-780	920	12	64
3674-27-704	940	12	80
3574-18-1002	940	14	70
3574-17-1004	960	10	67
3674-26-2575	960	12	62
3674-27-780	960	12	75
3574-16-404	980	10	65
3674-27-732	980	12	70
3574-8-349	1000	20	87
3574-17-1019	1000	12	75
3674-24-481	1000	10	68
3674-27-793	1000	12	73

In summary the inconsistencies include:

- ❖ The drill holes with depth of 880 feet, seven to twelve bags with very similar viscosities are reported to be used to fill the holes. A variation of five bags of plugging material to fill the same sized hole is not logical.

- ❖ The drill holes with a depth of 900 feet, ten to eighteen bags with a relatively small deviation of viscosity are reported to be used to fill the holes. A variation of eight bags to fill the same size hole is again not logical.
- ❖ The drill holes with a depth of 920 feet, the same number of bags are used to fill the hole. However, the viscosity of this material ranges from 64 seconds to 85 seconds. The variation in viscosity is too large to require the same number of bags to fill the same size hole.
- ❖ The drill holes with a depth of 1000 feet, ten to twenty bags are reported to be used to fill the holes. A variation of ten bags to fill the same size hole is not logical.
- ❖ Twelve bags at a viscosity of 70 seconds are reported to be used to fill two very different size holes; 880 feet and 980 feet. The exact same material being used to fill holes varying in depth of one-hundred (100) feet is not logical.

The Wyoming Environmental Quality Act (WEQA) § 35-11-404 (b)(ii) defines "Sealing" of drill holes as follows: *"Drill holes which have encountered any ground water shall be sealed by leaving a column of drilling mud in the hole or by such other sealing procedure which is adequate to prevent fluid communication between aquifers"*

There is a strong indication that the drilling mud used at CR is not of sufficient mud weight to sufficiently seal the drill holes. The drilling mud is falling back to significant depths below surface indicating the fluid is either going into the rock formations and/or groundwater at depths below the top of the drill fluid column. The fluid could be seeping out of the drill column at any elevation in the column, and there is no way to know where in the column it could be occurring. There is also potential that with the drill fluid seeping into multiple zones throughout the drill column that it is resulting in communication between aquifers. Finally, many of the inspected drill holes are located close to existing wellfields which may be developed into production areas. With a potentially low mud weight there is a chance that the drill mud in these holes will continue to flow into multiple aquifer zones as a result of pumping in the wellfields.

The LQD concludes that with the lack of conclusive plugging records to verify the mud weights are sufficient to seal the drill holes and the evidence of substantial loss of fluid to the formations/aquifers below the top of the drilling mud column, CR is in violation of WEQA § 35-11-404(c)(ii) and therefore, enforcement action is recommended.

- 2 An open drill hole was discovered by the inspectors and subsequently confirmed to have been drilled by a previous operator for the Smith Ranch mining operations. Regardless of the timeframe of the drilling activity, open drill holes on the permit or associated with the

exploration activities of the permit are the responsibility of the operator. The open hole is a violation of WEQA § 35-11-404(c) and enforcement action is recommended.

- 3 Significant deficiency in sediment and erosion control continues to be a very high concern for LQD at the SHRUP mine sites. The lack of sediment control in the Mine Unit 10 development areas and the lack of sediment controls associated with exploration/delineation drilling activities on and/or adjacent to the permit boundaries are a repeat violation that LQD has tried to impress upon the operator as a serious problem. The inspectors have encountered numerous instances of sediment on native areas as a result of mining related disturbances. According to the WEQA, § 35-11-415 (b)(viii), *"The operator...shall...prevent, throughout the mining and reclamation operation...the pollution of surface and subsurface waters on the lands affected..."* and according to the Wyoming Land Quality Division Noncoal Rules and Regulations (R&R), Chapter 3, Section 2(c)(i)(A), *"All topsoil or approved surface material shall be removed from all areas to be affected in the permit area prior to these areas being disturbed..."*. The disturbance in Mine Unit 10 does not include adequate sediment control with significant sediment being deposited on native areas. Also, the exploration/delineation drill sites associated with CR's drilling activities in the southwest area of the permit does not include adequate sediment control resulting in sediment and drilling mud depositing on native areas. Therefore, enforcement action is recommended.
- 4 Salvaged topsoil stockpiles continue to be poorly protected in areas of active drilling operations. The instances noted during the inspection include topsoil stockpiles located on slopes without tow ditches or berms to contain the soil in the stockpile on the downslopes sides of the piles. These instances resulted in loss of soil to the downslope disturbed areas. Failure to protect topsoil is a violation of WEQA, § 35-11-406 (b)(viii). Therefore, enforcement action is recommended.
- 5 The Uncased Well Abandonment records are not completed accurately with a high degree of variability with the number of sacks of Plug Gel used to obtain the reported viscosities. The analysis of the depth to drilling fluid in the inspected drill holes reveals that the records cannot be accurate based on the wide variability of mud subsidence in the holes. The records are not verifiable. False representation or certification of any report is a violation of WEQA § 35-11-901(k). Therefore, enforcement action is recommended.



Matt Mead, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

INT-022



John Corra, Director

May 2, 2011

Certified Mail 7008 0500 0000 5500 8088

Ms. Dawn Kolkman
Cameco Resources, Inc.
PO Box 1210
Glenrock, WY 82637

**Subject: Self-Identified Violation, Missed Uranium Analyses
Cameco Resources, Permits 603, Letter of Conference and Conciliation**

Dear Ms. Kolkman:

The Land Quality Division (LQD) received notification from Cameco Resources (CR) on March 8, 2011, stating that water quality samples had not been analyzed for uranium in six wells monitored for restoration. LQD discovered an additional well also had not been sampled for uranium through review of the Fourth Quarter 2010 Monitoring Report. The sampling failure is a violation of Permit 603, Section 4.6 and Chapter 11, Section 15(b). LQD will require action as a result of the violation as described below and in the enclosed assessment.

Cameco Resources mining operation is being conducted under the permit provisions for non-coal operations required by the *Wyoming Environmental Quality Act (WEQA)* and the *Wyoming DEQ/LQD Noncoal Rules and Regulations (WR&R)*. Therefore, under the "Conference and Conciliation" provisions of the WEQA § 35-11-701(c), the following actions will be required by the District I Office **within 30 days of receipt of this letter.**

According to the LQD Noncoal Rules and Regulations, Chapter 11, Section 15, (b) "All chemical analyses submitted to the Administrator in accordance with a valid permit...shall include...Quarterly monitoring reports shall include, at a minimum...the results of monitoring..." In addition the monitoring requirements (required under Chapter 11, Section 14 (a)) as described in Permit 603, Section 4.6 of the Reclamation Plan, commits to track the progress of restoration with the MP-Wells which are sampled every two months for conductivity, chloride and uranium. As a result of the failure to analyze the sample for uranium in seven MP-Wells, CR must:

- 1 Provide a detailed report to LQD summarizing the cause of the missed uranium analyses with a discussion of the steps that will be taken to prevent any future recurrence of this or similar sampling violations. The discussion should detail the**



Letter of Conference and Conciliation
Permit 603, Cameco Resources
Page 2

typical steps of water quality sampling and analysis from the beginning of a sampling event through the analyses and reporting of the data.

- 2 Provide the analytical data report from the official testing laboratory confirming the sampling data did not include uranium testing for the seven wells in question.**
- 3 Provide a Permit Revision (Permits 603 & 633) which sufficiently describes the procedures and methods used for sample collection, preservation, and quality control of water quality chemical analyses as required in Chapter 11, Section 15. The description should include the steps taken by the field and laboratory staff.**
- 4 Submit the report and Permit Revision within 30 days of receipt of the Letter of Violation.**

If you have questions, please contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Encl

cc: Joe Brister, Cameco Resources, Cheyenne, w/attach.
Doug Mandeville, Nuclear Regulatory Commission, w/attach.

SELF-IDENTIFIED VIOLATION, MISSED URANIUM ANALYSES

PERMIT 603, HIGHLAND URANIUM PROJECT, CAMECO RESOURCES

SUMMARY

On March 8, 2011 LQD received correspondence from Cameco Resources (CR) identifying a permit violation at their Highland Permit. CR stated that water samples from Wells EMP-18, 20, 23, 28, 30A and 31 were not sampled for uranium during the December 27, 2010 sampling event as required by Section 4.6 Operational Monitoring of Permit 603 Reclamation Plan. The violation was identified on March 7, 2011 approximately three months after it occurred. The purpose for sampling the MP-Wells is to track the active restoration progress in the wellfield.

ASSESSMENT OF VIOLATION

The LQD is aware that restoration sampling for EMP-Wells began in December 2010 as indicated in the *Fourth Quarter 2010 Monitoring Report*. The missed uranium samples were the first samples of the restoration sampling events. In addition to the wells listed in the letter received on March 8, 2011, it is noted that EMP-19 also was not sampled for uranium. The next sampling event for these wells should have occurred in late February 2011. As the error was not identified until early March 2011, it is not known if uranium was tested in the February samples. The First Quarter 2011 Monitoring Report is due and should identify any additional missed samples.

In this specific instance, the reviewer finds that it is unlikely that the missed samples will affect the overall tracking of the active restoration progress nor will it affect the determination if best practicable technology is used for groundwater restoration of the wellfield.

However, CR is fortunate that the missed samples did not result in adverse impacts. The amount of monitoring required on the SHRUP mine site is significant and requires a high level of oversight to ensure minimal missed events and timely response, should it occur. Recurrence of the incident has potential for significant consequence and will not be tolerated. **Therefore, a *Letter of Conference and Conciliation* is recommended with the following requirements.**

According to LQD Noncoal Rules and Regulations, Chapter 11, Section 15, (b) "All chemical analyses submitted to the Administrator in accordance with a valid permit...shall include...Quarterly monitoring reports shall include, at a minimum...the results of monitoring... In addition the monitoring requirements (required under Chapter 11, Section 14 (a)) as described in Permit 603, Section 4.6 of the Reclamation Plan, commits to track the progress of restoration with the MP-Wells which are sampled every two months for conductivity, chloride and uranium. As a result of the failure to analyze the sample for uranium in seven MP-Wells, CR must:

- 1 Provide a detailed report to LQD summarizing the cause of the missed uranium analyses with a discussion of the steps that will be taken to prevent future recurrence of this or similar violations. The discussion should detail the typical**

steps of water quality sampling and analysis from the beginning of a sampling event through the final data analyses and reporting of the data.

- 2 Provide the analytical data report from the official testing laboratory confirming the sampling data did not include uranium testing for the seven wells in question.**
- 3 Provide a Permit Revision (Permits 603 & 633) which sufficiently describes the procedures and methods used for sample collection, preservation, and quality control of water quality chemical analyses as required in Chapter 11, Section 15. The description should include the steps taken by the field and laboratory staff.**
- 4 CR must submit the report and Permit Revision within 30 days of receipt of the Letter of Violation.**



CAMECO RESOURCES
Smith Ranch-Highland
Operation
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May 5, 2011

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington DC, 20555-1001

RE: Reply to Notice of Violation
NRC Inspection Report 040-08964/10-002
Source Material License SUA-1548, Docket Number 40-8964

Please find below Power Resources, Inc. d/b/a/ Cameco Resources revised reply to the Notice of Violation issued by the Nuclear Regulatory Commission (NRC) to Power Resources, Inc. on December 17, 2010. A response was sent to the NRC on February 23, 2011. A request for additional information pertaining to compliance with DOT standards was received on April 15, 2011 and is being supplied in this correspondence in accordance with 10 CFR 2.201.

If you have questions, please contact me at (307) 316-7588.

Sincerely,

A handwritten signature in black ink that reads "John McCarthy".

John McCarthy
Radiation Safety Officer
Smith Ranch-Highland Uranium Operation

cc: T. Cannon
B. Kluchewski
D. Mandeville, USNRC (2 copies)
US NRC
Attn : Mr. Jack Whitten
Arlington, TX 76011-4125

File SR 4.6.4.1

Summary of Violation

During an NRC inspection conducted on August 24-26, 2010, one violation of NRC regulations was identified. The violation was identified as a Severity Level IV and is listed below:

10 CFR 71.5(a) requires that a licensee who transports license material outside of the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in CFR 49 Parts 170 through 189.

49 CFR 173.441(a) requires, in part, that each package of radioactive material offered for transport must meet certain radiation levels on the external surfaces of the package.

49 CFR 173.433(a) requires, in part, that the level of non-fixed (removable) radioactive contamination on external surfaces of each package offered for transport may not exceed the limits set forth in Table 9 of this part.

Contrary to the above, on July 3, 2010, the licensee failed to demonstrate that packages used for shipment of radioactive material met applicable regulatory requirements. Specifically, The licensee transported over public highway water filters and trash classified as 11e.(2) by product material from Satellites SR-2 and SR-1 to the Central Processing Plant without conducting contamination or radiation surveys on the packages.

In addition, on August 6, 2010, the licensee failed to demonstrate that a package used for shipment of radioactive material met applicable regulatory requirements. Specifically, the licensee transported over public highways radium-226 contaminated filters, which are classified as 11e.(2) by product material, to an analytical laboratory without conducting contamination or radiation surveys on the packages.

Cameco Resources Response

Reason for the Violation

As stated above, on July 3, 2010, the packaged filters and contaminated materials were transported to the Central Processing Plant (CPP) 11e.(2) byproduct bin for approved off site disposal. Furthermore, air filter samples were released for outside analysis on August 6, 2010. Both were released without conducting contamination or radiation surveys.

Corrective Actions

The Health Physics Manual (Vol. 4 of the SHEQ Management System) was revised on March 3, 2011 and final approval by the RSO and the General Manager on March 8, 2011.

Equipment and Material Release

“USNRC regulations require that all materials, equipment and samples used or obtained in restricted areas or potentially contaminated with radioactive material be surveyed before release from the premises to ensure that radioactive contamination release levels are not exceeded. The alpha survey is the primary survey method used to determine surface contamination from uranium and uranium daughter products. The beta-gamma survey is also used to identify contaminated material. The beta-gamma survey is especially important when the equipment or material requiring release is irregular in shape(s) and does not readily allow scanning with an alpha detector, or the potential contamination could be covered by an alpha absorbing material such as dust, dirt or paint.”

Allowable Limits for Removable to Unrestricted Areas

Release of equipment, materials, or packages from the restricted area shall be in accordance with the NRC guidance document, *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material*, (Annex B) dated May 1987. Annex B requires that reasonable decontamination efforts be made to eliminate residual contamination. Contamination on interior surfaces (e.g., piping or ductwork) may be determined by making measurements at access points if these locations are representative of the contamination levels on all surfaces. Surfaces of premises, equipment, or scrap that cannot be surveyed due to size, shape, or accessibility shall be considered contaminated in excess of the limits.

Annex B specifies contamination limits for specific radionuclides. The pertinent limits for use at uranium facilities are summarized in Table 5-1. The limits are specified for average, maximum and removable contamination levels. Average contamination levels should not be averaged over an area greater than one square meter. The maximum contamination levels apply to areas that are less than 100 cm². Compliance with the removable contamination limits is determined by performing smear surveys.

Table 5-1

Acceptable Surface Contamination Levels on equipment to be released for unrestricted use, clothing and non-operating areas

Nuclide ^a	Average ^{b,e}	Maximum ^{c,e}	Removable ^d
U-nat, U-235, U-238 and	5,000 dpm/100 cm ²	15,000 dpm/100 cm ²	1,000 dpm/100 cm ²

associated decay products			
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm ²	300 dpm/100 cm ²	20 dpm/100 cm ²
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm ²	3,000 dpm/100 cm ²	200 dpm/100 cm ²
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above	5,000 dpm/100 cm ²	15,000 dpm/100 cm ²	1,000 dpm/100 cm ²

Notes:

- a. Where surface contamination is from alpha and beta-gamma emitting nuclides, the limits for alpha and beta-gamma nuclides should apply independently.
- b. Averaged over no more than 1 m².
- c. Applies to an area of not more than 100 cm².
- d. Determined by wiping with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe.
- e. Beta-Gamma Radiation
Average: 0.2 mR/hr at 1 cm, above background
Maximum: 1.0 mR/hr at 1 cm, above background, measured through not more than 7 mg/cm² of total absorber

The surface contamination levels contained in Table 5-1 for natural uranium and associated daughter products are used when surveying any materials potentially contaminated with yellowcake, production fluid, or injection fluid.

Laboratory samples transported for analysis will comply with 49 CFR 173.421 and 173.422 and will require the following:

- Packages will not exceed the radiation limit of 0.5 mRem/hr (0.005 mSv/hr).
- The non-fixed (removable) limit will not exceed 22 dpm/cm²
- The package will have a UN-2910 sticker on the side and a "Radioactive" sticker conspicuously posted on the inside of the package.

A Standard operating Procedure SRH-QMP-10-199 has been written for Hauling Contaminated materials on the licensed site. The procedure lists the following requirements for the transport of 11e(2) materials for disposal.

Transportation of 11e.(2) on site from a Restricted Area to an 11e.(2) container will comply with 49 CFR 173.427 and will require the following:

- 11e.(2) materials will be transported in a lined strong tight container.
- The container will be braced to prevent shifting during transportation.
- Packages will not exceed the surface radiation limit of 200 mR/hr
- Packages will not exceed the radiation limit of 10mR/hr at 2 meters
- Packages will not exceed the non-fixed (removable) limits of 22 dpm/cm²
- The transport vehicle will not exceed 2 mR/hr in the cab.
- The package will be marked as RADIOACTIVE-LSA
- The package (drum) will be shipped as exclusive use
- Shipping papers, Radioactive 7 placards and UN2912 will be required.

Date Full Compliance will be Achieved

Full compliance for transporting laboratory samples was achieved by March 31, 2011. Full compliance for the transporting 11e.(2) byproduct procedure has been updates and is pending final approval by the RSO and General Manager. Full compliance will be achieved by 5/31/2011.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
 REGION IV
 612 EAST LAMAR BLVD, SUITE 400
 ARLINGTON, TEXAS 76011-4125

May 10, 2011

John McCarthy, Radiation Safety Officer
 Power Resources, Inc.
 P.O. Box 1210
 Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/11-001

Dear Mr. McCarthy:

This refers to the announced, routine inspection conducted on February 14-17, 2011, at the Smith Ranch uranium recovery facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection. The final exit briefing was conducted with you telephonically on April 13, 2011. No violations were identified, and no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey at 817-860-8299 or the undersigned at 817-860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
 Nuclear Materials Safety Branch B

Docket: 040-08964
 License: SUA-1548

Power Resources, Inc.

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Enclosure:

NRC Inspection Report 040-08964/11-001

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		<input type="checkbox"/> Non-publicly Available		<input type="checkbox"/> Sensitive	
DNMS:NMSBB	RSFS	FSME:DURLD	FSME:DURLD	C:NMSB-B	
LMGersey;dlf	RJEvans	JLSaxton	JPClements	JEWhitten	
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**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket: 040-08964

License: SUA-1548

Report: 040-08964/11-001

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: February 14-17, 2011

Lead Inspector: Linda M. Gersey, Health Physicist
Nuclear Materials Safety Branch B

Inspector: Robert J. Evans, Senior Health Physicist
Repository and Spent Fuel Safety Branch

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Approved by: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/11-001

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation, and radioactive waste management.

Management Organization and Controls

- The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress (Section 1.2).
- The licensee completed the safety and environmental review panel evaluations in accordance with license requirements (Section 1.2).

In-Situ Leach Facilities

- The licensee was conducting plant site operations in accordance with license and regulatory requirements (Section 2.2).
- Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security was adequate (Section 2.2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3.2).

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license (Section 4.2).
- Licensed operations did not exceed the annual dose limits to members of the public (Section 4.2).

Inspection of Transportation Activities and Radioactive Waste Management

- The licensee's response to the previous violation related to failure to follow DOT requirements while transporting licensed material was inadequate and remains open (Section 5.2).
- The licensee collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application (Section 5.2).
- The new Selenium Plant was operating in accordance with license criteria (Section 5.2).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was mining uranium using the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1, and SR-2) were in service and supporting twelve operating wellfields. Eight wellfields were in active restoration. Uranium processing and drying operations were in progress at the Smith Ranch central processing plant (CPP). Uranium recovery operations were on standby at the Highland CPP.

The licensee was conducting limited work at its other licensed satellite facilities. In order to initiate operations at the Reynolds Ranch satellite, the licensee was in the process of obtaining approval for its plan of operations from the Bureau of Land Management. The licensee has installed the monitor well ring in Mine Unit 27 at Reynolds Ranch. The licensee's Gas Hills, Ruth, and North Butte satellites are not in operation at this time.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organizational structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. During calendar year (CY) 2010, the licensee evaluated two changes to the organizational structure through the Safety and Environmental Review Panel (SERP) process. In January 2010, as recorded in ORC/SERP 2/10-2, the licensee approved a change in reporting of the Environmental, Health and Safety Manager from the General Manager to the Director, Compliance and Licensing. In October 2010, as recorded in ORC/SERP 10/10-2, the licensee split the Safety, Health, and Environmental and Quality Program into two groups at the division level. The radiation safety programs and regulatory affairs were separated and now report directly to the President. The inspectors determined that the licensee's current organizational structure was in agreement with the structure specified in Figure 9-1.

At the time of the inspection, the licensee had 154 full time employees. The licensee's radiation safety staff consisted of one Radiation Safety Officer (RSO), one qualified health physics technician (HPT), and two HPTs in training. There was one vacant position for an HPT. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

b. Safety and Environmental Review Panel

The inspectors reviewed various SERP reviews that were conducted by the licensee during the inspection period. The inspectors reviewed SERP 5/10-1, related to having

alternate personnel perform the RSO and Facility Foreman weekly inspections, as required by License Condition 9.7, and outlined in NRC Regulatory Guide 8.31. The SERP evaluation did not discuss who qualifies as an alternate person to perform the inspections. The RSO stated that only an HPT, who was trained to perform such duties, would perform the weekly inspection if the RSO was not available. The licensee agreed to update the SERP evaluation to clarify the qualification requirements for alternate personnel to perform these routine inspections.

The inspectors reviewed ORC/SERP 07/10-1, related to having the Selenium Plant become the single point of radium removal in the wastewater circuit, resulting in only one point for compliance. The old radium sampling areas in Satellites 2 and 3 are no longer appropriate because all radium is removed in the Selenium Plant. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions.

In March 2009, the licensee began the SERP evaluation of adding a new selenium and barium/radium removal circuits. The licensee placed these two new circuits into service in the new Selenium Plant during 2010. The licensee installed the selenium removal circuit, in part, to comply with a State of Wyoming limit for selenium in the wastewater. The licensee installed the barium chloride treatment/radium removal circuit, in part, to meet the radium treatment sampling limits specified in the license application. Additional details about these two circuits are provided in Section 5 of this inspection report.

The SERP (ORC/SERP 0-031009-1) approved the selenium removal circuit during September 2009. The SERP (ORC/SERP 0-102109-1) subsequently approved the barium chloride treatment/radium removal circuit during November 2009. The licensee operated the equipment using draft procedures as supplemented by a job hazard analysis. The SERP formally approved the operating instructions during December 2010. The inspectors reviewed the SERP package, interviewed plant staff, and conducted a walkdown of the plant equipment. The inspectors concluded that the new circuits were improvements that exceeded the licensee's commitments as specified in the license application. In addition, the licensee implemented health and safety controls at the Selenium Plant that included building ventilation, radiological postings, and building security features. In summary, the inspectors concluded that the licensee had implemented these SERP determinations in accordance with the performance-based license conditions.

1.3 Conclusions

The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress. The licensee completed the SERP evaluations in accordance with license requirements.

2 **In-Situ Leach Facilities (89001)**

2.1 Inspection Scope

Determine if in-situ recovery activities were being conducted by the licensee in accordance with the NRC's regulatory requirements and the license.

2.2 Observation and Findings

In response to Unresolved Item 040-08964/0801-03, identified by NRC staff during the March 2008 inspection, the licensee committed to install four monitoring wells (MW-1S, MW-2S, MW-3S, and MW-4S) near Purge Storage Reservoir 2 (PSR2) to determine whether or not PSR2 was leaking into the surrounding groundwater. The licensee's commitment was documented in a letter to the NRC dated June 22, 2009. The wells have been installed and sampling of the wells was conducted on September 11, 2009, March 23, 2010, and June 30, 2010. The groundwater samples were analyzed for HCO₃, chloride, sulfate, barium, selenium, uranium, and radium-226 concentrations by a contract laboratory. The draft groundwater analytical data were reviewed by the inspectors along with an associated draft plan for additional studies, which was prepared by a contractor for the licensee. In brief, the draft plan includes the installation of additional wells to determine background water quality. The licensee stated to the inspectors that they plan to perform the additional studies, including the installation of additional wells. The inspectors noted that this unresolved item needs to be closed by the next inspection and will defer a decision pending review of data from the additional studies.

At the time of this inspection, operations were being performed at Mine Units H, I, J/J-extension, K, 2, 3/3-extension, 9/9-extension, and 15/15A and restoration activities were in progress at Mine Units C, D/D-extension, 1, E, F, and 4/4A. The biore Restoration trial at Mine Unit C had mixed results, and the mine unit was returned to conventional groundwater restoration treatment. Wells in several older mine units, Mine Units D and E, had to be replaced prior to performing full-scale restoration activities, which delayed implementation of the restoration activities. One factor that hampered restoration activities in the past was the limited disposal capacity. With the recent permitting of additional disposal wells, the licensee has sufficient disposal capacity; however, the infrastructure to connect all mine units to all disposal wells is lacking and the limited system may hamper restoration activities at several mine units in the future. The licensee has plans to install piping in the near future such that all mine units are connected to all disposal wells.

The Wyoming Department of Environmental Quality (WDEQ) and NRC approved restoration activities at Mine Unit A. The groundwater restoration completion report for Mine Unit B was submitted to the NRC by letter dated June 26, 2009. NRC staff completed its acceptance review and determined that the report was insufficient. The licensee was notified by letter dated September 29, 2009, that the report was considered unacceptable for the purposes of conducting a detailed technical review. One issue regarding the Mine Unit B restoration was the existing long-term excursion status of one monitoring well. During the review period for this inspection, the licensee reported that the well in question failed an MIT test and was replaced. The levels of the excursion indicator parameters detected in the groundwater at the replacement well permitted the removal of this well from excursion status. The licensee intends to re-evaluate the geochemistry of the mine units and historical data, including a request for application of alternate control limits for the mine unit. The licensee committed to having "a path forward" by the next inspection.

During the September 2009 inspection, one violation (VIO 040-08964/0902-01) of NRC requirements was identified related to the licensee's failure to decommission mine units within 24 months and failure to request an alternate decommissioning schedule for mine

units that required greater than 24 months to decommission. The licensee responded to this violation by stating that a schedule is pending WDEQ review under a Consent Order between the licensee and the WDEQ for decommissioning, initiating groundwater restoration activities in one mine unit, and initiating infrastructure improvements at additional mine units and that this schedule will be submitted as an alternate schedule to NRC pending WDEQ approval. During the review period, WDEQ staff issued comments to the licensee on the proposed schedule. NRC staff will continue to evaluate the licensee's restoration activities during future inspections, and this violation remains open.

License Condition 10.1.1 states that commercial plant operations shall not exceed an average monthly flow rate of 20,000 gallons per minute (gpm), exclusive of restoration flow. The inspectors observed the flow rates at the CPP and four operating satellites. The total plant operations flow rate was about 15,000 gpm during the site tours. The actual flow rate remained below the licensed limit. In addition, the licensee was conducting groundwater restoration at the CPP and Satellites 1 and SR-1. At the time of the inspection, the total groundwater restoration flow was approximately 1100-1200 gpm.

The inspectors also conducted a review of the licensee's control of its disposal pathways for plant wastewater. The sources of wastewater include the production bleed stream, plant wash-down water, sump water, laboratory wastes, and reverse osmosis system water. At the CPP, the sources of wastewater also include the yellowcake thickener overflow and filter press wash water. As described in the license application, the licensee is authorized to dispose of wastewater through land application or by deep-disposal well injection.

At the time of the inspection, the licensee had five deep disposal wells that were installed and available for use. The licensee had installed three additional wells that were not in operation for various reasons. Two additional wells were permitted for operation but had not been installed. In addition to the deep disposal wells, the licensee was authorized to dispose of wastewater via land application. The licensee operated one of two land application irrigators for two months during 2010. Section 5.2.b of this inspection report provides additional details about the disposal of wastewater via land application.

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured included the CPP, the four operating satellites, the Selenium Plant, selected mine units, and the area used for storage of old equipment (referred to as the "boneyard"). The inspectors reviewed the status of plant equipment, radiation protection postings, and site security. Plant parameters were within required operating intervals, plant equipment appeared to be in good condition, radiological postings were in place, and site security was adequate. In summary, the licensee was maintaining control of the areas and equipment in accordance with license and regulatory requirements.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the plant. The surveys were conducted using a Ludlum Model 19 microRoentgen survey meter (NRC 015544, calibration due date of 04/06/11) and a Ludlum Model 2401-EC2 survey meter (NRC 016294G, calibration due date of 01/03/12). The inspectors did not identify any areas that had not already been identified and posted as radiation areas by the licensee.

2.3 Conclusions

The licensee was conducting plant site operations in accordance with license and regulatory requirements. Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security was adequate.

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine whether the licensee's radiation protection program was being conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records for July through December 2010. Approximately 60 employees were monitored for external exposures using thermoluminescent dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included CPP operators, satellite/restoration operators, health physics staff, and maintenance workers. The highest deep dose equivalent for July through December 2010 was 194 millirems (1.94 milliSieverts).

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's radon-222 air sampling records for the July 2010 through January 2011 timeframe and the uranium particulate and worker breathing zone sample results for the July 2010 through February 2011 timeframe. The inspectors confirmed that the licensee had conducted sampling at the required intervals, and the sample results were included in the worker's total effective dose equivalent exposure records.

The licensee collected bioassay samples to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with License Conditions 11.2 and 11.3. Since the August 2010 inspection, no bioassay sample result exceeded the action level of 15 micrograms per liter, the action level specified in Chapter 9 of the licensee's approved license application for implementation of corrective actions.

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations throughout the satellite buildings and CPP areas to verify radiation area postings and to assess external radiation conditions. At the time of the inspection, the inspectors determined that the licensee was conducting the gamma radiation surveys on a weekly frequency in all areas, except the header houses. The header houses were surveyed on a monthly basis. The inspectors observed an HPT performing gamma surveys inside the SR-2 facility. It appeared that the technician had an adequate understanding of the instrument operation and of the radiation levels being measured.

Alpha contamination surveys were conducted by the licensee on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application authorizes the licensee to conduct monthly process area surveys. The inspectors observed an HPT performing alpha contamination surveys inside the SR-2 facility. It appeared that the technician had an adequate understanding of the instrument operation and of the contamination levels being measured.

In the Selenium Plant, the licensee sampled for radon progeny, removable contamination, and air particulates. The licensee also measured surface alpha contamination and ambient gamma radiation levels. During early 2011, the licensee conducted a special review of the radiological conditions of the new Selenium Plant. The purpose of this review was to ascertain whether the new plant unnecessarily contributed to occupational exposures. The licensee concluded that operation of the equipment in the Selenium Plant did not significantly contribute to employee exposures. In addition, the licensee reviewed the results of a September 2010 smoke test to determine airflow direction. The smoke test indicated that air rose toward the roof as designed.

c. Training

The licensee is required to conduct training in accordance with License Condition 9.7 and license application Section 9.6 for its contractors and new employees and provide annual refresher training for current employees. The inspectors reviewed radiation safety training records for two current employees and several new contractors hired since the previous inspection. All training activities and records were in accordance with the requirements of the license.

d. Instrumentation

The inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation survey instruments. On an annual basis, the licensee sends all portable survey instruments to an outside vendor for calibration. The inspectors reviewed instrument calibration certificates for several portable survey instruments and found the calibration certificates to be adequate and the instruments currently calibrated. The inspectors observed survey meters being used by the licensee's employees when exiting restricted areas. The survey instruments examined by the inspectors were found to be in calibration and were being used appropriately by the licensee's staff.

e. Respiratory Protection

The inspectors reviewed the licensee's respiratory protection program to ensure compliance with 10 CFR 20.1703. Respiratory protection training and fit test records were reviewed, and they appeared to be consistent with written procedures. Through discussions with Health Physics and Operations staff, the inspectors determined that respirator users are individually fitted for respirators and that respiratory equipment is operationally tested prior to each use.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license.

4 Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA (87102 and 88045)

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment.

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.65. The inspectors reviewed the licensee's Semiannual Effluent and Environmental Monitoring Report for July 1 through December 31, 2010, dated February 28, 2011 (referred to in this report as "semiannual report"). The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, and surface water. As part of the licensee's wastewater land application permit from the WDEQ, soil and vegetation, irrigation fluid and radium treatment system samples, soil water samples at the irrigation areas, and monitor wells at PSR1 and PSR2 are sampled.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station, and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in the air. None of the sample results for the third and fourth quarters of 2010 exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B.

The licensee also sampled for radon-222 concentrations in the air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the third and fourth quarters of 2009. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations using thermoluminescent dosimeters. For the third and fourth quarters of 2010, all sample results were comparable to background levels.

The licensee reported the annual dose to the public from operations for CY 2010, as required by 10 CFR 20.1301, to be less than 100 millirems (1 milliSieverts). The licensee, using 10 CFR 20.1302(b)(2), demonstrated that the annual average radioactive effluent concentrations did not exceed the values in 10 CFR Part 20, Appendix B, Table 2 limits and that the external dose to an individual continuously present in an unrestricted area would not exceed 2 millirem (0.02 milliSieverts) in one hour and 50 millirem (0.5 milliSieverts) in a year. The licensee calculated the total effective dose equivalent to a member of the public in CY 2010 to be 35.2 millirem (0.352 milliSieverts).

b. Groundwater and Surface Water Environmental Monitoring

The inspectors reviewed the surface water, groundwater, and effluent monitoring data for the Highland and the Smith Ranch sites in the semiannual report, which was completed after the on-site inspection. Based on the inspector's review, the licensee conducted all groundwater and surface water environmental monitoring as required by License Condition 11.6.

The surface and groundwater monitoring program consists of quarterly sampling of groundwater and surface water for natural uranium and radium-226 in nearby wells and surface water sites used for livestock or for domestic water services which are located within

1 kilometer of the operating wellfields. The sampling consists of 10 surface water (stock ponds, 7 windmills (groundwater), and 11 wells (groundwater). The semiannual report provided sample data for 3 out of 20 possible surface water samples for the 2010 third and fourth quarter sampling events. Seventeen samples were not collected because the stock ponds were dry or frozen. For the groundwater locations, the semiannual report provided sample data for 11 out of 36 possible groundwater samples. Twenty-five samples were not collected because the windmill or well was not operating at the time of sample collection. All reported values for natural uranium and radium-226 were within the respective effluent concentration limits. The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application and License Condition 11.6.

The semiannual report also included results from Satellites 2 and 3 radium filter press effluents. The monitoring results show that the radium-226 concentration exceeded the 10 CFR Part 20, Appendix B, effluent concentration limit of $6.00\text{E-}8$ $\mu\text{Ci/ml}$ at Satellite 3 during January of 2010. The five subsequent sample results were less than the radium-226 concentration limit. The inspectors noted that the Appendix B values are based on an annual average concentration, rather than a one-time exceedance. The remainder of the 2010 sample results will be reviewed during a future inspection to ensure that the annual average concentration is not exceed.

Water levels are measured on a quarterly basis and groundwater samples are collected on a semiannual basis from the two shallow groundwater monitoring wells located at PSR2. The required monitoring data were obtained and reported in the semiannual report, and the sample results continue to be trended by the licensee for a study to resolve Unresolved Item 040-08964/0801-03 (see Section 2.2 of this report).

During the review period, Irrigator 1 did not operate during the monitoring period. In the semiannual report, the licensee included monthly grab samples of the fluid through Irrigator 2 during the months that it operated (July and August). The radium concentration in one sample exceeded the estimated limit in the original license application but was below the effluent limit in Table 2 of 10 CFR Part 20, Appendix B.

Soil and vegetation samples of the irrigation areas were not collected during this reporting period. The 2010 soil and vegetation sampling will be conducted during August 2010, and these results will be included in the next semiannual report.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment.

The licensee reported five spills that had taken place since the last inspection. All five spills resulted from mechanical failures. The total volume of fluids released ranged from 137 to 960 gallons. These spills were logged by the licensee and one spill (on September 22, 2010) was required to be reported to the NRC per License Condition 12.1 as the spill met the threshold for reporting a spill to the WDEQ (i.e., spill volume exceeded 420 gallons). The uranium concentration of the reported spill was 1.5 ppm U_3O_8 . The licensee reported the spill as required.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. The licensee has approximately 1,300 groundwater monitoring wells that are sampled during a typical month using six field sampling personnel. The inspectors reviewed the groundwater sampling records and concluded that groundwater monitoring was being conducted as required by the license.

During the reporting period, the licensee reported four wells had been on excursion status during part or all of the reporting period. Wells CM-33 and DM-3 were on excursion status throughout the reporting period. These wells have been on excursion status for an extended period of time. Well BM-42, which had been on excursion status prior to the reporting period, failed an MIT and was replaced by well BM-42a. Well BM-42a was removed from excursion status during the reporting period. Well CM-15, which had a history of prior excursion status, was on excursion status during most of September 2010. The inspectors determined that the licensee had performed the requisite monitoring for the excursion monitoring program and submitted the required reports within a timely manner pursuant to License Condition 11.5.

License Condition 10.1.6 requires, in part, that the licensee maintain 4 feet of freeboard for the purge storage reservoirs. Purge Storage Reservoir 1 had not been in service since the previous inspection. Purge Storage Reservoir 2 was in service during the reporting period. The inspectors reviewed the on-site log reports for the PSR2 weekly inspections. The inspectors concluded that the minimum 4-foot freeboard had been maintained since the previous inspection.

License Condition 10.1.6 requires, in part, that the licensee maintain 3 feet of freeboard for the storage ponds. Two storage ponds (east and west) were utilized by the licensee since the previous inspection. The inspectors reviewed the on-site logs for the daily inspections of the ponds. Based on the licensee's records, the minimum 3-foot freeboard was maintained for both ponds since the previous inspection.

The inspectors reviewed the daily visual inspection log records for the storage ponds which were required to be maintained by the licensee by License Condition 11.4. The log records included inspections of the leak detection systems for the ponds. The records indicate that no suspected leaks have occurred during the reporting period.

License Condition 10.1.3 requires, in part, that an MIT be performed prior to an injection or recovery well being brought into service and every 5 years thereafter. Based on the review of the database maintained by the licensee, the inspectors concluded that the licensee was performing the MIT tests in accordance with license requirements. An estimated 20 of 509 wells tested failed their MIT test or were taken out of service during the reporting period. Of the 20 wells, 9 wells failed the 5-year anniversary MIT test, whereas 13 wells were removed from service due to problems, such as pump failure with melted casing. The MIT failures were attributed to old "screw-fitting" method to join well casings (at Mine Units C, D, E, F, and part of H) or use of 4.5-inch diameter wells (Mine Units 12 and K). These methods of well construction are no longer in use. The inspectors concluded that the licensee has performed MIT tests as required pursuant to License Condition 10.1.3.

4.3 Conclusions

The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license. Licensed operations did not exceed the annual dose limits to members of the public.

5 **Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)**

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The inspectors reviewed the licensee's transportation records maintained since the August 2010 inspection. Trucks with tanker trailers are routinely utilized by the licensee to transport resin to and from the satellite buildings and the CPP. The inspectors reviewed selected resin tanker trailer shipping papers and found them to include the pertinent information required by Department of Transportation (DOT) regulations.

License Condition 9.6 requires, in part, that the licensee possess a waste disposal agreement to dispose of 11e.(2) byproduct material at an offsite location. In 2010, the licensee generated a waste disposal contract with a new vendor, and the NRC approved the new contract in a letter dated August 17, 2010. Since the previous inspection, five waste disposal shipments were made to the newly contracted waste disposal site. Material sent for disposal consisted of 11e.(2) contaminated equipment, such as filters, pipes, and pumps. The inspectors reviewed all of the shipping records for the most recent disposal shipments and found them to be complete.

The licensee also ships licensed yellowcake material off site. In CY 2010, a total of 49 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. Beginning in January 2011, the licensee began shipping yellowcake to Canada for processing. The licensee has an NRC export license, held by a broker,

that authorizes yellowcake to be brought into Canada for conversion into uranium hexafluoride and then returned to the U.S. for future processing. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with DOT and NRC regulations.

During the August 2010 inspection, one violation (VIO 040-08964/1002-01), was identified related to the failure of the licensee to comply with appropriate DOT regulations while transporting licensed material over public highways. Specifically, the licensee shipped water transfer filters and trash classified as 11e.(2) waste from Satellites SR-2 and SR-1 to the CPP without performing radiation or contamination surveys to ensure compliance with DOT requirements. In addition, the licensee transported radium-226 contaminated filters to an analytical laboratory without verifying compliance with DOT radiation or contamination limits. These examples are violations of 10 CFR 71.5(a), which requires that a licensee who transports licensed material outside of the site of usage comply with the applicable requirements of the regulations appropriate to the mode of transport of the DOT in 49 CFR Parts 170 through 189.

The licensee responded to the violation in letter dated February 23, 2011. NRC staff found the response did not adequately address the violation and requested additional information. Specifically, the licensee did not state how they will transport over public highways water filters and trash classified as 11e.(2) byproduct material from Satellites SR-2 and SR-1 to the CPP using the appropriate DOT requirements. The inspectors will review the response when it is made available.

b. Review of Wastewater Treatment Activities

The license application authorizes the licensee to dispose of wastewater at both the Satellites 1 and 2 land application facilities. Prior to discharge to the purge storage reservoirs, the plant wastewater is processed to remove the excess uranium, radium-226, and selenium concentrations in the water. After treatment, the wastewater is sampled to ensure that it meets the criteria specified in the license application as well as State of Wyoming requirements for land application.

The licensee elected to construct a new barium chloride treatment/radium removal system and a selenium treatment system in the new Selenium Plant. Wastewater from Satellites 2 and 3 are routed to these systems for processing prior to land application. The inspectors toured the Selenium Plant to review the operations of the two new treatment systems. The inspectors also reviewed recent sample results to determine if these two systems were effectively processing the water by removing the radium and selenium prior to land application.

The licensee's SERP approved the new selenium circuit during September 2009, while the SERP approved the barium treatment/radium removal circuit during November 2009. The two systems were placed into service during early 2010. After these two systems were placed into service, the licensee removed the existing barium treatment systems from service in Satellites 2 and 3. The inspectors compared the as-built systems to the operating procedure instructions and design drawings. The inspectors concluded that the system was being operated in accordance with procedure requirements, and the systems were constructed in accordance with design drawings. In addition, the operations staff was knowledgeable about the operability requirements. At the time of the inspection, the licensee had not completed the installation of the groundwater

restoration equipment in the Selenium Plant. The restoration circuit will be installed at a later date.

License application Tables 5-8 and 5-9 stipulate that the treated wastewater will be sampled monthly for radium-226 concentrations. The inspectors confirmed that the treated wastewater was being sampled monthly. The sample results for 2010 were reviewed during the inspection. Only one sample result exceeded the effluent concentration limit. With a limit of 60 picocuries of radium-226 per liter of water (pCi/L), the January 2010 monthly sample was 65 pCi/L. However, the radium limit is an annual average, and the average of all monthly samples (less than 15 pCi/L) was about one-fourth of the annual average.

During 2010, the licensee disposed of wastewater at the Satellite No. 2 land application facility, but not the Satellite No. 1 land application facility. The licensee operated Irrigator No. 2 during July-August 2010. The licensee disposed of 57 acre-feet of fluid via land application during 2010. In accordance with Tables 5-8 and 5-9 of the license application, the licensee samples the irrigation fluid monthly for natural uranium, radium-226, selenium, and other chemical constituents. The licensee's sample results indicate that the natural uranium and radium-226 concentrations were less than the NRC's effluent concentration limits, and the selenium concentrations were less than the State of Wyoming's limit.

5.3 Conclusions

The licensee's response to the previous violation related to failure to follow DOT requirements while transporting licensed material was inadequate and remains open. The licensee collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application. The new Selenium Plant was operating in accordance with license criteria.

6 **Exit Meeting Summary**

The NRC inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on February 17, 2011. The final exit briefing was conducted by telephone on April 13, 2011. During the inspection, the licensee did not identify any information reviewed by the NRC inspectors as proprietary that was included in the report.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Cannon, General Manager
 T. Young, V.P., Operations
 J. Leftwich, Director, Radiation Safety and Licensing
 J. McCarthy, Radiation Safety Officer
 D. Mooney, Manager, Mine Operations
 A. Faunce, Assistant Radiation Safety Officer

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

none

Closed

None

Discussed


040-08964/1002-01	VIO	Failure to perform radiation and contamination surveys on packages used for shipment of licensed material.
040-08964/0902-01	VIO	Failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule
040-08964/0801-03	URI	Verify whether PSR2 was leaking into the groundwater

ATTACHMENT

LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
CPP	central processing plant
CFR	<i>Code of Federal Regulations</i>
CY	calendar year
DOT	U.S. Department of Transportation
gpm	gallons per minute
HPT	health physics technician
IP	NRC Inspection Procedures
MIT	mechanical integrity test
μCi/ml	microcuries per milliliter
ORC	Operational Review Committee
PSR	purge storage reservoir
SERP	Safety and Environmental Review Panel
URI	unresolved item
VIO	violation
WDEQ	Wyoming Department of Environmental Quality

MEMORANDUM

TO: Lowell Spackman, District 1 Supervisor 

FROM: Pam Rothwell, Permit Coordinator

DATE: May 12, 2011

SUBJECT: Chronology of Events and Recommendations for Excursion Well CM-32
Cameco Resources, Permit #603, Highland Uranium Project

INTRODUCTION

Cameco Resources operates two in-situ leach (ISL) uranium mines in the Southern Powder River Basin; the Highland Uranium Project (HUP) and the Smith Ranch Mine (SR). The mines are located adjacent to each other including over 37,500 acres in Converse County. The combined production for the mines during the 2009-2010 report period was 1,902,403 pounds of uranium yellow cake.

In-situ mining utilizes the injection of a leaching solution (lixiviant) to remove the in-place uranium ore. The lixiviant is injected through injection wells which surround a production well where the lixiviant and uranium are recovered in solution. Several injection/production well patterns comprise a wellfield. A ring of monitor wells is located around the perimeter of each wellfield to detect lixiviant and/or production fluid migration outside the production pattern. In addition, wells are constructed to monitor the aquifers immediately above and below the production zone to identify contaminants moving vertically. If water sampling of a monitor ring well detects the presence of production fluid, the well is considered *on excursion* if two of three parameters (chloride, alkalinity, conductivity) exceeds an upper control limit (UCL) for the parameter. An excursion can also occur during the groundwater restoration where the fluids are monitored for chloride, conductivity and uranium.

CHRONOLOGY2007

July 3, 2007	Scheduled sample for Well CM-32 exceeded upper control limits (UCLs)
July 5 & 6, 2007	CR collected excursion confirmation samples
July 10, 2007	Confirmation sampling results confirmed the excursion
July 11, 2007	CR verbally notified LQD
July 11, 2007	LQD received written notification of the excursion. Chloride and Conductivity exceeded the UCLs. CR indicated they were going to begin pumping seven adjacent wells to control the excursion in "adjacent Header House C-22". The wells were being retrofitted for restoration.
July-Dec 2007	<u>Quarterly Excursion Monitoring Reports (3rd and 4th Quarter):</u> All UCL parameters increased through the end of the Fourth Quarter, water level

	also increased. Uranium values reported as high as 0.8 mg/l during this period. (EPA's maximum contaminant level (MCL) for uranium is 0.03 mg/l.
October 23, 2007	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
<u>2008</u>	
Jan-Dec 2008	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated and uranium values rose as high as 5.5 mg/l.
Jan 18, 2008	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
April 22, 2008	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
<u>2009</u>	
Jan-Dec. 2009	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated with a uranium level reported at 4.0 mg/l.
<u>2010</u>	
Jan-Dec. 2010	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated and uranium values rose as high as 4.0 mg/l.
August 17, 2010	LQD Inspector voiced concerns about adding reductant to the restoration fluid due to unanswered questions regarding calcium carbonate precipitation at the wells and/or in the formation. LQD told CR they could continue reverse osmosis (RO) and target areas to get CM-32 off excursion.
November 17, 2010	<u>Quarterly Excursion Monitoring Report, (3rd Quarter)</u> : LQD review of the report notes the lack of water quality change in Well CM-32.
<u>2011</u>	
January 25, 2011	LQD sent a letter to CR requiring a remediation plan for the CM-32 excursion within 45 days. LQD also requested a Guideline 8 parameter suite sample of CM-32.
February 1, 2011	A Mine Unit C potentiometric surface map constructed by LQD hydrogeologist, Steve Ingle, identified the minimal effect of pumping CMP-25 on remediation of the excursion. LQD suggested CR reassess the pumping well.
April 13, 2011	Meeting with LQD and Cameco to discuss groundwater restoration. LQD expressed concerns with the proposed method of combining RO and GWS and how to recover the lixiviant from the pattern area. LQD stated that CR should address the excursion well before working on wellfield restoration. If the wellfield is restored prior to remediation of an excursion, the treatment of the excursion potentially can re-contaminate the restored groundwater in the wellfield. Well CM-32 needs to be at baseline and CR should address this in an urgent manner, i.e., find a better way to get off excursion. CR agreed to rework the model.
April 19, 2011	CR responded to Third Quarter Monitoring Report comments. CR proposed a one year period to remove the well from excursion.
April 20, 2011	LQD Inspector requested the excursion Guideline 8 sample results and they were provided by CR confirming the sample was taken as requested.

	The inspector inquired whether Cameco has taken any action to determine the extent of the excursion beyond the monitor well as it was on excursion for so long a time period. CR reported no actions have been taken.
April 27, 2011	Meeting with LQD and Cameco to discuss MU-C restoration. CR stated they are working on areas of the excursion. LQD emphasized that the proposed plan to remove the well from excursion in one year was not acceptable.
April 28, 2011	CR notified LQD by telephone message that CM-32 has dropped below the UCLs and the well is off excursion.
May 2, 2011	LQD received the monthly Excursion Status Report for Permit 603 confirming the chloride and conductivity levels have trended below the UCLs.

RECOMMENDATIONS

The LQD recommends CR construct additional monitor wells to investigate the extent of the excursion beyond the monitor well. The location of CM-32 is within several hundred feet of the aquifer exemption boundary and the permit boundary. With the injection of restoration fluid into the wellfield subsequent to the beginning of the excursion, there is concern that the lack of control of the excursion for almost four years could have caused fluid migration outside the exemption boundary.

CR should consult with LQD's hydrogeologist on the location of the proposed additional monitor wells prior to installation and ensure they are covered under the permit surety. The LQD is amenable to cooperative action by CR to try to identify the extent of the excursion without issuing a violation. It is recommended that the additional monitor wells be required through a Letter of Conference and Conciliation.



Matt Mead, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

INT-022



John Corra, Director

May 17, 2011

CERTIFIED MAIL 7008 0500 0000 5500 8590

Ms. Dawn Kolkman
Cameco Resources
P.O. Box 1210
Glenrock, WY 82637

**RE: Letter of Conference and Conciliation, Excursion at CM-32
Permit 603, Cameco Resources**

Dear Ms Kolkman:

The Land Quality Division (LQD) has conducted a review of the records for Well-CM-32 which was on excursion from July 2007 through April 2011. During the review it was discovered that the location of CM-32 is within several hundred feet of the aquifer exemption boundary and the permit boundary. As a result of the injection of restoration fluid into the wellfield, subsequent to the onset of the excursion, there is concern that the lack of control of the excursion for almost four years may have caused fluid migration outside the exemption boundary.

The original notification letter to LQD explained the well was turned off for restoration retrofit activities which were anticipated to be complete and the wells turned on within the week to form the cone of depression to bring the excursion under control. However, the excursion monitor reports since that time show the UCLs for Chloride, Alkalinity and Conductivity continued to rise through 2007 and did not show declines until 2010. Although the well has recently been reported to be off excursion, there is concern that the extent of the excursion may have elevated slow moving parameters such as uranium beyond the monitor well ring. During the internal investigation of the excursion, the LQD inquired whether CR had conducted an investigation for the extent of the excursion beyond the monitor well (outside the wellfield). CR responded that an investigation has not been conducted.

This operation is being conducted under the permit provisions for non-coal operations required by the *Wyoming Environmental Quality Act (WEQA)* and the *Wyoming DEQ/LQD Noncoal Rules and Regulations (WR&R)*. Therefore, under the "Conference and Conciliation" provisions of the WEQA § 35-11-701(c), the following violations are identified:

- 1 According to the Wyoming Noncoal Rules and Regulations (R&R) Chapter 11, Section 12(d)(i), *If an excursion is not controlled within 30 days following confirmation of the*

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Since the LQD review of the Quarterly Monitoring Report (2011, 3rd Quarter), CR has provided the Guideline 8 sample for the water quality of CM-32, a plan and schedule to control the excursion and increased effort to pull the excursion water back into the wellfield, bringing the well off excursion. The LQD recognizes this effort, however, it was only provided after LQD identified the violation and requested the information.

Therefore, under the Conference and Conciliation provisions noted above, additional corrective actions are required. CR is required to investigate the extent of the excursion beyond the monitor well ring and the proximity to the aquifer exemption boundary and the permit boundary. A minimum of two monitor wells to investigate the extent of the excursion will be required. CR must consult with the LQD hydrogeologist on the locations of the proposed monitor wells prior to installation and ensure they are covered under the permit surety. **CR must submit a plan for additional wells within 15 days of receipt of this letter.**

If you have questions, please contact me at pam.rothwell@wyo.gov or 777-7048.


Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Cheyenne, WY
Doug Mandeville, Nuclear Regulatory Commission

MEMORANDUM

TO: Lowell Spackman, District 1 Supervisor 

FROM: Pam Rothwell, Permit Coordinator

DATE: May 12, 2011

SUBJECT: **Chronology of Events and Recommendations for Excursion Well CM-32
Cameco Resources, Permit #603, Highland Uranium Project**

INTRODUCTION

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
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INTRODUCTION

Cameco Resources operates two in-situ leach (ISL) uranium mines in the Southern Powder River Basin; the Highland Uranium Project (HUP) and the Smith Ranch Mine (SR). The mines are located adjacent to each other including over 37,500 acres in Converse County. The combined production for the mines during the 2009-2010 report period was 1,902,403 pounds of uranium yellow cake.

In-situ mining utilizes the injection of a leaching solution (lixiviant) to remove the in-place uranium ore. The lixiviant is injected through injection wells which surround a production well where the lixiviant and uranium are recovered in solution. Several injection/production well patterns comprise a wellfield. A ring of monitor wells is located around the perimeter of each wellfield to detect lixiviant and/or production fluid migration outside the production pattern. In addition, wells are constructed to monitor the aquifers immediately above and below the production zone to identify contaminants moving vertically. If water sampling of a monitor ring well detects the presence of production fluid, the well is considered *on excursion* if two of three parameters (chloride, alkalinity, conductivity) exceeds an upper control limit (UCL) for the parameter. An excursion can also occur during the groundwater restoration where the fluids are monitored for chloride, conductivity and uranium.

CHRONOLOGY

2007

July 3, 2007	Scheduled sample for Well CM-32 exceeded upper control limits (UCLs)
July 5 & 6, 2007	CR collected excursion confirmation samples
July 10, 2007	Confirmation sampling results confirmed the excursion
July 11, 2007	CR verbally notified LQD
July 11, 2007	LQD received written notification of the excursion. Chloride and Conductivity exceeded the UCLs. CR indicated they were going to begin pumping seven adjacent wells to control the excursion in "adjacent Header House C-22". The wells were being retrofitted for restoration.
July-Dec 2007	<u>Quarterly Excursion Monitoring Reports (3rd and 4th Quarter):</u> All UCL parameters increased through the end of the Fourth Quarter, water level

	also increased. Uranium values reported as high as 0.8 mg/l during this period. (EPA's maximum contaminant level (MCL) for uranium is 0.03 mg/l.
October 23, 2007	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
<u>2008</u>	
Jan-Dec 2008	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated and uranium values rose as high as 5.5 mg/l.
Jan 18, 2008	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
April 22, 2008	<u>Quarterly Mechanical Integrity Test Report</u> states the operator attributes the excursion to the abandoned underground mine workings.
<u>2009</u>	
Jan-Dec. 2009	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated with a uranium level reported at 4.0 mg/l.
<u>2010</u>	
Jan-Dec. 2010	<u>Quarterly Excursion Monitoring Reports</u> : All UCL parameters remained elevated and uranium values rose as high as 4.0 mg/l.
August 17, 2010	LQD Inspector voiced concerns about adding reductant to the restoration fluid due to unanswered questions regarding calcium carbonate precipitation at the wells and/or in the formation. LQD told CR they could continue reverse osmosis (RO) and target areas to get CM-32 off excursion.
November 17, 2010	<u>Quarterly Excursion Monitoring Report, (3rd Quarter)</u> : LQD review of the report notes the lack of water quality change in Well CM-32.
<u>2011</u>	
January 25, 2011	LQD sent a letter to CR requiring a remediation plan for the CM-32 excursion within 45 days. LQD also requested a Guideline 8 parameter suite sample of CM-32.
February 1, 2011	A Mine Unit C potentiometric surface map constructed by LQD hydrogeologist, Steve Ingle, identified the minimal effect of pumping CMP-25 on remediation of the excursion. LQD suggested CR reassess the pumping well.
April 13, 2011	Meeting with LQD and Cameco to discuss groundwater restoration. LQD expressed concerns with the proposed method of combining RO and GWS and how to recover the lixiviant from the pattern area. LQD stated that CR should address the excursion well before working on wellfield restoration. If the wellfield is restored prior to remediation of an excursion, the treatment of the excursion potentially can re-contaminate the restored groundwater in the wellfield. Well CM-32 needs to be at baseline and CR should address this in an urgent manner, i.e., find a better way to get off excursion. CR agreed to rework the model.
April 19, 2011	CR responded to Third Quarter Monitoring Report comments. CR proposed a one year period to remove the well from excursion.
April 20, 2011	LQD Inspector requested the excursion Guideline 8 sample results and they were provided by CR confirming the sample was taken as requested.

	The inspector inquired whether Cameco has taken any action to determine the extent of the excursion beyond the monitor well as it was on excursion for so long a time period. CR reported no actions have been taken.
April 27, 2011	Meeting with LQD and Cameco to discuss MU-C restoration. CR stated they are working on areas of the excursion. LQD emphasized that the proposed plan to remove the well from excursion in one year was not acceptable.
April 28, 2011	CR notified LQD by telephone message that CM-32 has dropped below the UCLs and the well is off excursion.
May 2, 2011	LQD received the monthly Excursion Status Report for Permit 603 confirming the chloride and conductivity levels have trended below the UCLs.

RECOMMENDATIONS

The LQD recommends CR construct additional monitor wells to investigate the extent of the excursion beyond the monitor well. The location of CM-32 is within several hundred feet of the aquifer exemption boundary and the permit boundary. With the injection of restoration fluid into the wellfield subsequent to the beginning of the excursion, there is concern that the lack of control of the excursion for almost four years could have caused fluid migration outside the exemption boundary.

CR should consult with LQD's hydrogeologist on the location of the proposed additional monitor wells prior to installation and ensure they are covered under the permit surety. The LQD is amenable to cooperative action by CR to try to identify the extent of the excursion without issuing a violation. It is recommended that the additional monitor wells be required through a Letter of Conference and Conciliation.



Matt Mead, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

INT-022



John Corra, Director

May 25, 2011

CERTIFIED MAIL 7008 0500 0000 5500 8637

Ms. Dawn Kolkman
Cameco Resources, Inc.
P.O. Box 1210
Glenrock, WY 82637

Subject: March 2011 Inspection, Letter of Conference and Conciliation, Reportable Spill In MU-K-North, Permit 633, Cameco Resources

Dear Ms Kolkman:

The Land Quality Division received on May 10, 2011, CR's response to LQD's request to report a spill that occurred in MU-K-North of the Smith Ranch Mine. CR insists that the spill is not a reportable spill. The LQD has verified CR's claim to have discussed the spill with DEQ staff members, Joe Hunter and Dan Clark, and agrees the spill was reported as a courtesy to LQD. However, the conversations with Mr. Brister noted his insistence that the spill was not "reportable", i.e., it did not meet the regulatory requirements of the definition of a reportable spill. In addition, the DEQ/Water Quality Division could not confirm notification of the spill, as Mr. Brister was advised to do.

Following the conversations with Mr. Brister, an investigation was conducted during the March 2011 Inspection. While inspecting the spill site, neither of Cameco's representatives, Mr. McCarthy or Mr. DeGraugh could answer questions regarding the spill. Ms. Kolkman was not in attendance at the site inspection as stated in CR's May 10, 2011 letter.

CR made a decision to not report the spill in MU-K-North. Although a courtesy notice and discussion was provided to DEQ, it was conveyed that CR did not believe they needed to report the spill. When DEQ staff did not dispute Mr. Brister's conclusion, he assumed DEQ concurred with the decision. CR is cautioned against making such assumptions. The role of the regulatory agency is to protect the state's resources by enforcing the regulations and permit requirements. If CR chooses to contest the regulatory requirements, a discussion should be presented to the LQD Administrator.

The Regulations require an operator to report all spills greater than 420 gallons that enter or threaten to enter a water of the state. After observing the spill sight and reviewing the topographic map of the location of the spill it is determined that the spill threatened to enter the drainage adjacent to the modular tank location.

Herschler Building • 122 West 25th Street • Cheyenne, Wyoming 82002 • <http://deq.state.wy.us>

ADMIN/OUTREACH
(307) 777-7937
FAX 777-3610

ABANDONED MINES
(307) 777-6145
FAX 777-6462

AIR QUALITY
(307) 777-7391
FAX 777-5616

INDUSTRIAL SITING
(307) 777-7369
FAX 777-5973

LAND QUALITY
(307) 777-7756
FAX 777-5864

SOLID & HAZ. WASTE
(307) 777-7752
FAX 777-5973

WATER QUALITY
(307) 777-7781
FAX 777-5973



This operation is being conducted under the permit provisions for non-coal operations required by the *Wyoming Environmental Quality Act (WEQA)* and the *Wyoming DEQ/LQD Noncoal Rules and Regulations (WR&R)*. Therefore, under the "Conference and Conciliation" provisions of the WEQA § 35-11-701(c), the following violations are identified:

- 1 According to the Wyoming Department of Environmental Quality/Water Quality Division, Chapter 4, Section 4 (a)(ii), *Any person owning or having control over oil or a hazardous substance which, after release, enters, or threatens to enter, waters of the state shall: (ii) immediately notify the division of the type, quantity, and location of the release, and of the response, containment, and cleanup actions which have been taken or are proposed to be taken. CR provided courtesy notification of the spill in MU-K-North with an internal decision that it was not reportable. An official notification of a "spill" was not reported to the appropriate agencies.*
- 2 According to CR's Permit 633, Chapter 5, Section 5.5.3, *Any spill which enters a water of the state, any spill in excess of 420 gallons or any spill that threatens to enter a water of the state, comprised of lixiviant, pregnant liquor, acid, solvent, process waste water or any similar stream shall be reported to DEQ/WQD and DEQ/LQD within 24 hours of the incident followed with a written report within 7 days. For the purposes of this document, a water of the state includes dry draws, playas, a wetlands, as well as streams, rivers and lakes. CR made a decision that the spill was not reportable without providing details of the spill with regard to the spill samples or a map of the spill with respect to waters of the state. A written report was not submitted within 7 days based CR's assumption that the spill was not reportable.*

Therefore, under the Conference and Conciliation provisions noted above, additional corrective actions are required. CR is required to:

- Officially report to the appropriate agencies, the spill in MU-K-North including the date of the spill, amount of the release, location of the release, and whether or not a sample was obtained of the spill release fluid.
- Submit a written report including a map of the spill and explanation of the events leading to the spill. Provide details of the apparent cause investigation conducted by CR's internal review.
- Compliance of the above items must occur **within 10 days of receipt of this Letter of Conference and Conciliation** to avoid further enforcement action.

If you have questions, please contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Cheyenne, WY
Doug Mandeville, Nuclear Regulatory Commission
Joe Hunter, DEQ, Spill Coordinator
Leah Kraft, DEQ/WQD



CAMECO RESOURCES
 Smith Ranch-Highland
 Operation
 Mail:
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 Glenrock, WY
 82637 USA

Tel: (307) 358-6541
 Fax: (307) 358-4533
 www.cameco.com

May 26, 2011

Mr. Lowell Spackman, District 1 Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 Herschler Building
 122 West 25th Street
 Cheyenne, WY 82002

CERTIFIED MAIL #70100780000160019763 RETURN RECEIPT REQUESTED

RE: Release of Solutions Report, Cameco Resources, Smith Ranch Highland Uranium Project, Permit 633

Dear Mr. Spackman:

In accordance with WDEQ regulation and the NRC License SUA 1548, Power Resources, Inc. d/b/a Cameco Resources (Cameco) verbally notified via telephone Ms. Pam Rothwell of Wyoming Department of Environmental Quality, Land Quality Division (WDEQ-LQD), Mr. Doug Mandeville, Nuclear Regulatory Commission (NRC), and Mr. Joe Hunter, WDEQ, Water Quality Division (WDEQ-WQD), on May 20, 2011 that a release had occurred at Smith Ranch-Highland Uranium Project in Converse County, Wyoming on May 19, 2011. The release was also recorded on the WDEQ-WQD Report A Spill, Release, Complaint database.

Approximately 790 gallons were released from bell hole #1 located near satellite SR2 on May 19, 2011. The release resulted from restarting the wellfield and booster pumps after a power outage at SR2 Satellite and discovering an 18" gasket on a blind flange failed. The corrective action taken for this condition was to shutdown the wellfield and satellite plant, then isolate the main trunk line valves to stop the flow. A vacuum truck was dispatched and recovered approximately 200 gallons of the estimated 790 gallons released. The gasket was replaced, power restored, and following these corrective actions, the wellfield was put back into operation. The release is located in the NWNE of Section 17, T.35N, R.74W, of Converse County, Wyoming. A field map is attached. The release will be updated into the site base map for inclusion in the Annual Report.

A solution sample was collected and resulting analysis indicated 17 ppm U-nat. A gamma survey of the release area has been conducted using a MicroR meter. Soil samples (0-6 inches) have been collected and sent in to Energy Labs for analysis. The field map attached shows the point locations of the soil samples taken in accordance to NRC guidelines and Cameco's SOP on spills.

Cameco will provide a follow-up letter to WDEQ-LQD with the soil sample analyses.

Please contact Dawn Kolkman @ 307-358-6541, ext 435 or at Dawn_Kolkman@cameco.com if you have questions.

Respectfully,

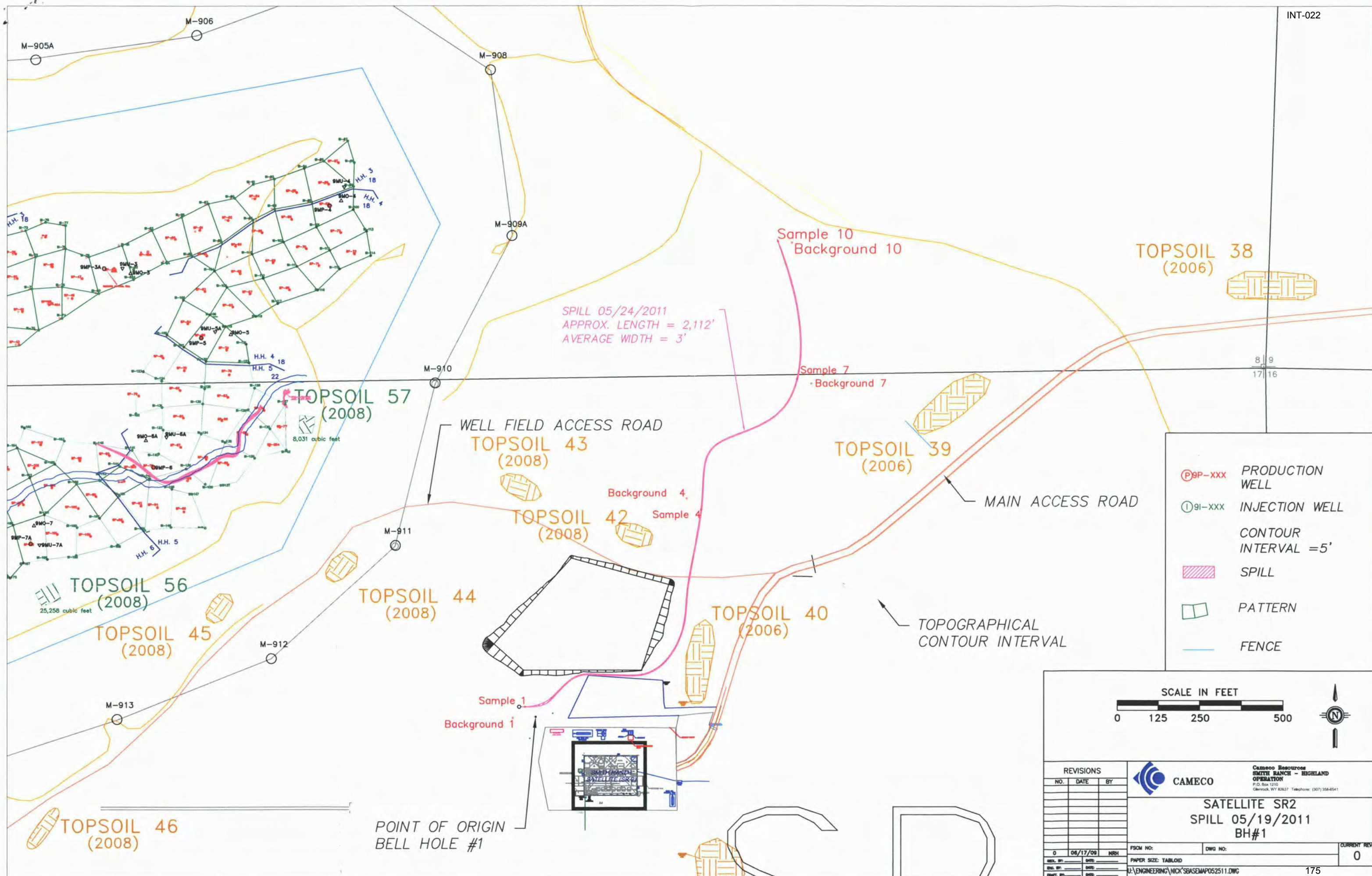


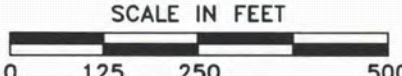


Tom Cannon
General Manager of Operations

LTC/kg

Attachments: Map

cc: Mr. Doug Mandeville – NRC Project Manager (2-copies)
Mr. Joe Hunter – Water Quality Division
File SR 4.3.3.1
cc: Cameco Resources-Cheyenne



																																									
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From: Dawn Kolkman [Dawn_Kolkman@cameco.com]
Sent: Wednesday, June 08, 2011 1:15 PM
To: Mandeville, Douglas
Subject: FW: Excursion

Doug, I had sent an email to you yesterday but I guess I had an old address. Here is the email that was sent yesterday evening.

If questions, just call.

Thanks!

Dawn Kolkman
 Manager, Safety, Health, Environment and Quality (SHEQ)
 Cameco Resources
 Smith Ranch-Highland Project
 PO Box 1210
 Glenrock, WY 82637
 307-358-6541 x 435

This e-mail and any files transmitted with it are personal and confidential, and are intended solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this e-mail and any files transmitted with it (without making any copies) and contact Cameco Resources at once at (307) 358-6541.

From: Dawn Kolkman
Sent: Tuesday, June 07, 2011 5:53 PM
To: 'dtml@nrc.gov'
Cc: Karen Siebken; Kenneth Garoutte; Thomas Cannon; Tom Young; Joe Brister; Josh Leftwich; Beverly Johnson (Beverly_Johnson@cameco.com); John McCarthy; 'Arlene Faunce (Arlene_Faunce@cameco.com)'
Subject: Excursion

Doug,
 I phoned and left a voicemail message at approximately 5:36 pm regarding a confirmed excursion at DM-10 in Mine Unit D. Alkalinity and Chloride UCLs were exceeded. The required written notification will be forthcoming.

If you have questions, please contact me at 307-358-6541 x. 435.

Thank You

Dawn Kolkman
 Manager, Safety, Health, Environment and Quality (SHEQ)
 Cameco Resources
 Smith Ranch-Highland Project
 PO Box 1210

Glenrock, WY 82637
307-358-6541 x 435

This e-mail and any files transmitted with it are personal and confidential, and are intended solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this e-mail and any files transmitted with it (without making any copies) and contact Cameco Resources at once at (307) 358-6541.

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June 21, 2011

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL #70092820000140462638 RETURN RECEIPT REQUESTED

**RE: Excursion at Monitor Well DM-10, Cameco Resources Highland Uranium Project,
Permit to Mine No. 603**

Dear Mr. Spackman:

In accordance with WDEQ/LQD Chapter 11 regulations, Section 8.4 of the Operations Plan for Permit 603 and NRC License Condition No. 11.5 for the Highland Uranium Project, Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is providing written notification that Monitor Well KM-031 confirmation monitoring results, received June 16, 2011 showed it to be on excursion status on June 15, 2011. Ms. Pam Rothwell from WDEQ/LQD, and Mr. Doug Mandeville from the NRC were notified by telephone and email on June 16, 2011.

Analytical results of June 15, 2011 for the routine sample taken on June 14, 2011 indicated a potential exceedance in two of the three parameters (alkalinity and conductivity). Cameco collected a confirmation sample from the monitor well and analyzed it with a quality assurance duplicate on June 15, 2011. Results of the laboratory analyses confirmed the exceedance of Upper Control Limit (UCL) parameters as shown below.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (µMhos/cm)
	UCL 16	UCL 149	UCL 769
6/15/2011	8	151	770
6/14/2011	8	150	772

Monitor Well KM-031 is located in Mine Unit K as illustrated on the attached map and belongs to monitor wells installed for monitoring the lower portion of Mine Unit K. Cameco is investigating the cause of the excursion to identify and apply the appropriate corrective actions to resolve the excursion. Sampling of monitor wells adjacent to KM-031 does not show any water quality concerns. Cameco is therefore reviewing the baseline sampling and approved upper control limit (UCL) parameters for comparison of adjacent monitoring wells KM-030 and KM-032. Additionally, Cameco will be sampling Monitor Wells KM-002 and KM-003. These two monitoring wells are located in the original monitor well ring, which are no longer part of the production sampling for Mine Unit K. The monitor wells are illustrated on the attached map. The water samples for these wells will be collected and analyzed to compare quality analysis with Monitor Well KM-031. Weekly samples will be collected to monitor the UCL constituents until the excursion is resolved. The excursion at Monitor Well KM-031 has been added to the monthly Excursion Report Summary and will be identified on the Cameco Resources site map.

Pursuant to WDEQ/LQD Chapter 11, Section 2 a duly authorized representative certification is attached.

Please contact Dawn Kolkman at (307)358-6541 ext. 435 or Dawn_Kolkman@cameco.com if you have any questions.

Sincerely,



Tom Cannon
General Manager of Operations

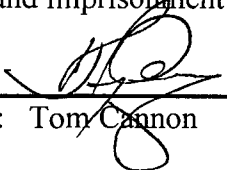
LTC/dk

Attachment: 1) Map
2) Duly Authorized Representative Certification

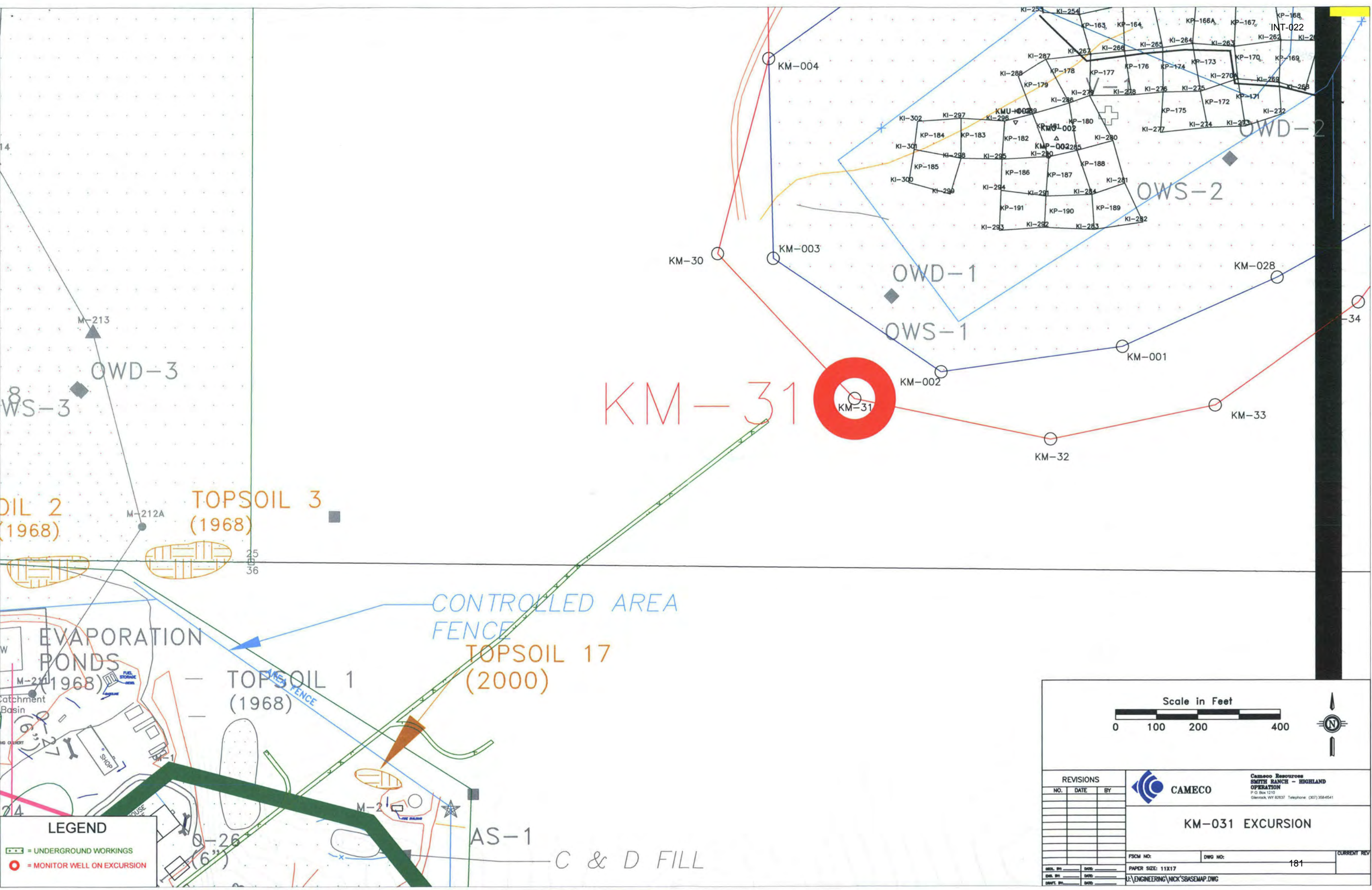
cc: D. Mandeville, USNRC (2 copies) File HUP 4.6.4.1
ec: CR-Cheyenne

Duly Authorized Representative Certification

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.


Duly Authorized Representative: Tom Cannon

6.21.11
Date:



LEGEND

- = UNDERGROUND WORKINGS
- = MONITOR WELL ON EXCURSION

Scale in Feet

0 100 200 400

N

REVISIONS		
NO.	DATE	BY

CAMECO

Cameco Resources
SMITH RANCH - HIGHLAND
OPERATION
P.O. Box 1210
Greeneville, TN 37617 Telephone: (423) 358-4541

KM-031 EXCURSION

FSCM NO:	DWG NO:	CURRENT REV

PAPER SIZE: 11X17

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KM-31

CONTROLLED AREA
FENCE

TOPSOIL 2
(1968)

TOPSOIL 3
(1968)

EVAPORATION
PONDS
(1968)

TOPSOIL 1
(1968)

TOPSOIL 17
(2000)

AS-1

C & D FILL



Matthew H. Mead, Governor

Department of Environmental Quality

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INT-022



John Corra, Director

June 30, 2011

Ms. Dawn Kolkman
 Cameco Resources, Inc.
 P.O. Box 1210
 Glenrock, WY 82637

**Subject: Cameco Resources Response to Letter of Conference and Conciliation (LCC)
 Surface Discharge in Proposed Mine Unit K-North, Permit 633**

Dear Ms Kolkman:

The Land Quality Division (LQD) received response to the referenced LCC on June 13, 2011. The letter prompted investigation into the LQD regulations and the Wyoming Environmental Quality Act (WEQA) to determine LQD's authority to require spill reporting. The result of the review confirms LQD's authority to require reporting of spills. It is important to note the distinction between LQD requirements for reporting a spill and those by other DEQ Divisions or by other regulatory agencies such as the Nuclear Regulatory Commission. Under other regulatory entities, the term "reportable release" may be used to describe whether the water quality or quantity of the spill meets specific criteria. The LQD does not evaluate strictly the criteria used by other regulatory entities to determine whether a spill report is required.

The LQD's primary function is to regulate mine activity. If a spill occurs on the mine site, LQD evaluates not only the impacts of the water quality associated with the spill, but also how the spill impacts the mine site. These impacts take into consideration, the protection of the topsoil, vegetation, natural drainages, disturbance areas, reclamation areas, facility areas, etc.

To clarify this discussion with an example, please refer to the citations used in the Notice of Violation, Docket No. 4164-07 issued to CR on November 28, 2007:

1. LQD Non-Coal Rules and Regulations, Chapter 11, Section 9(a)(iv) requires the operator to "properly operate and maintain all facilities and systems of treatment and control which are installed or used by the operator to achieve compliance with the terms and conditions of the permit";
2. W.S. §35-11-415(b)(ii), requires the operator to conduct all mining activities in conformity with the approved plan;
3. W.S. §35-11-415(b)(viii), requires the operator to prevent pollution of surface and subsurface waters during the mining and reclamation operation;
4. Noncoal Rules and Regulations, Chapter 3 Section 2(c)(i) regulates protection of topsoil;



Response to Conference & Conciliation
Permit 633, Cameco Resources
Page 2

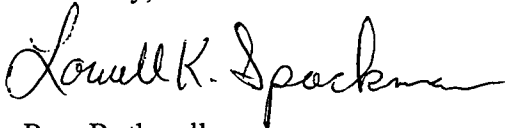
5. W.S. §35-11-402(a)(vi), precludes discharging pollution into waters of the state;
6. W.S. §35-11-301(a)(i), and Chapter 2 of the Wyoming Water Quality Rules and Regulations states that “no person, except when authorized by a permit issued by the Department of Environmental Quality, shall cause, threaten or allow the discharge of any pollution or wastes into the waters of the state.”

The referenced NOV is used to emphasize that the referenced spill resulted in multiple impacts; not limited to water quality. Please continue to report all spills to the LQD according to the permit commitments.

The staff will be reviewing the spill report for the MU-K-North spill to evaluate the impacts to the operation.

If you have questions, please contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Cheyenne, WY
Doug Mandeville, Nuclear Regulatory Commission



Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matthew H. Mead, Governor

INT-022



John Corra, Director

October 21, 2011

Mr. Kenneth Garoutte
Cameco Resources, Inc.
PO Box 1210
Glenrock, WY 82637

**Subject: June 2011 Inspection Report & Compliance Concerns
Cameco Resources, Permits 603 & 633**

Dear Mr. Garoutte:

Please find enclosed the above referenced report. The June inspection was conducted with assistance from Cameco Resources (CR) staff on June 14 and June 16, 2011. Additional inspection was conducted on June 23, 2011 to address well completions and split sampling for a well excursion compliance issue. LQD also evaluated the reclamation on abandoned drill holes under drill notification DN236. Separate reports will be issued to address the additional inspections.

Through the April and June 2011 inspections of the permits, the LQD identified many compliance concerns with regard to drill hole and well abandonment, open and uncapped drill holes and wells, topsoil salvage and protection, erosion and sediment control, drilling without notification or approval of notification and compliance with the wellfield restoration schedule. Additional concerns identified through self-reporting of missed sampling events, failure to report a significant spill, abatement of spills and surety deficiencies has compounded the compliance issues from the inspections.

The CR executive and mine staff met with Department of Environmental Quality Director, John Corra and LQD staff in effort to resolve the issues on August 9, 2011. As a result of the meeting, CR agreed to resolve all legacy compliance issues and work with the LQD to resolve the recent compliance issues. LQD continues to work through the issues with CR. The task to clearly identify the issues and find a path forward has been cumbersome and complicated due to historical procedures and permitting that has not been kept up to date. Despite efforts to schedule compliance commitments and deadlines it was found that resolution to the issues will require time.



June 2011 Inspection Report
Permits 603 & 633, Cameco Resources
Page 2

LQD is continuing to work on the Draft Commitments and Deadlines Schedule. CR is working cooperatively to resolve many of the issues. The intent is to finalize the Schedule and track the prescribed deadlines for compliance. A decision to issue Notice of Violations or Letters of Conference and Conciliation has not been determined.

If you have any questions, please do not hesitate to contact me at prothw@wyo.gov or 777-7048.

Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosure

cc: Cameco Resources, Cheyenne, WY w/att
Douglas Mandeville, NRC w/att

**PERMITS 603 & 633 INSPECTION REPORT
JUNE 2011
DISTRICT 1/LAND QUALITY DIVISION**

COMPANY: Cameco Resources Incorporated

LOCATION: North of Glenrock, Converse County (Smith-Highland Ranch Uranium Project)

DATE OF INSPECTION: June 14 & 16, 2011

DATE OF REPORT : July 16, 2011

INSPECTORS: Pam Rothwell, LQD District 1 Assistant Supervisor
Steve Ingle, LQD Hydrologist
Julie Powell, LQD Project Engineer
Robin Jones, LQD Vegetation Ecologist

CONDITIONS: Sunny to cloudy with occasional rain showers, 50-75°, light winds (15 mph)

CO. STAFF PRESENT: Dawn Kolkman, Cameco SHEQ Manager
Dave Moody, Cameco, Wellfield Operations Manager
Mike Bryson, Cameco, Wellfield Supervisor
Nick Blackburn, Wellfield Supervisor
Perry Herschberger, Drilling Supervisor
Craig Heiser, Wellfield Development Supervisor

INTRODUCTION

The focus of this inspection was to investigate numerous aspects of the SHRUP operation. LQD identified the following items to be investigated during the scheduled inspection:

- Plug and abandonment of drill hole sites.
- Abandoned wells.
- Deep disposal wells.
- PSR2 monitor wells.
- Irrigator.
- Booster pumps.
- Radium pond reclamation.

PRE-MEETING (June 14, 2011)

Pam Rothwell and Steve Ingle participated in a meeting prior to field inspection:

- CM-32 e-log showed no indication of mineral as explained by CR; working on well completion;
- Cameco has hired Dave McGee, Wildlife Biologist. He is mapping out raptors and sage grouse on the permit to delineate restricted areas;
- Excursion locations presented on a map by Dave Moody; CM-32 still stable; CM-33 may be indicating an increase toward excursion again; DM-03 still on excursion; DM-10 something going on, may be result of biofouling or influence of underground workings- Bob Lewis is reviewing – influence of abandoned haulage ways and production pattern;
- MU-D – intense effort in restoration; upgradient end of wellfield, IX @ 240 gpm in May;
- MU-C – over-pumping for restoration, need restoration wells, waiting on P&A cost decision;
- MU-E – waiting on the end of the sage grouse restriction (end of June) to continue installation of wells;
- MU-F – added 18 bell holes, looking at trend wells to determine header houses needed and also will be determining wells needed; watching for excursions; communication with landowner (Domsalla) for new production;
- Dave showed inspectors a map of the trunkline infrastructure that is planned to connect the satellites. Construction will not begin until the surety is updated;

INSPECTION SUMMARY (June 14, 2011)

Abandoned Drill Holes

Julie Powell was accompanied by Perry Herschberger and Craig Heiser to continue the inspection of a percentage of abandoned drill holes reported in the “2009 Annual Reports for PT 603 & 633”. Cameco was provided a list of thirty (30) drill holes to be inspected in March 2011. Thirteen (13) of the holes were inspected during the April 2011 field inspection and are noted in that inspection report. Results from this inspection are documented in **Table 1** and include the abandoned drill hole ID number, northing, easting, total hole depth, completion date, surface soil cap integrity result, concrete cap integrity result, and the depth measured to plugging material.

A total of seven (7) holes were inspected in the permit area during today’s inspection. Two (2) holes could not be located after extensive excavation (#451 and #986) and the inspection attempt was abandoned. It was also noted that hole #1029 was cemented to ground surface. Mr. Heiser indicated that this drill hole was completed with an eight (8) inch diameter size bit and was abandoned due to unacceptable vertical deviation. Due to the large diameter (larger than six (6) inches), Cameco policy dictated that the abandoned drill hole must be completely filled with cement. The hardened concrete was observed to ground surface elevation.

MU-K-North

While investigation for abandoned drill holes in the Mine-Unit K North area, numerous deficiencies were observed with erosion and sediment control. A small topsoil pile was noted near hole #3673-19-996 with no sediment control measures (see **Fig. 1**). Steep vertical cuts with no sediment control measures were also encountered in this area (see **Fig. 2**). Sediment was visibly being transported over existing straw wattles (**Fig. 3**) and abandoned silt fence was noted

in disrepair (*Fig. 4*). Mine-Unit K North was noted as a very active development area (see *Fig. 5*) and is lacking in adequate erosion and sediment control.

Plug & Abandonment of Wells

MU-15 investigation of wells requesting release of plug and abandonment cost (through 2010-2011 Annual Report). The wells inspected were plugged with concrete to surface, however the casing was not cut off and surface reclamation was not complete. CR will need to complete the abandonment part of P&A to receive the release of bond. No wells were given consent for P&A bond release during the inspection.

The inspectors noted many wells without caps and open with standing water at depth. Further investigation of the wellfield header houses noted many wells were not in operations as indicated by the tags in the header houses (see *Figs. 15 & 16*). Header houses 15-1, 15-2, 15-3, 15-4, 15-5, and 15-6 were observed with similar findings of few operational wells and low flow rates for production and injection.

The inspectors observed the plugging activities at a well (CP-241). The well was 539 feet deep. The equipment required includes a hose reel, a mixing unit, water truck, fork lift, backhoe and two pickup trucks; one with a flatbed and one used to tow the hose reel. A three man crew is needed to operate the equipment. The steps to abandon the well are outlined below:

- 1 A mud pit is dug to contain the water displaced from the well and the clean-out water from the hose reel. (see *Fig. 6*)
- 2 A measured amount of water is added to the mixing tub (see *Fig. 7*).
- 3 A hopper of dry cement is moved to the mixing unit and added with a cyclone mixer attached to the mixing unit (see *Fig. 8*).
- 4 The cement mixture is then added to the mixing tub (see *Fig. 9*).
- 5 For this well to get the correct cement/bentonite mixture, six sacks of plug gel (bentonite) is added to the cyclone mixer and the mixing tub (see *Fig. 10*). The pickup truck with the flatbed and a hopper of cement is in the background of this picture.
- 6 The cement and bentonite are mixed in the mixing tub until the desired consistency is achieved (see *Fig. 11*).
- 7 A mud weight is measured with a mud scale (see *Fig. 12*).
- 8 When the correct mud weight is determined, the mixture is pumped through the hose reel and displaces the water in the well from the bottom to the top (see *Fig. 13*).
- 9 As the cement bentonite mixture is added to the well, the hose is gradually removed and the well is filled to the top of the casing with cement allowed to settle and refill (see *Fig. 14*).
- 10 The hose and mixing unit are flushed with clean water, which discharges into the mud pit.
- 11 The hole is temporarily capped.
- 12 The driller stated that the cement is allowed to set for approximately two days and a crew will check the well and add cement as needed to top of the hole.

INSPECTION SUMMARY (June 16, 2011)

Abandoned Drill Holes

Julie Powell continued the inspection of abandoned drill holes with Perry Herschberger and Nick Blackburn (Craig Hiser was unavailable). The inspection began in Mine-Unit 15 area where holes #1107 and #180 were located. The inspection moved into Mine-Unit 10. Attempts to locate hole #404 was unsuccessful. The inspector chose another hole nearby at random and hole #412 was located (substitute for #404). Holes #380, #1043, and #1019 were located. The remaining hole (#3673-23-1) is located a minimum one hour away. Due to its location and time remaining in the day, it was decided that this will be inspected during the next scheduled visit.

Of the thirty (30) abandoned drill holes needing to be inspected as part of the “2009 PT 603 & 633 Annual Reports”, twenty-three (23) have been completed at the conclusion of this inspection.

A field discussion with Mr. Herschberger regarding the mixing procedure for plugging material was conducted. According to Mr. Herschberger, plugging material is mixed on-site in a pit by emptying bags of dry material into the un-lined pit and adding an unmeasured volume of water until the viscosity reaches sixty-two (62) seconds per the Marsh Funnel Testing Procedure. The dry material and water is hand mixed with a wooden paddle and the resulting material is utilized in the plugging operation. A volume of water added to the dry material cannot be reported to LQD for the purpose of conducting volume calculations due to this inexact mixing procedure.

Mr. Herschberger also indicated that the Casper office completes exploration drill holes and the on-site crew at SHRUP completes production well drill holes. Each crew completes their own plug and abandonment procedures for drill holes and wells. He also reinforced Cameco’s position that they are in compliance with all plug and abandonment requirements and that the fallback in each drill hole is a result of the plugging material seeking the static water level of the aquifer.

The inspector requested the abandonment drilling sheets for the holes inspected. All drilling sheets for the abandoned holes inspected were obtained with the exception of hole #3673-19-1029. Cameco indicated that some of the abandonment sheets had not been provided to their office by the Casper operation. They also indicated that the missing sheets would be obtained and copies forwarded to the LQD. The information contained in the drilling sheets provided is summarized in *Table 2*.

MU-H Inspection

The inspectors noted wells without caps and open with standing water at depth (see *Figs. 17a, 17b and 17c*). Many of these wells did not appear to be operating. Also, the well covers for many of the wells were removed and stacked on the side of the wellfield (see *Fig 18*). Further investigation of the wellfield header houses confirmed that many wells were not in operations as indicated by the tags in the header houses (see *Figs. 19, 20 & 21*). Header houses H-1, H-2, H-3,

H-4, H-5, H-6, H-11, H-12, H-14 and H-16 were inspected. Limited injection and production were observed in many of the header houses.

Deep Disposal Well – Morton #1

The Morton #1 was not operating at the time of the inspection. CR was investigating the low annulus pressure and had repair parts ordered. The pressure reading was around 253 psi and the allowable range is 200-780 psi. DDW's 5-7 were operating. A pipeline was being installed to the Morton #1. There was substantial disturbance associated with the installation.

Satellite #2

CR is currently producing 91 gpm from Mine Unit C and re-injecting 55 gpm which represents a 25% RO bleed. Well DP-7 was being pumped to help control the excursion at Well DM-3 and Well DP-22 was being pumped to control the excursion at Well DM-10. Well DM-10 was being rewired at the time of the inspection to hopefully raise the production rate from two gpm to ten gpm. There is an apparent groundwater mound in the DP-21 and DP-22 area. CR's consultant Bob Lewis is investigating the drift problem. CR is currently in the RO phase in the D-Extension and is producing 281 gpm, not including the D-7 header house.

Radium Pond Reclamation

The reclamation project was observed. Pin flagging on the surface marked the grid of soil sampling that has been conducted.

MU-I Inspection

A booster house was inspected and found to include two large pumps. LQD inquired whether the booster pumps were included in the surety. This will be reviewed during the next surety review. The inspectors investigated header houses HH-1, HH-2, HH-3, HH-4, HH-5, and HH-6. From inspection of the header houses, it appeared the wellfield was in full operation with many production and injection wells in operation.

The inspector noted several drill rigs in the MU-I area and inquired as to whether the drilling was to expand the wellfield and whether there was LQD approval as the inspector was not aware of the locations in the Annual Report. CR could not provide a response during the inspection.

PSR2 and Irrigation Circle

The inspectors drove around the pond to evaluate the locations of the four new monitor wells installed at the request of the Nuclear Regulatory Commission. The irrigation circle was noted to be in operation.

Revegetation and Reclamation

Observations were made at the Cameco in-situ site mines of the following reclamation:

- The condition of some of the topsoil piles in Mine Unit 21 were observed. Two typical topsoil piles were observed. These piles were well vegetated, had a stable containment berm around the pile and were signed (see *Figs. 22 & 23*).
- Various re-seedings and repair areas were also visited. The bell-hole repair in Mine Unit 9 had been re-seeded. It was obvious the newly seeded plants were growing. Another area in Mine Unit 9, a recent re-seeding was also viewed. This area had young grass seedlings coming up in obvious drill seeder rows. Additionally, the K-8 thru K-9 area was viewed. The re-seeding in this area was young but coming along.

Abandoned Drill Holes:

The following table indicates the inspection results of each abandoned drill hole observed.

Table 1 – Abandoned Drill Hole Inspection Results

Hole Delineation Number	Northing	Easting	Total Hole Depth	Completion Date	Surface Cover	Concrete Cap	Depth to Plug
3673-19-996	880017	365647	880'	11/13/09	Good	Installed	120'
3673-19-1029	881022	365552	880'	2/24/10	Good	Installed	Cement to surface
3674-24-481	879794	364317	900'	1/22/10	Good	Installed	146'
3674-24-469	879448	364125	880'	11/25/09	Good	Installed	141'
3674-24-451	879646	364341	900'	9/15/09	-	Not found	Not found
3673-19-986	878716	364845	900'	10/20/09	-	Not found	Not found
3574-9-349	860408	339103	1001'	3/22/10	Good	Installed	17'
3574-16-380	852000	345000	1080'	10/22/09	Good	Installed	59'
3574-16-404	852750	344300	980'	10/16/09	Good	Installed	113'
3574-17-1019	852400	338600	1000'	11/10/10	Good	Installed	191'
3574-17-1043	853250	340650	1100'	11/14/09	Good	Installed	-
3574-19-207	849750	333600	920'	12/17/09	Good	Installed	71'
3673-23-1	880310	386098	400'	3/12/10	-	-	-
3574-9-180	859148	346578	961'	2/24/10	Good	Installed	6'
3574-10-1107	859077	349516	901'	3/15/10	Good	Installed	41'

The following table represents pertinent data provided on the drilling sheets for inspected plugged and abandoned drill holes. LQD continues to have concerns with the accuracy of the reported data. When comparing the data provided on the drill sheets, it becomes apparent that there are inconsistencies or incorrect information. By grouping similar depths of drill hole depths, the reported number of bags of plug gel used can easily be compared. These comparisons revealed a wide range of bags reported to be used for like sizes of drill holes and the same number of bags with similar viscosities reported to be used to fill holes with one-hundred (100) feet difference in depth. These situations clearly cannot be accurate or feasible.

Table 2 Drilling Sheet Summary of Information

Hole ID Number	Depth (ft)	Bags (ea)	Viscosity (sec)
3673-19-996	880	11	71
3674-24-469	880	7	75
3673-19-986	900	18	80
3674-24-451	900	10	72
3574-10-1107	901	10	89
3574-19-207	920	12	85
3574-9-180	961	10	65
3574-16-404	980	10	65
3574-8-349	1000	20	87
3574-17-1019	1000	12	75
3674-24-481	1000	10	68
3574-16-380	1080	12	90
3574-19-207	1100	10	80

Specific examples of inconsistency include:

- A variation of four (4) bags to fill drill holes eight hundred eighty (880) feet in total depth.
- A variation of eight (8) bags to fill drill holes nine hundred (900) feet in total depth.
- A variation of eight (8) bags to fill drill holes one thousand (1000) feet in total depth.
- Ten (10) bags reported to fill drill holes ranging from nine hundred (900) feet and eleven hundred (1100) feet in total depth.

COMPLIANCE ASSESSMENT

1. All but one abandoned drill hole (#3573-19-1029 was cemented to the surface due to its diameter of eight (8) inches and was abandoned due to MIT failure) inspected by LQD within the permitted area were out of compliance with the following Wyoming State Statute:

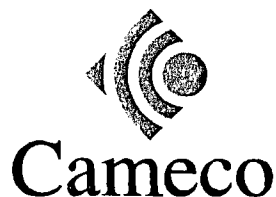
W.S. § 35-11-404(b)(ii): "Sealing. Drill holes which have encountered any ground water shall be sealed by leaving a column of drilling mud in the hole or by such other sealing procedure which is adequate to prevent fluid communication between aquifers"

As noted in the April 2011 inspection report, Cameco Resources has explained to LQD that according to their assessment, the plug gel being utilized for abandonment seeks that static water level once circulated into the drill hole. Based on the widely varying depths to plugging material observed during the April 2011 inspection, LQD was unable to confirm that this theory was feasible. It is LQD's recommendation that Cameco provide detailed analysis of their plugging and abandonment procedures and supporting documentation which indicates a feasible and accurate cause of the varying fall-back depths. Additionally, Cameco needs to advise LQD how these holes will be corrected to comply with the plugging requirement and the method to be used in the future to ensure proper plugging of all abandoned holes.

2. Similar to the April 2011 inspection results and report, the data contained on the "***Uncased Well Abandonment Delineation Drilling Sheets for SR/HO***" appears to be questionable in several instances. When comparing the reported bags of plugging material and viscosity for the same diameter and depth drill holes (see ***Table 2***), the large variations of data presents difficulty in analysis. The questionable reported data needs to be verified and explained to LQD by Cameco.
3. Significant deficiency in sediment and erosion control continues to be a very high concern for LQD at the SHRUP mine sites. The lack of sediment control in the Mine Unit K North exploration areas are a repeat violation that LQD has attempted to impress upon the operator as a serious problem on numerous occasions. The inspector encountered instances of sediment washed onto native areas as a result of the mining activities. According the WEQA, § 35-11-415 (b)(viii), "*The operator...shall...prevent, throughout the mining and reclamation operation...the pollution of surface and subsurface waters on the lands affected...*" and according to the Wyoming Land Quality Division Noncoal Rules and Regulations (R&R), Chapter 3, Section 2(c)(i)(A), "*All topsoil or approved surface material shall be removed from all areas to be affected in the permit area prior to these areas being disturbed...*". The disturbance in Mine Unit K North does not include adequate sediment control with significant sediment being deposited on native areas.
4. It appears that Cameco is attempting to provide more protection of salvaged stockpiles with straw wattles and signs. However there were many instances of poorly protected topsoil stockpiles in areas of active drilling operations (specifically Mine Unit-K North). The instances noted during the inspection include topsoil stockpiles located on slopes without toe ditches or berms to contain the soil in the stockpile on the downslope sides of the piles.

These instances have resulted in loss of soil to the downslope disturbed areas. Failure to adequately protect topsoil is a violation of WEQA, § 35-11-406 (b)(viii).

5. Based upon discussions with Cameco staff as noted above regarding the method being utilized to mix plugging material coupled with the wide variations in bags of material used and their corresponding viscosities, LQD has concerns that the plugging material is not properly mixed prior to use. The specifications for plug gel indicate a specific ratio of water to be added to the dry material. This does not appear to be the method that Cameco or its subcontractors are utilizing. The specifications also note specific levels of water purity that will affect the performance of the material and treatments to counteract these performance inhibitors. Without specific information regarding the amount and quality of water being utilized to mix the plug gel material, it is impossible to perform analysis regarding the volume of material being utilized. LQD requests that Cameco address these concerns and provide specific information regarding the method of mixing plug material and an analysis of the inconsistent quantity and viscosity of plug material reported on the abandonment data sheets.
6. As noted in the inspection summary, Cameco does not have all of the abandonment drilling sheets onsite and would be receiving them from the Casper office. There is only one plug and abandonment sheet that has not been provided to LQD for this portion of the inspection. The plug and abandonment sheet for the following drill hole needs to be submitted to LQD:
 > 3673-19-1029
7. MU-15 and MU-H indicate very little production and no evidence of preparing for restoration. The approved permit schedule shows MU-15 beginning groundwater sweep in January 2010. The permit schedule indicates MU-H beginning groundwater sweep in January 2013. Both wellfields have many wells that are not in operations. An inspection of the header houses in each of the wellfields indicates minimal injection or production flows. There is concern that the wellfield reserves have been depleted and have not been moving into restoration. CR will need to provide evidence of sustained production in these wellfields or begin restoration. The LQD may recommend enforcement action for the lack of restoration in these wellfields.
8. The reclamation of the radium ponds appears to moving extremely slowly. LQD requests a formal update of the reclamation of these ponds by **November 1, 2011**.
9. Based upon a field review of the reclamation at the Cameco property, reclamation work seems to be progressing well. Especially, considering the conditions observed at this property during the 2010 growing season, Cameco appears to be making progress towards a reclamation program capable of repairing surface disturbance related to the mining operation. However, this is not to say perfection has been attained but it is obvious Cameco is putting forth more effort and committing more resources to the reclamation related issues at this property.



July 29, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES
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Operation
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82637 USA

Tel: (307) 358-6541
Fax: (307) 358-4533
www.cameco.com

CERTIFIED MAIL #70100780000160019824 RETURN RECEIPT REQUESTED

RE: Release of Solutions Report, Cameco Resources, Smith Ranch Highland Uranium
Project, Permit 633

Dear Mr. Spackman:

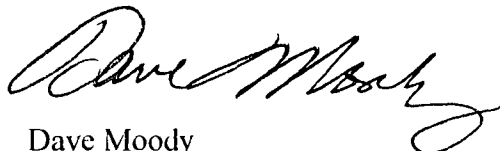
In accordance with WDEQ regulation and the NRC License SUA 1548, Power Resources, Inc. d/b/a Cameco Resources (CR) is herein providing written notification of a release of solution that occurred at Smith Ranch Highland Uranium Project in Converse County, Wyoming on July 22, 2011. Verbal notifications were made to Pam Rothwell of Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD), Mr. Doug Mandeville of the Nuclear Regulatory Commission (NRC), and voice mail left with Joe Hunter of WDEQ-Water Quality Division (WDEQ-WQD) on the morning of July 25, 2011. The release was also recorded on the WDEQ-WQD Report A Spill, Release, Complaint database on July 27, 2011.

At approximately 9 am on July 22, 2011, an estimated 53 gallons of injection fluid was released from Well No. 11-179 located near header house 1-5 in Mine Unit 1. The well was shut off for repairs to the wellhead. The release resulted when the well was turned back on before repairs were completed. The corrective action taken for this condition was to immediately shut off the well. The result of the corrective action taken was to finish the repair and return the well back into service.

The release is located in the SENE ¼¼ of Section 36, T-36N, R-74W of Converse County, Wyoming. A field map is attached. The release will be updated into the site base map for inclusion in the Annual Report. A solution sample was collected and resulting analysis indicated 0.8 ppm U₃O₈ (0.67 ppm U-nat). A gamma survey of the release area has been conducted using a MicroR meter. In accordance to NRC guidelines and Cameco's SOP on spills, soil samples (0-6 inches) have been collected and sent to Energy Labs for analysis. The field map attached shows the point locations of the soil samples taken.

Please contact Larry Teahon @ 307-358-6541, ext 435 or Larry_Teahon@cameco.com if you have questions.

Respectfully,

A handwritten signature in black ink, appearing to read "Dave Moody". The signature is fluid and cursive, with the first name "Dave" being more prominent than the last name "Moody".

Dave Moody
Wellfield Operations Manager

DM/kg

Attachments: Map

cc: Mr. Doug Mandeville – NRC Project Manager (2 copies)
Mr. Joe Hunter – WDEQ, Water Quality Division
File SR 4.3.3.1

ec: Cameco Resources-Cheyenne

HEADERHOUSE 5

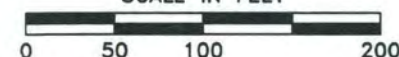
- BACKGROUND SAMPLE

- SAMPLE POINT 2

WELL FIELD
ACCESS ROAD

-  WELL FIELD WELLS
-  SAMPLE POINTS
-  SPILL
-  PATTERN
-  FENCE

SCALE IN FEET



REVISIONS		
NO.	DATE	BY

CHECKED BY _____
 DRAWN BY _____

DATED _____
 DATED _____



CAMECO

Cameco Resources
SMITH RANCH - HIGHLAND
OPERATION
P.O. Box 1210
Glenrock, WY 82637 Telephone: (307) 358-6541

MINE UNIT 1 HEADER HOUSE 5
SPILL LOCATION
07-22-2011

PSCM NO:	DWG NO:	CURRENT REVISION
PAPER SIZE: ANSI EXPAND A (8.50 X 11.00 INCHES)		
U:\ENGINEERING\NICK\SBASEMAP.DWG		



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August 3, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL #7009 2820 0001 4046 2355 RETURN RECEIPT REQUESTED

Re: Monthly Report East Storage Pond Leak, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit to Mine No. 633

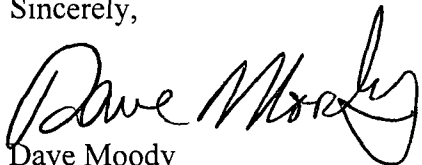
Dear Mr. Spackman:

On June 30, 2011, Power Resources, Inc., d/b/a Cameco Resources (Cameco) provided written notification to Wyoming Department of Environmental Land Quality Division and the Nuclear Regulatory Commission regarding a leak into secondary containment discovered on June 13, 2011 in the East Evaporation Pond Sump. Weekly samples and a monthly sample were collected and results provided in the June 30, 2011 monthly report.

Cameco drained the pond to investigate the leak into secondary containment and repaired a tear in the primary liner. Following repairs, water was returned to the pond. To date, the level has not risen above the area of repair. Weekly and monthly samples were not collected in the month of July, 2011 as the sump has remained dry, and the primary liner is no longer leaking. Routine monitoring will continue to ensure no leakage occurs as the water levels rise above the area of repair. If water is detected in the sump, sampling will be performed at that time.

Please contact Larry Teahon at (307) 358-6541 Ext. 435 if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Moody". The signature is fluid and cursive, with the first name "Dave" being more prominent than the last name "Moody".

Dave Moody
Wellfield Operations Manager

DM/bj

cc: Mr. Doug Mandeville – NRC Project Manager (2 copies)
File SR 4.3.3.1 File SR 4.3.3.4

ec: CR-Cheyenne



August 8, 2011

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

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Certified Mail: Return Receipt Requested: #7009 2820 0001 4046 2799

RE: Missed Mechanical Integrity Testing, Cameco Resources, Smith Ranch Uranium Project,
Permit to Mine No. 603

Dear Mr. Spackman:

Cameco Resources, Smith Ranch Uranium Project is herein providing the status of one well recently discovered missed during the five-year Mechanical Integrity Test (MIT) and subsequently tested.

Mine Unit	Well	Date Found	5 Yr. MIT Due Date	J top Depth (ft.)	Pass Date
C	CMP-020I	7/21/2011	5/6/2011	600.0	7/28/11

MIT results will be reported in the appropriate Quarterly Reports to WDEQ/LQD.

Please contact me at (307) 358-6541, Ext. 435 if you have questions.

Sincerely,

Larry Teahon
Interim SHEQ Manager

cc: File HUP 4.3.3.1
Doug Mandeville, USNRC (2 copies)
ec: CR - Cheyenne

From: John McCarthy [John_McCarthy@cameco.com]
Sent: Friday, August 19, 2011 5:21 PM
To: Mandeville, Douglas
Cc: Arlene Faunce; Stephen Shire; Kenneth Garoutte
Subject: spill

Doug,

I am reporting to you a spill in mine unit 15, HH15-23/I51-802. The spill was injection fluid and was 85 gallons total volume. The release involved a pop-off malfunction. We are now required by the WDEQ to report all releases to them and as a result you are included in the notification process.

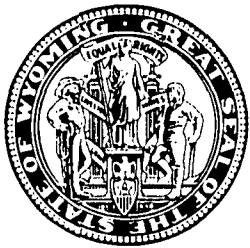
Regards,

John McCarthy
Assistant Manager, Safety, Health, Environment and Quality (SHEQ), RSO
Cameco Resources
Smith Ranch-Highland
P.O. Box 1210
Glenrock, WY 82637

Office: (307) 358-6541, ext. 446
E-mail: John_McCarthy@cameco.com

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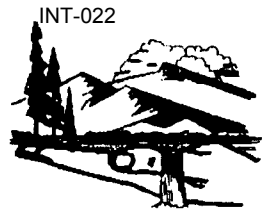
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Matthew H. Mead, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



John Corra, Director

August 22, 2011

Mr. Larry Teahon
Interim Manager, Safety, Health, Environment & Quality
Cameco Resources
P.O. Box 1210
Glenrock, WY 82637

**RE: TFN 5 3/121, Third Round Review of Revised Restoration Schedule
Permit 633, Smith Ranch Mine, Cameco Resources**

Dear Mr. Teahon:

The Land Quality Division (LQD) has reviewed the responses to T2 comments and the additional changes to the restoration plan. These changes were discussed during a meeting with LQD on August 9, 2011 where it was explained that the proposed changes are beyond the scope of the review. The LQD has been concerned with the extended period of the review and the lack of a current/updated restoration schedules. In addition, LQD learned of restoration delays in MU-15 during the June 2011 inspection which further heightened concerns for restoration.

Therefore, during our meeting on August 9, 2011, LQD requested the referenced revision be expedited by limiting the scope of the review to schedule updates. Other proposed restoration methodology changes will need to be submitted following the approval of this revision.

LQD recognizes many changes have been proposed under this revision and recommends CR summarize the changes needed to justify the schedule update. CR should meet with LQD to discuss all changes and responses to comments in effort to meet the deadline agreed upon for this revision; i.e., October 19, 2011.

If you have any questions, please contact me at pam.rothwell@wyo.gov or 307-777-7048.

Sincerely,

Pam Rothwell
Permit Coordinator/District I Assistant Supervisor
Land Quality Division

Enclosures

Cc: Cameco Resources, 2020 Carey Avenue, Cheyenne, WY 82001
Doug Mandeville, NRC



JKS

TFN 5 3/121, REVISED RESTORATION SCHEDULE, T3 REVIEW

CAMECO RESOURCES, SMITH RANCH MINE, PERMIT 633

INTRODUCTION

On July 23, 2009 Cameco Resources (CR), Land Quality Division (LQD) and the Nuclear Regulatory Commission (NRC) discussed groundwater restoration plans at the Smith-Highland ISL mines. CR proposed using less groundwater sweep (GWS) than had traditionally been utilized as little benefit has been recognized with GWS. The focus would be a slower process, maintaining the cone of depression with a 20% bleed and using reverse osmosis (RO). It was suggested by CR that groundwater modeling would be used to develop plans for wellfield restoration. During the meeting CR indicated a new restoration schedule would be submitted to reflect these proposed changes.

LQD received the proposed change on August 17, 2009 which consisted of a single page change to the permit reclamation plan (Attachment 1, Highland Uranium Project – Estimated Time Table of Restoration Activities). Technical review comments were sent to CR on December 21, 2009. CR submitted responses to comments on September 17, 2010 with a completely new schedule for review and included text changes to the operations and reclamation plans. The LQD reviewed the new changes with comments sent on November 8, 2010. CR again revised plans for restoration including methodology and schedule changes which were received on May 6, 2011.

The LQD repeatedly requested meetings to discuss the restoration schedule and the proposed changes. On April 13, 2011, CR agreed to meet to discuss the proposed changes. Although the proposed changes could be conceptualized as making progress toward expediting restoration, the LQD was concerned with the scope of the changes without opportunity to review. In fact, LQD understands that CR has proceeded with implementation of many of the changes without LQD review and approval. The LQD Noncoal Rules and Regulations (R&R) Chapter 7, Section 2(b)(ii)(G) provides that a major revision (i.e., requiring public notice) may be warranted for changes which propose significant alterations in the approved mining or reclamation operations as determined by the Administrator.

Therefore, with the recent discovery of potential idling (lack of production or restoration activities) in MU-15 during the June, 2011 inspection, combined with the extended delays for a revised and current restoration plan, the LQD is considering issuing a violation for restoration delays. CR is attempting to resolve the compliance issue with commitment to 1) revert to the approved restoration methods, 2) resolve the restoration revisions with updated schedules and water balances for both permits 603 and 633 by October 19, 2011, and 3) re-submit changes to the restoration methodology following approval of the schedule changes.

The following comments address the May 6, 2011 responses to comments, however, LQD is requesting that any changes that are not within the scope of the review (i.e., combining GWS and RO) be withdrawn from the submittal. There are some changes which LQD is open to discussion for inclusion in the submittal such as the discussion of progressive change-over to restoration

TFN 5 3/121, Restoration Plan Revision, T3 Review
 Permit 633, Cameco Resources
 Page 2

within a wellfield, pre-restoration activities and including bio/reductant and stabilization on the schedule. It is suggested that CR meet with LQD to discuss these issues for inclusion under the scope of the revision. CR should step back and evaluate all review comments submitted since the original submittal to understand LQD concerns. Each of the reviews (T1, T2 and T3) addressed different changes and therefore, any changes that are proposed to remain in the revision may have specific comments. It is requested that CR identify the specific changes that are requested for the approval of the revision and a summary of changes that will not be included in the proposal rather than expect the LQD to locate and identify the specific changes. CR should not introduce new changes in the next round of review.

COMMENTS

- 1 **Response Not Acceptable.** The response states that Cameco now has sufficient RO capacity for wellfield restoration. However, the RO capacity is not included in the response or attachments. The permitted deep disposal well capacity is shown, but the permitted capacity may not be the operating waste water deep disposal capacity. Chapter 11, Section 5(a)(i)(D) requires this information. Please include the RO capacity and the deep disposal operational capacity and correlate it with the restoration schedule. (SI)

NOTE: As discussed during the meeting with LQD on August 9, 2011, CR will need to revise the restoration schedule to reflect the approved format for restoration (the line items as approved including production/pre-restoration, GWS, RO, Reclamation.) The schedule should be updated as well as the water balance to reflect the current capacities for disposal, RO, and irrigation. CR has agreed to revert back to the approved restoration methods in order to expedite the approval of the revised restoration schedule. Other proposed changes introduced to the TFN will need to be resubmitted upon approval of the revised restoration schedule for LQD technical review. LQD realizes that additional line items including bioremediation/reductant and stabilization are needed in the schedule. These items can be added to the current format if necessary to tie to other proposed changes to the revision. However, if these changes have prompted comments through T1, T2 or T3 reviews it may be best to delay the text or schedule inclusion until the next proposed revision which will include more technical changes to the restoration methods. (PCR)

- 3 **Response Not Acceptable.** The text on Pages 6-1A and 6-1B discusses developing a wellfield specific restoration plan, during the late stages of wellfield production, as required in Chapter 11, Section 5(a)(iii). CR needs to provide LQD with assurance that after production ends, the wellfield(s) will not be inactive for an extended length of time. Please provide assurance that the wellfield(s) will not be inactive for an extended length of time. (SI)
- 4 **Response Not Acceptable.** Section 4.3 on Page RP-6B (revised May 4, 2011) states that the first phase of restoration will be groundwater sweep. There have been numerous

recent discussions regarding groundwater sweep. In a meeting on July, 2009 CR suggested using the RO bleed as a substitute for groundwater sweep. Is the groundwater sweep phase shown in the response considered in the water balance or is the groundwater sweep substitute CR suggested used in the water balance. The proposed change is outside of the scope of this review and should be removed from this revision and introduced under a separate revision following the approval of this revision. (SI)

- 5 **Response Not Acceptable.** The response to Comment #3 discusses developing a wellfield plan, but does not include actions that can be taken during the late stages of wellfield production, such as pipeline installation, re-plumbing of header houses and well cleanouts, etc. The text should include a discussion of operations that will be performed prior to the end of production to prepare for restoration. The pre-restoration (i.e., pre-conditioning) phase can be discussed as part of this revision or deferred to the next restoration plan change. (SI)
- 9 Response Acceptable. Response Acceptable. The text has been clarified to indicate Target Restoration Values. (PCR)
- 10 **Response Not Acceptable.** The concept of progressive change-over from mining to restoration of a wellfield seems elusive. CR is opposed to using an ore grade cut-off value to define when a wellfield is sufficiently mined out. Therefore, the LQD requests that CR not declare a wellfield is officially in restoration until all injection (of lexivient) has ceased for all wellfield pattern areas (i.e., the entire wellfield). CR will need to consider and plan for the end of injection to meet the restoration schedule.

NOTE: Although CR will not declare a wellfield is officially in restoration, until all lexivient injection has ceased, this does not preclude the initiation of restoration activities including developing the wellfield restoration plan for LQD review and approval, refurbishing the wellfield as needed, restoring patterns within the wellfield, etc. By conducting the pre-restoration activities, CR will meet the intent of "concurrent reclamation" which can be demonstrated through the annual report by detailing the flows going toward restoration (i.e., DDW, GWS, RO, irrigation). The LQD will monitor concurrent restoration progress through the annual report reviews. (PCR)

- 11 Response Acceptable. The reviewer now understands the restoration well pattern is specific to the each wellfield (conditions). The wellfield restoration plan will identify the restoration wells that are needed including any new wells which will be submitted to the LQD for review. Past restoration proposals have separated the new well proposals from the plan. If possible, please include proposed new restoration wells in the wellfield restoration plan. (PCR)

TFN 5 3/121, Restoration Plan Revision, T3 Review
 Permit 633, Cameco Resources
 Page 4

- 12 **Response Not Acceptable.** The revised text discusses the mine unit restoration plan to be submitted to the LQD, "*for inclusion in the restoration volume maintained by the LQD and separate from the permit.*" The mine unit restoration plan will be reviewed by the LQD for approval into the permit as a stand-alone volume as identified on the Index of Change. The information is required according to Chapter 11, Section 5(a)(iii). Because the information is not available until CR is preparing for wellfield restoration, this method of submittal is considered a practical method for managing the records. **(PCR)**
- 13 **Response Not Acceptable.** The additional of methanol in MU-C was during reverse osmosis which resulted in plugging of the RO unit. The waste stream from RO is disposed to the deep disposal wells which implies it is not a closed-loop cycle. CR should therefore, show the waste steam/flows used during the use of bio/reductant use. **(PCR)**
- 14 **Response Not Acceptable.** CR will need to update the restoration schedule and water balance using the approved permit formats. See NOTE in comment no. 1 above. **(PCR)**
- 15 **Response Not Acceptable.** CR will need to update the schedule and water balance of the approved permit. (Refer to comment no. 11 for discussion of progressive change-over from mining to restoration and how to address concurrent restoration expectations). **(PCR)**
- 16 **Response Not Acceptable.** See New Comment no. 5 below. **(PCR)**
- 17 **Response Not Acceptable.** CR has proposed changes beyond the scope of the revision. These changes could be significant to the restoration plan and will require comprehensive technical review. LQD requests unsolicited changes not agreed upon be removed from the text and be re-submitted at a later date following approval of a revised restoration schedule. **(PCR)**

NEW COMMENTS

Cameco Resources responded to the November 8, 2010 comments and added additional revisions to the proposed restoration schedule for the Highland Permit. The following comments were generated prior to LQD's decision to request CR to modify the revision package. The review addresses the responses to outstanding comments and provides additional comments for the new schedule. Therefore, due to LQD's request to remove some of the changes, the comments should be considered where they are applicable, either to this revision or to the next proposal for change of the restoration methodology.

- 1 Section 6.1.1.1 should also consider the time needed to recondition header houses, install pipelines. The surety should be updated in the Annual Report for the year when restoration is anticipated, to the extent possible. **(SI)**

TFN 5.3/121, Restoration Plan Revision, T3 Review
Permit 633, Cameco Resources
Page 5

- 2 Paragraph 2, page 6-1B does not include storativity in the aquifer hydrologic characteristics that will be used to estimate the time required to remove the estimated pore volume displacements. Please add storativity to the time estimate for the pore volume displacements. **(SI)**
- 3 The pore volumes shown in the unnumbered table do not match the volumes listed in the surety for Permit 633. Mine Unit 3ext is not included and MU-15A is an order of magnitude larger than is shown in the surety. Please provide the correct volumes for either the table and the water balance, or the surety for Permit 633 and revise the restoration schedule to use the correct volume per pore volume. **(SI)**
- 4 The last line on Attachment 3 is unlabeled and the attachment does not have any units. Please label the last line of Attachment 3 and show the units in the Attachment. **(SI)**
- 5 The September 10, 2010 Restoration Plan shows restoration phases for each wellfield and waste water disposal requirements. The May 2011 Attachment 1 only shows total flows and waste streams for the Highland and Smith Ranch Permits. Attachment 3 cannot be reconciled with Attachment 1, without a breakdown in Attachment 3 showing which wellfields are being restored and at what rate. Please correct Attachment 3. **(SI)**
- 6 There is no way to determine which wellfields each of the satellites or central processing plant is receiving flows from or if the treatment or if the disposal capacity is available at the satellite or central processing plant to process the restoration flows. Please include a description and map showing that there is enough available capacity at the satellites and Central Processing Plant available for restoration. **(SI)**
- 7 The water balance shown in Attachment 3 is the same for both the Smith Ranch and Highland Permits. The water balance for the Smith Ranch Permit needs to be separated from the Highland Permit. Please show the water balance for the Smith Ranch Permit with this TFN. **(SI)**
- 8 Attachment 3 shows that there is no production waste stream from the Central Processing Plant after year 2022. However, there are production waste streams from the satellites until 2026. Please explain why there will be no waste stream from the Central Processing Plant during the four year period. **(SI)**
- 9 There are two RO feed figures, with no DDW capacity line shown (see response to Comment 1). Please correct the figure. **(SI)**

**CAMECO RESOURCES**

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Operation
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82637 USA

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August 31, 2011

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL #7010 0780 0001 6001 9879 RETURN RECEIPT REQUESTED

RE: Excursion Report Summary Update, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 603 and 633

Dear Mr. Spackman:

Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the monthly Excursion Report Summary for the Smith Ranch-Highland Uranium Project. During the month of August no new excursions were reported and the Cameco Excursion Report table is attached. Monitor well DM-003 and DM-010 remain on excursion.

Guideline 8 analyses sampling for well DM-010 were taken July 11, 2011 pursuant to Non Coal Rules in Chapter 11, Section 12 (d) (i) as the well had been on excursion for 30 days. The results have been received and are attached. Constituent levels in Monitor Well DM-003 stayed relatively stable throughout the month of August, 2011. Monitor Well DM-010 levels improved slightly through the month. A copy of the monitor well report for well DM-003 and DM-010 is attached. Additionally, graphs are attached for each well tracking alkalinity, chloride, and conductivity trends. A plan and compliance schedule for well DM-003 was submitted to LQD in a letter dated March 10, 2011 responding to 3rd Qtr. 2010 Excursion Monitoring Report comments from LQD. Accordingly, Cameco will commit to a third party review if the excursion at DM-003 has not been resolved by September 2011. Cameco has met with a hydrologic consultant from AQUI-VER on August 16, 2011 who is been retained to model the excursion events and develop recommendations. Cameco will continue to evaluate the benefit of pumping the underground drift area working proximal to Mine Unit D and continue the bleed in Mine Units C and E to maintain stability.

Please contact Larry Teahon @ 307-358-6541, ext 435 or Larry_Teahon@cameco.com if you have questions.

Respectfully,



Brent Berg
General Manager

BB/kg

Attachments: Cameco Resources Excursion Report,
Guideline 8 Sample Results for DM-010
Monitor Well Report and Trend Graphs for DM-003
Monitor Well Report and Trend Graphs for DM-010

cc: File HUP 4.3.3.1 Mr. Doug Mandeville – NRC Project Manager (2 Copies)
ec: CR-Cheyenne

**Cameco Resources Excursion Report
Permit Nos. 603 & 633
(July 2011)**

Well Identification	Initial Sample Date	Confirmation Sample Date	Excursion Status (on/off)	Parameters Exceeded	Verbal Notification Date	Written Notification Date	Excursion Resolution Date	LQD Concurrence Notification Date
DM-3	11/19/2009	11/20/2009	ON	Chloride Alkalinity	11/23/2009	11/25/2009		
DM-10	6/3/2011	6/6/2011	ON	Chloride Alkalinity	6/7/2011	6/10/2011		



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August 31, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL # 7010 0780 0001 6001 9886 RETURN RECEIPT REQUESTED

**RE: East Storage Pond Leak, Cameco Resources, Smith Ranch-Highland Uranium
Project, Permit to Mine No. 633**

Dear Mr. Spackman:

On August 3, 2011, Power Resources, Inc. d/b/a Cameco Resources (Cameco) provided written notification to Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission regarding a leak into secondary containment discovered on June 13, 2011 at the East Evaporation Pond.

Cameco drained the pond to investigate the leak into secondary containment and repaired a tear in the primary liner on July 7, 2011. Following repairs, water was returned to the pond. On August 15, 2011 water was again discovered in the East Evaporation Pond Sump. Verbal notification was made to Ms. Pam Rothwell of the Land Quality Division, Wyoming Department of Environmental Quality and Mr. Doug Mandeville, Project Manager of the Nuclear Regulatory Commission on August 16, 2011.

The pond level was lowered for the second time to reexamine the primary liner. Another tear was discovered and repairs were made August 29, 2011. Following repairs, water is being returned to the pond. Routine monitoring will continue to ensure no leakage occurs as the water level rises above the area of repair. At this time the water level has not risen above the area of repair.

Samples were collected from the sump on August 16, 2011 and analyzed for chloride, specific conductance, uranium, bicarbonate and sulfate. Results are provided in the table below along with the results of the samples taken in June. Weekly samples were not collected in the month of July or August 2011 due to the sump remaining dry. A monthly sample was not collected in the month of July 2011 due to the sump remaining dry. A monthly report will continue to be submitted until the repairs are complete.

Weekly Sample Results

Sample Date	Chloride (mg/L)	Conductivity (mS/cm)
06/15/2011	257	3194
06/20/2011	413	3645
08/15/2011	464	3647
08/16/2011	435	3924

Monthly Sample Results

Sample Date	Chloride (mg/L)	Conductivity (mS/cm)	Bicarbonate (mg/L)	Uranium (mg/L)	Sulfate (ppm)
06/20/2011	413	3645	925	248	905
08/16/2011	435	3924	811	158	947

A monthly report will continue to be submitted until the repairs are complete. Please contact Larry Teahon at (307) 358-6541 ext. 435 if you have questions.

Sincerely,



Brent Berg
General Manager

BB/vg

cc: Mr. Doug Mandeville – NRC Project Manager (2-copies)
File SR 4.3.3.1 File SR 4.3.3.4
ec: CR-Cheyenne

From: Kenneth Garoutte [Kenneth_Garoutte@Cameco.com]
Sent: Monday, September 12, 2011 5:43 PM
To: Mandeville, Douglas
Cc: Larry Teahon; Brent Berg; Dave Moody; Stephen Shire; Beverly Johnson; Josh Leftwich; John McCarthy; Arlene Faunce; Michael Bryson; Tyler Schiltz; Erik Heide; Scott Bakken; Karen Siebken; Dee DeWald
Subject: Excursion KM-031 verbal notification

Doug,

I left a message with you today regarding an excursion confirmed at monitor well KM-031 located in Mine Unit K. A written notification will be forthcoming this week.

Ken Garoutte
SHEQ Coordinator
Cameco Resources
Smith Ranch-Highland
P.O. Box 1210
Glenrock, Wy 82637

(307) 358-6541 ext. 476
Kenneth_Garoutte@cameco.com

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September 14, 2011

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL #7010 0780 0001 6001 9909 RETURN RECEIPT REQUESTED

RE: Excursion at Monitor Well KM-031, Cameco Resources, Permit No. 633

Dear Mr. Spackman:

In accordance with WDEQ/LQD Chapter 11 regulations, Section 5.2.2 and 5.5.4 of the Operations Plan for Permit 633 and NRC License Condition No. 11.5, Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is providing written notification that Monitor Well KM-031 went on excursion status September 8, 2011. Confirmation monitoring results were received on September 12, 2011. Ms. Pam Rothwell from WDEQ/LQD, and Mr. Doug Mandeville from the NRC were notified by telephone and email on September 12, 2011.

Analytical results of September 7, 2011 for the routine sample taken on September 6, 2011 indicated a potential exceedance in two of the three parameters (alkalinity and conductivity). Cameco collected a confirmation sample from the monitor well and analyzed it with a quality assurance duplicate on September 7, 2011. Results of this laboratory analysis did not show exceedance. On September 8, 2011 another confirmation sample was collected from the monitor well and analyzed. Results of this laboratory analyses confirmed the exceedance of Upper Control Limit (UCL) parameters. Shown below are results of all analysis taken.

Sample Date	Chloride (mg/L)	Alkalinity (mg/L CaCO ₃)	Conductivity (µMhos/cm)
	UCL 16	UCL 149	UCL 769
09/08/11	8	151	790
09/07/11	8	150	755
09/06/11	8	152	780

Monitor Well KM-031 is located in Mine Unit K as illustrated on the attached map and belongs to monitor wells installed for monitoring the lower portion of Mine Unit K. Weekly samples will be collected to monitor the UCL constituents until the excursion is resolved. The excursion at Monitor Well KM-031 has been added to the monthly Excursion Report Summary and will be identified on the Cameco Resources site map.

Pursuant to WDEQ/LQD Chapter 11, Section 2 a duly authorized representative certification is attached.

Please contact Larry Teahon at (307) 358-6541 ext. 435 if you have any questions.

Sincerely,



Brent Berg
General Manager

BB/vg

Attachment: 1) Duly Authorized Representative Certification
2) Map

cc: File SR 4.6.4.1
Doug Mandeville, NRC (2 copies) Certified Mail #7010 0780 0001 6001 9916
Document Control Desk, NRC Certified Mail #7010 0780 0001 6001 9923

ec: CR-Cheyenne

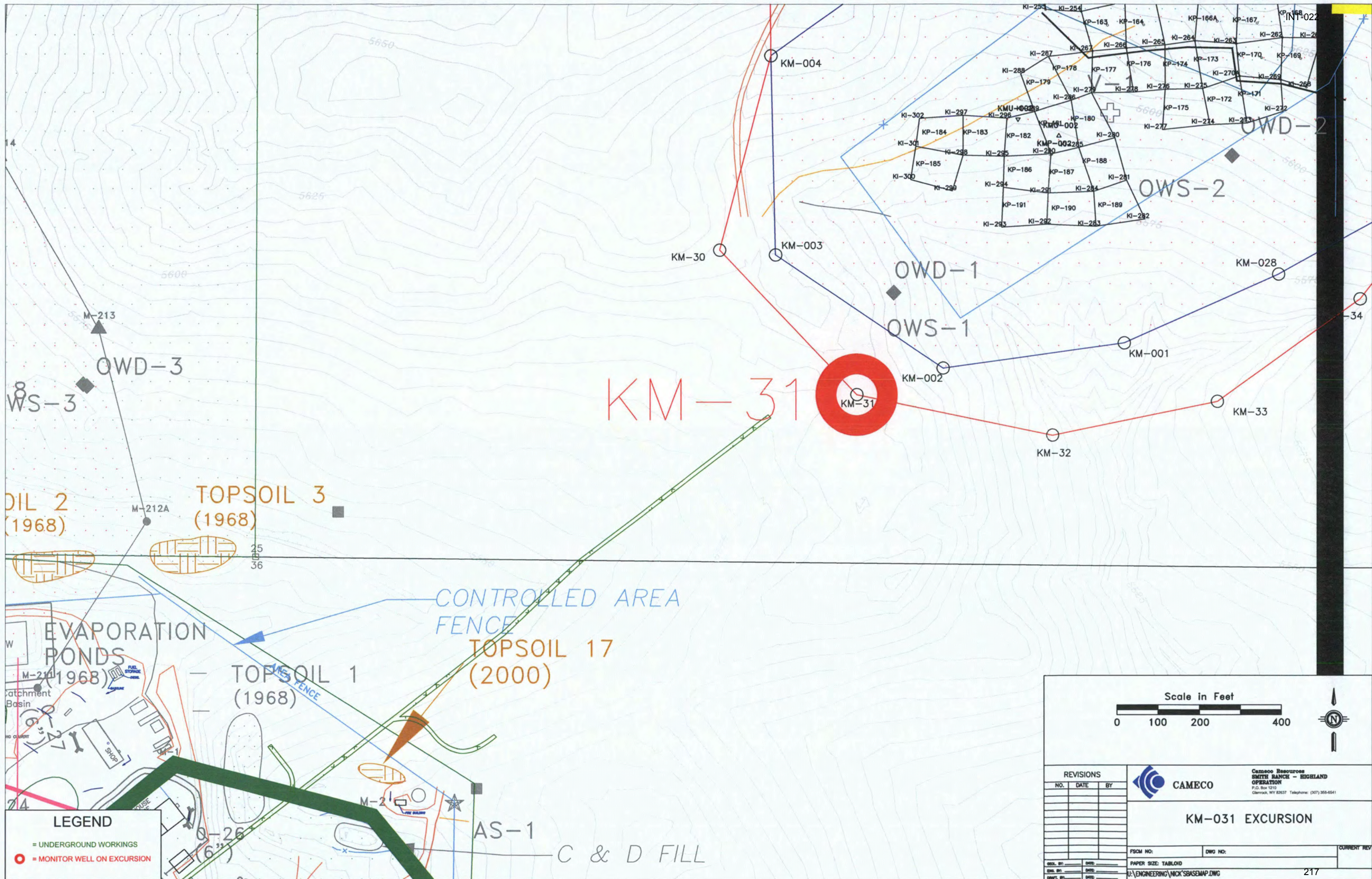
Duly Authorized Representative Certification

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.



Duly Authorized Representative: Brent Berg

Date: 09-14-11



Scale in Feet
0 100 200 400

REVISIONS		
NO.	DATE	BY

CAMECO

Cameco Resources
SMITH RANCH - HIGHLAND
OPERATION
P.O. Box 1210
Glenn, WY 82837 Telephone: (307) 368-6541

KM-031 EXCURSION

FSCM NO: DWG NO: CURRENT REV:

PAPER SIZE: TABLOID

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217



September 14, 2011

Ms. Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

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CERTIFIED MAIL #7011 0470 0000 7716 0430 RETURN RECEIPT REQUESTED

RE: Investigation Monitor Well Completion Reports, Excursion at CM-32
Cameco Resources, Smith Ranch Highland Uranium Project, Permit 633

Dear Ms. Rothwell,

On September 8, 2011, Power Resources, Inc. d/b/a Cameco Resources (Cameco) and the WDEQ/LQD conducted a close out meeting for the September 2011 Site Inspection. WDEQ/LQD requested that Cameco submit Completion Reports for the investigation monitor wells, CME-001 & CME-002, regarding the CM-32 Excursion. Attached please find the Well Casing and Completion Reports for these two wells.

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully,

Brent Berg
General Manager

BB/vg

cc: Cameco Resources – Cheyenne

cc: File HUP 4.3.3.1
Doug Mandeville, NRC (2 copies) CERTIFIED MAIL # 7011 0470 0000 7716 0447
Document Control Desk, NRC CERTIFIED MAIL # 7011 0470 0000 7716 0058



CAMECO RESOURCES
SMITH RANCH-HIGHLAND OPERATION
COMPLETION AND RECOMPLETION REPORT

INT-022

WELL NUMBER
HDR HSE
HOLE DIAMETER
CASING SIZE
REAMED DIAMETER

DATE
CONTRACTOR
CAMECO REPRES.

LINER DATA

PACKER TYPE
LINER DIAMETER
SCREEN TYPE SLOT

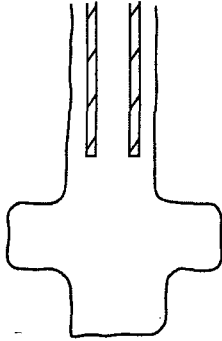
GRAVEL

SIZE
SACKS TAKEN

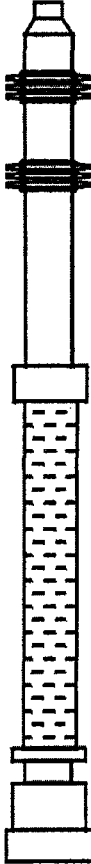
COMMENTS:

TAGGED TOP OF J COLLAR

CASING T.D.
UNDER-REAMED INTERVAL
DRILLED T.D.
REAMER BLADE



	FEET	FROM	TO
TOP ASS'Y	3.00	544.00	547.00
BLANK	5.00	547.00	552.00
SCREEN	36.00	552.00	588.00
VALVE ASS'Y	2.00	588.00	590.00





CAMECO RESOURCES
SMITH RANCH-HIGHLAND OPERATION
WELL CASING REPORT

INT-022

WELL NO.: CME-001 ALIAS NAME:

HEADER HOUSE: MON

DATE: 08-18-2001

COUNTY: Converse

DRILLING DATA

DRILLER: Kenny Crimm

COMPANY: CRIMM DRILLING

T.D.: 620.00

HOLE SIZE: 5-5/8 inches

MUD TYPE: DRISPAC/GEL

REMARKS:

CASING:

JOINTS: 27

550.00

BOTTOM JOINT:

10

TOP OF CASING
ABOVE SURFACE: 0.80

NUMBER OF
CENTRALIZERS: 14.00

CEMENT:

BARRELS OF CEMENT: 28.50

SACKS OF CEMENT: 86.00

TYPE OF CEMENT: I/II

CEMENT WEIGHT (#): 12.50

SACKS OF GEL: 4.00

DRY CEMENT USED IN
UPPER 5 FEET: ☒ YES

DISPLACEMENT:

BBL FLUID: 12.90

BARITE SACKS: 0.20

CEMENTER: Kenny Crimm

CAMECO
REPRESENTATIVE: Jeff Wilcox



CAMECO RESOURCES
SMITH RANCH-HIGHLAND OPERATION
COMPLETION AND RECOMPLETION REPORT

INT-022

WELL NUMBER CME-002
HDR HSE MON
HOLE DIAMETER 5-5/8 inches
CASING SIZE 5 inches
REAMED DIAMETER 8-3/4 inches

DATE 06-13-2011
CONTRACTOR CRIMM DRILLING
CAMECO REPRES. Jeff Wilcox

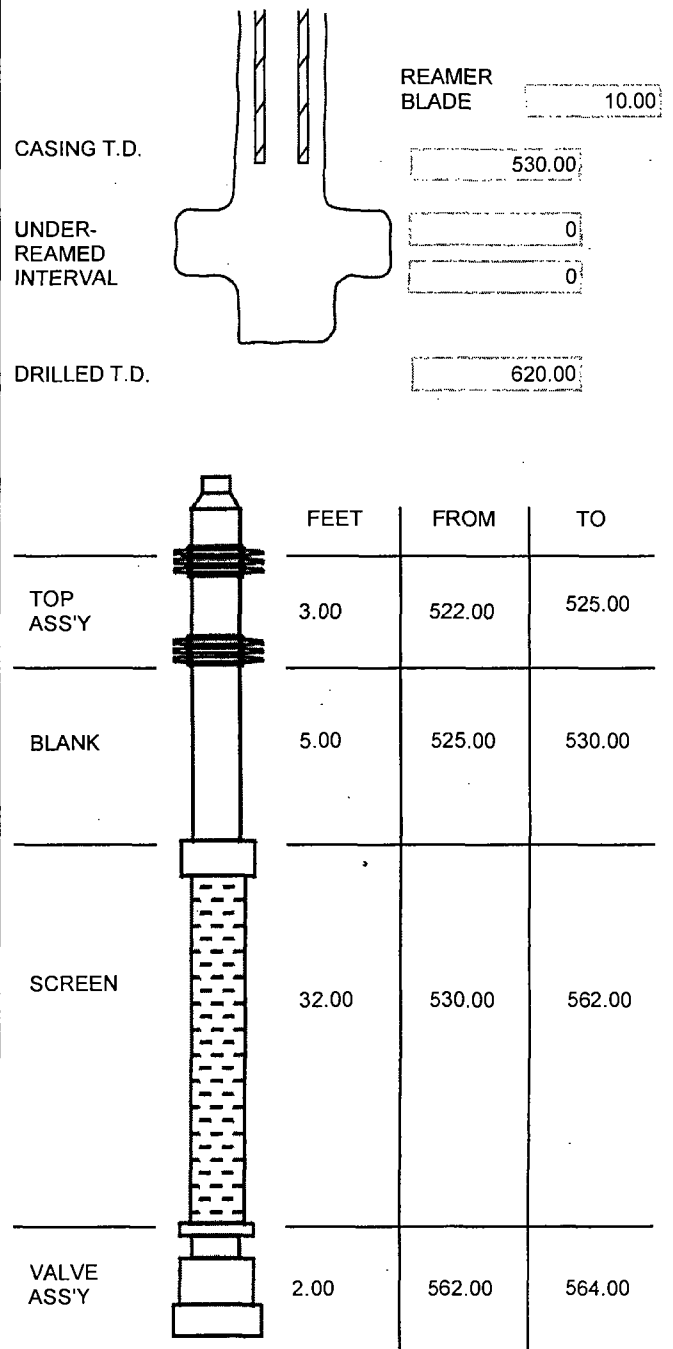
LINER DATA

PACKER TYPE FIGURE K
LINER DIAMETER 3
SCREEN TYPE Regular SLOT 0.30

GRAVEL

SIZE 10/20 Mesh
SACKS TAKEN 26.00
COMMENTS:

TAGGED TOP OF J COLLAR 522.00





CAMECO RESOURCES
SMITH RANCH-HIGHLAND OPERATION
WELL CASING REPORT

INT-022

WELL NO.:

CME-002

ALIAS NAME:

HEADER HOUSE:

MON

DATE:

08-19-2001

COUNTY:

Converse

DRILLING DATA

DRILLER:

Kenny Crimm

COMPANY:

CRIMM DRILLING

T.D.:

620.00

HOLE SIZE:

5-5/8 inches

MUD TYPE:

DRISPAC/GEL

REMARKS:

CASING:

JOINTS:

26

530.00

BOTTOM JOINT:

10

TOP OF CASING
ABOVE SURFACE:

0.80

NUMBER OF
CENTRALIZERS:

14.00

CEMENT:

BARRELS OF CEMENT:

27.30

SACKS OF CEMENT:

83.00

TYPE OF CEMENT:

I/II

CEMENT WEIGHT (#):

12.50

SACKS OF GEL:

3.00

DRY CEMENT USED IN
UPPER 5 FEET:

☒ YES

DISPLACEMENT:

BBL FLUID:

12.40

BARITE SACKS:

0.00

CEMENTER:

Kenny Crimm

CAMECO

REPRESENTATIVE:

Jeff Wilcox



September 14, 2011

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington DC, 20555-1001

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

Certified Mail 7011 0470 0000 7716 0409

RE: Reply to Notice of Violation and
Request for Approval of an Alternate Decommissioning/Restoration Schedule
NRC Inspection Report 040-08964/09-002
Source Material License SUA-1548, Docket Number 40-8964

Please find attached Power Resources, Inc. d/b/a/ Cameco Resources reply to the Notice of Violation issued by the Nuclear Regulatory Commission (NRC) to Power Resources, Inc. on November 16, 2009. Cameco Resources is also requesting a retraction of the NOV reply concerning the Alternate Decommissioning/Restoration Schedule dated July 1, 2011. A response is being supplied in this correspondence in accordance with 10 CFR 2.201.

Also, please find attached Cameco Resources request for approval an Alternate Decommissioning/Restoration Schedule as approved by Wyoming Department of Environmental Quality, Land Quality Division for the Smith Ranch and Highland projects.

If you have questions, please contact me at (307) 358-6541, ext. 452.

Sincerely,

Brent Berg
General Manager
Smith Ranch-Highland Uranium Operation

BB/jmc

cc: File SR 4.6.4.1
B. Kluchewski
D. Mandeville, USNRC (2 copies)
US NRC
Certified Mail:
7011 0470 0000 7716 0393

Attn : Mr. Blair Spitzberg
US NRC
Regional Administrator, Region IV
Arlington, TX 76011-4125
Certified Mail:
7011 0470 0000 7716 0386

IE 07
RGN-IV

Reply To Notice Of Violation

NRC Inspection Report 040-08964/10-002

Summary of Violation

During an NRC inspection conducted on September 15 through September 17, 2009, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 40.42 (h)(1) requires, in part, that licensees shall complete decommissioning of outdoor areas as soon as practicable but no later than 24 months following the initiation of decommissioning.

10 CFR 40.42 (i) states, in part, that the Commission may approve a request for an alternate schedule for completion of decommissioning of outdoor areas, if the Commission determines that the alternate is warranted.

Contrary to the above, the licensee failed to complete decommissioning of mine Units 1 and C within 24 months and failed to request an alternate decommissioning schedule. Specifically, the licensee began decommissioning of Mine Unit 1 during July 2006 and Mine Unit C during May 1999, both of which continue to be decommissioned, and the licensee had not requested an alternate decommissioning schedule until August 13, 2009.

This is a Severity Level IV violation.

Reason for the Violation

Cameco Resources did not submit for approval an Alternate Decommissioning Schedule within 24 months of initiating decommissioning (restoration) as required by regulations mentioned above. Coordinating the approval(s) of a Restoration Schedule with the Wyoming Department of Environmental Quality, Land Quality Division (LQD) and an Alternate Decommissioning Schedule with the NRC in an appropriate time frame has been and will be a challenge in the future. To expedite the approval process, Cameco Resources will submit a proposed Restoration Schedule (WDEQ/LQD) and an Alternate Decommissioning Schedule (NRC) simultaneously to both agencies for approval.

Corrective Actions

In the future, Cameco Resources will submit an Alternate Decommissioning Schedule for approval or a statement of no change in the schedule to the NRC concurrent with the annual surety submission and/or at such time as required by the WDEQ/LQD..

Date Full Compliance will be Achieved

January 1, 2012, pending NRC approval.

Proposed Alternate Decommissioning Schedule

07/03/08

SR RESTORATION SCHEDULE
9.0 PV: 1 GWS + 8 RO
GWS at 250 gpm
RO at 1000 extraction, 250 gpm bleed

(PROJECTED)

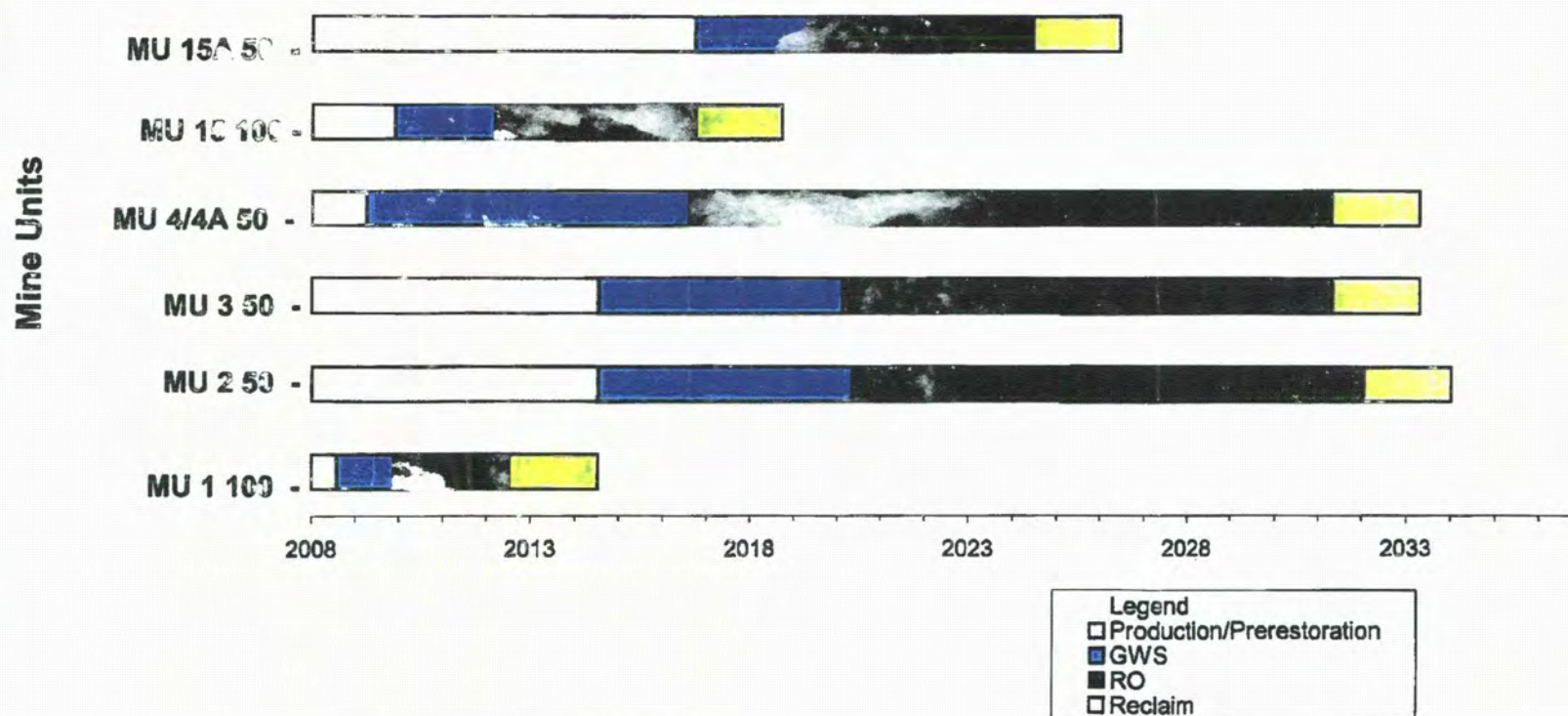
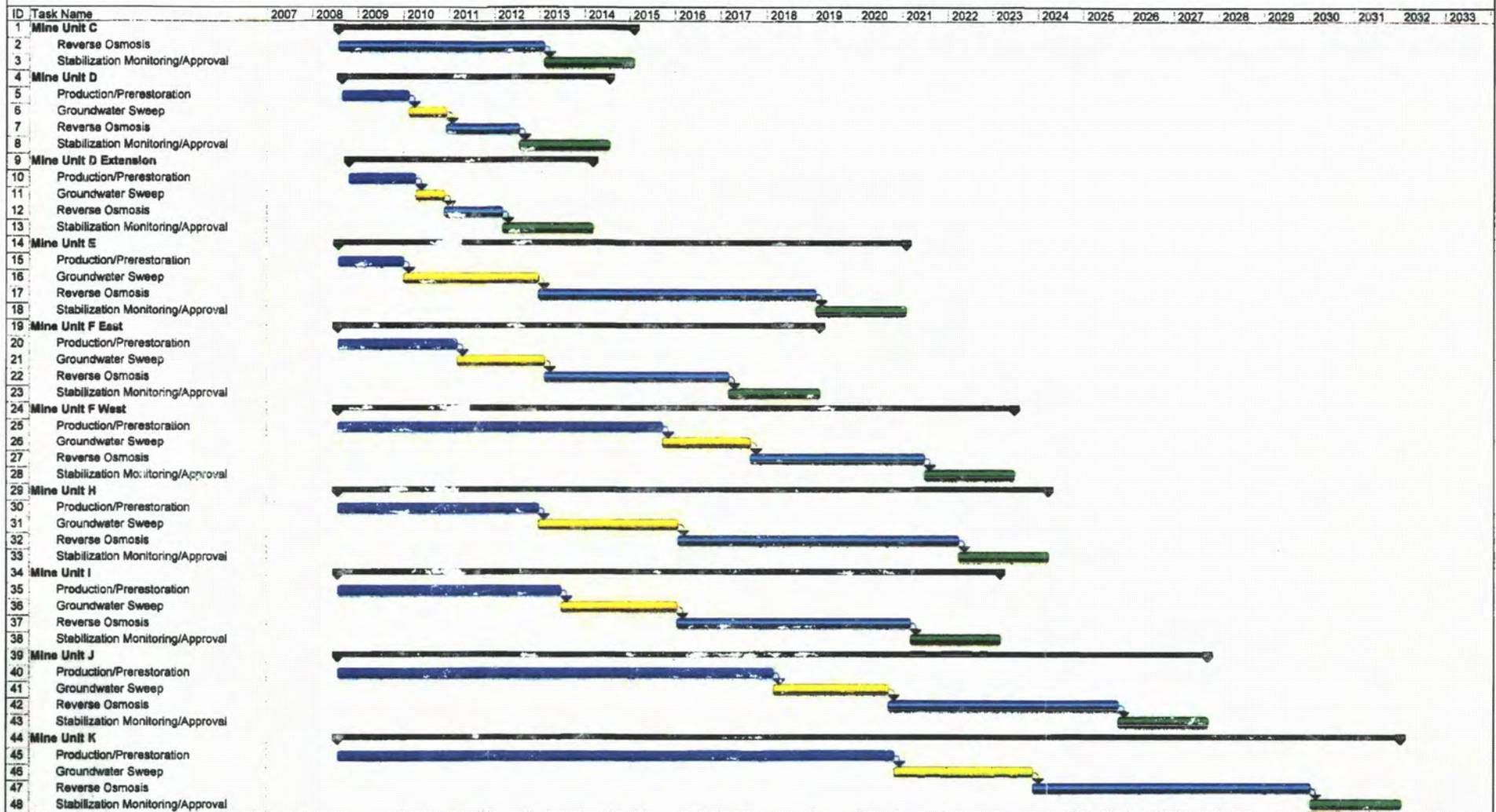


Table 1-2

Change No. 29-Permit 433
 12/31/08-TFN 54/49

ATTACHMENT 1 - 2008 HUP RESTORATION SCHEDULE
CONSIDERING 9.0 PV, 1GWS + 8 RO



CAMECO RESOURCES
Project: HUP Restoration Schedule
Date: Wed 5/19/09

Task
Split

Progress
Milestone

Summary
Project Summary

External Tasks
External Milestone

Deadline

Permit No 603-Change No. 664
7/30/2009-TFN 5 5/89



September 14, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

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

CERTIFIED MAIL #7010 0780 0001 6001 9954 RETURN RECEIPT REQUESTED

RE: HH 15-20 Wellfield Release, Mine Unit 15A, Remediation Proposal, Cameco Resources,
Permit 633

Dear Mr. Spackman,

Power Resources, Inc. d/b/a Cameco Resources (Cameco) is providing a formal proposal of remediation for the header house 15-20 wellfield release that occurred May 3, 2011. Cameco provided the soil sample analyses to Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD) in an Email dated August 12, 2011. Cameco has committed to the cleanup of the impacted soil under criteria established by the NRC. The attached plan describes the proposed remediation and disposal of the impacted soil in four phases. The submittal is for LQD to review and comment pursuant to the discussions LQD held with Cameco on August 9, 2011 referencing a potential NOV.

The proposal stipulates that soil removed from the impacted delineated areas will be loaded direct to 11e (2) byproduct containers and not put to a temporary staging area as discussed in the plan-DRAFT submitted to LQD August 29, 2011. Reference to the NRC Technical Criteria Unity rule is contained in the proposal.

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully

A handwritten signature in black ink, appearing to read "Brent Berg".

Brent Berg
General Manager

BB/kg

A handwritten signature in black ink, appearing to read "F. MED" with a date "23/9" written below it.

Attachment: Remediation Plan for Mine Unit 15A Wellfield Release

ec: Cameco Resources – Cheyenne

cc: File SR 4.3.3.1

Doug Mandeville, NRC (2 copies) Certified Mail #7010 0780 0001 6001 9947

Document Control Desk, NRC Certified Mail #7010 0780 0001 6001 9930

**Mine Unit 15A Wellfield Release, Header House 15-20 Area
Soil Remediation Proposal
Cameco Resources Permit 633**

INTRODUCTION

Cameco provided LQD a written notification in a letter dated May 9, 2011 of a release of solutions that occurred in wellfield 15A, header house 15-20 on May 3, 2011. Verbal notification of the release was provided to LQD on May 4, 2011. The written report estimated 1500 gallons of production fluid was released impacting an area of approximately 12,077 square feet.

The release involved eight (8) production wells (15P-409 through 15P-416). The impacted area was mapped using a Trimble GPS unit with the results transferred to the Smith Ranch-Highland Site Map for archiving. The impacted area was gamma surveyed using an unshielded Ludlum Model 19 MicroR meter and soil sampled at ten (10) locations including a background sample. See Table 1. The sample results indicated nine (9) sample locations were above the 5 pCi/g decommissioning criteria established by the NRC. A map showing the areas of impacted soil is attached for your review.

SOIL SAMPLING RESULTS

The sample results for uranium are reported in mg/Kg and require conversion to pCi/g, while the results for radium226 are reported in pCi/g. After conversion, uranium and radium results are summed and compared to the 5 pCi/g criteria using the NRC's Unity rule as found in 10 CFR Appendix A to Part 40, under I. Technical Criteria, *Criterion 6*, sub criterion (6). After subtracting background (Bkg), all nine (9) soil samples were above the 5 pCi/g Unity rule.

Conversion formula:

$$\text{mg/Kg} \cdot \text{Kg}/1\text{E}6\text{mg} \cdot 6.77\text{E}-7\text{Ci/g} \cdot \text{pCi}/1\text{E}-12\text{Ci} = \text{pCi/g}$$

The specific activity of uranium is 6.77E-7 Ci/g as per 10 CFR PART 20, appendix B.

Converting the uranium reported in mg/Kg to pCi/g is accomplished using the above formula.

TABLE 1

Sample ID	Uranium mg/kg	Radium pCi/g	Uranium pCi/g	Unity pCi/g	Unity-Bkg pCi/g	MicroR/hr
1	204	27.7	138	165.7	162.2	22
2	86	3.3	58	61.3	57.8	14
3	21.5	2.6	14	16.6	13.1	16
4	47.7	3.5	32.3	35.8	32.3	18
5	31.7	1.6	21.5	23.1	19.6	14
6	204	38.5	138	176.5	173	16
7	13.1	1.9	8.9	10.8	7.3	16
8	72.6	3.7	49.2	52.9	49.4	14
9	109	12.8	13.8	86.6	83.1	17
10 (Bkg)	3.5	1.1	2.4	3.5		17

REMEDIATION PLAN

A Ludlum Model 2221 Scaler/Ratemeter with a 2" sodium iodine probe has been procured for environmental assessments for radionuclides. The meter will respond to gamma radiation in counts per second and the probe will be contained within a hand held portable lead shield. The probe will be positioned approximately 3-4" above the surveyed surface and exposed through an opening in the bottom of the shield. The counts per second will be correlated with known pCi/g concentrations to arrive at pCi conversion to be used during the walk over.

The area affected will be fenced off to prevent access as requested by WDEQ until remediation activities commence. The remediation will consist of four phases described below.

Phase I: Soil Surveying

A Health Physics Technician will walk over the impacted area while holding the shielded gamma meter. The walk over survey will be conducted following a grid pattern of parallel lines approximately 10 feet apart over the impacted area. The Technician will begin at a point 2-3 feet outside the delineated release area and position the Ratemeter 3-4" over the surface and determine the pCi concentration. Then the Technician will take one step (2-3 feet) along a straight line, position the Ratemeter 3-4" over the surface, and again determine the pCi concentration. The Technician will then take another step and determine the next reading. This process will continue in a straight line until a reading is taken beyond the delineated release area as depicted on the map. The Technician will then repeat the process on a parallel line approximately 10 feet away. The walk over survey will be completed once all the separate impacted areas as delineated on the map have been surveyed. See attached map demonstrating 10 foot parallel grid lines over the entire impacted area as an example. Actual survey lines used will vary to match up with the separate delineated areas.

The background Unity value will be subtracted from the reading displayed by the Ratemeter to determine the net pCi at a given point. Values over the 5 pCi conversion will be flagged for removal.

Phase II: Soil Removal

Header house 15-20 will be shut down during the removal operation. A 770CH-John Deere small profile grader together with a backhoe frontend loader will be used to remove the flagged soil from the impacted area and load directly to approved DOT IP-1 11(e) 2 byproduct containers. Areas flagged around the well heads will require hand shovel removal and will be placed onto nearby flagged areas. The grader will lay over 2-5" of flagged soil depending on the irregularity of the surface for removal by the loader. The freshly cut area is ready to re-survey to determine if more depth of soil is to be removed. A loader will remove laid over soil to approved DOT IP-1 11(e) 2 byproduct container(s) staged adjacent to the area on top of barrier liners. The barrier liners will capture loose soil that fall from the loading operation. The loose soil will be hand shoveled into the container. Once containers are loaded they will be shipped using site procedures complying with DOT regulations to an NRC approved 11 (e) 2 by-product disposal facility.

Phase III: Re-surveying

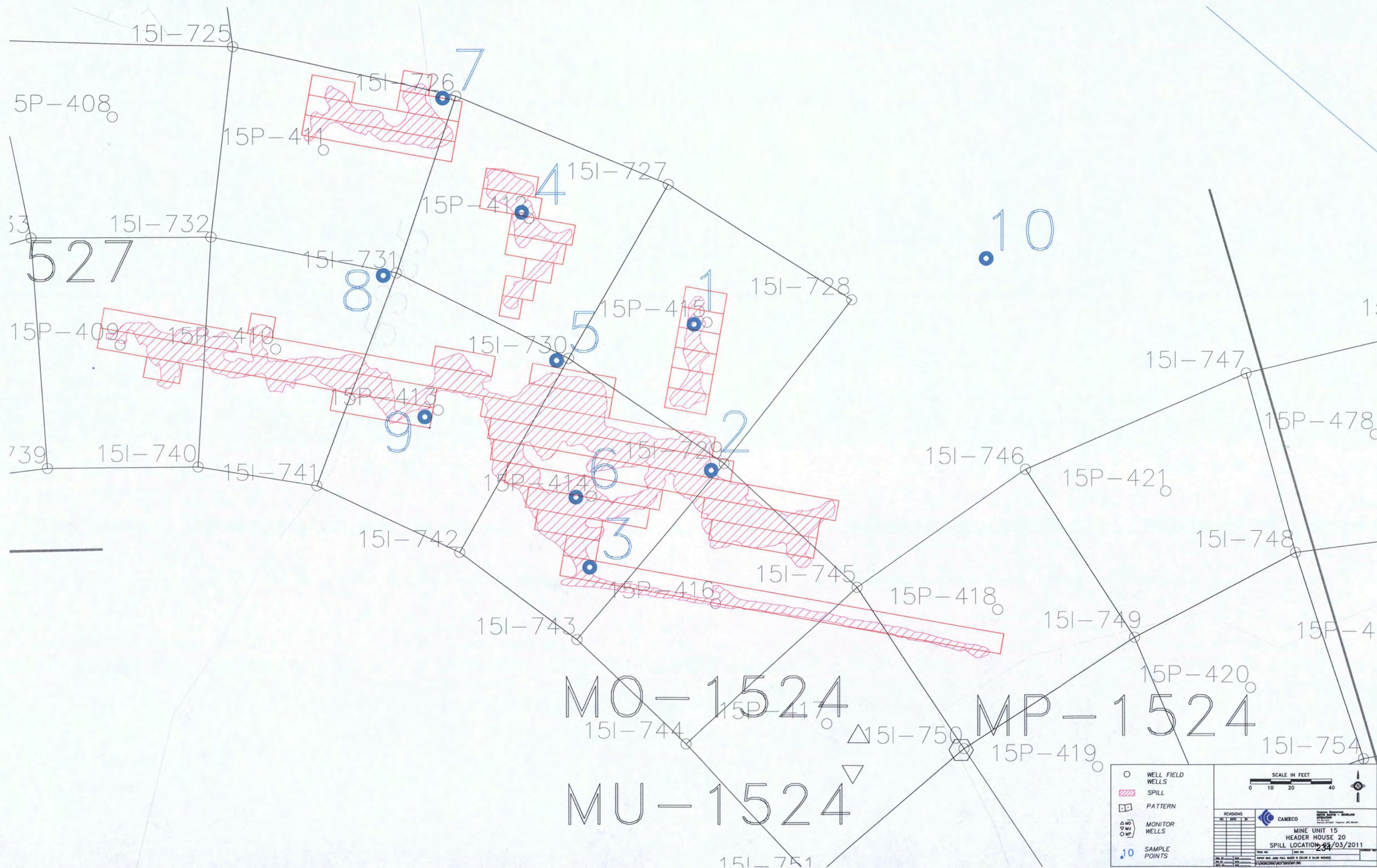
The above procedures described in Phase I and II will be repeated in the areas that had soil removed until the walkover gamma readings are within acceptable range.

Phase IV: Surface reclamation

Once all of the removed soil is all loaded to containers the areas that had soil removed will be mulched and drill seeded. The perimeter of the disturbed area of soil removal will have erosion and sedimentation controls installed until vegetation is established.

PLAN CONTINGENCIES

The remediation plan is contingent upon WDEQ/LQD approval according to the draft 'Tracking Sheets for Commitments & Deadlines for Compliance' provided to Cameco on August 24, 2011. The estimated time frame to complete the remediation once Phase I begins will depend on issues of weather, how equipment/personnel may be needed elsewhere , and arrangements to bring in approved DOT IP-1 11(e) 2 byproduct containers in a timely manner. Cameco's expectation is that WDEQ/LQD approval can be obtained expeditiously so that the remediation may begin in October, 2011.





September 15, 2011

Ms. Pam Rothwell
District I Assistant Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
Herschler Building, 3 Floor-West
Cheyenne, WY 82002

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

CERTIFIED MAIL # 7011 0470 0000 7716 0096 RETURN RECEIPT REQUESTED

RE: Additional Information, Mine Unit K-North Wellfield Release, Cameco Resources,
Permit 633

Dear Ms. Rothwell:

Power Resources Inc. d/b/a Cameco Resources (Cameco) is herein providing added information regarding the disposition of pump test water generated from the K-North wellfield pump test conducted in March and April of 2011 after the modular tank failure and release of pump test water on March 10, 2011. Wyoming Department of Environmental Quality (WDEQ) - Land Quality Division (LQD) presented a summary of commitments and deadlines on August 17, 2011 that included a commitment from Cameco to provide additional information on the pump test by September 15, 2011.

Below is a summary of information Cameco committed to provide.

- The modular tank failure on March 10, 2011 and release of pump test water did not have an effect to any well installation or well application in the area impacted. The pump testing associated with pump well KPW-02 was discontinued immediately after the release occurred. This incident delayed the pump test until five 400 bbl Frac tanks could be obtained and placed adjacent to the release area. The pump test was restarted on March 15, 2011.
- The volume of water the Frac tanks collected from three pump tests are as follows:
 - Pump Test #1: March 15 through March 17, 2011; 35.1 gpm over 51 hours = 107,406 gallons of pump test water.
 - Pump Test #2: March 29 through March 31, 2011; 22.6 gpm over 48 hours = 65,088 gallons of pump test water.

FSME21

- Pump Test #3: April 6 through April 8, 2011; 25 gpm over 48 hours = 72,000 gallons of pump test water.
- Pump test water collected in the Frac tanks was consumed solely as drilling water for the well installation activities ongoing in K-North. Water was consumed both during and between the pump tests. The balance of the water was consumed by drilling activities after pump test #3 was completed.

Please contact Ken Garoutte at 307-358-6541, ext. 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully,



Brent Berg
General Manager

BB/kg

Cc: File HUP 4.3.3.1 File SR 4.3.3.1
Doug Mandeville, NRC (2 copies) Certified Mail # 7011 0470 0000 7716 0102
Document Control Desk, NRC Certified Mail # 7011 0470 0000 7716 0119

Ec: Cameco-Cheyenne



September 15, 2011

Ms. Pam Rothwell
District I Assistant Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
Herschler Building, 3 Floor-West
Cheyenne, WY 82002

CAMECO RESOURCES
Smith Ranch-Highland
Operation
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82637 USA

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Fax: (307) 358-4533
www.cameco.com

CERTIFIED MAIL # 7010 0780 0001 6001 9985 RETURN RECEIPT REQUESTED

RE: Additional Explanation & Discussion, Missed Samples and Other Self-Identified Violations (Non-conformances), Cameco Resources, Permit 603 and 633

Dear Ms. Rothwell:

Power Resources Inc. d/b/a Cameco Resources (Cameco) is herein providing added information and discussion regarding missed uranium analyses, missed sampling of wells, scheduled 5 year MITs missed, and wells plugged but not reported. Pursuant to Chapter 11 Noncoal In Situ Mining, Section 9 (a) (vii) (B), Cameco self-identified these non-conformances and notified the Wyoming Department of Environmental Quality (WDEQ) - Land Quality Division (LQD) in correspondence dated in May and August of 2011. Subsequent to meetings held with LQD in August of 2011, Cameco commits to give LQD written notifications to discuss the reason for an occurrence of a non-conformance specific to the event with openness and transparency. Notwithstanding, Cameco recognizes written notifications to the LQD are a matter of public record and thus will focus on the problem associated with a non-conformance and not the person(s) involved.

Below are the referenced non-conformances LQD listed in correspondence dated August 8, 2011 for Missed Samples and Other Self-Identified Violations. An explanation specific to the event is provided with added discussion associated with the non-conformance.

Missed uranium analyses on wells CM-032 & DM-003 on February 15, 2011.

- In a letter dated June 2, 2011 providing responses to the Letter of Conference & Conciliation from LQD dated May 2, 2011, an explanation was provided involving Cameco's miscommunication that a uranium analysis was needed on these wells to an oncoming employee after a shift change.
- Additionally but not described in the letter, Cameco did not recognize the missed uranium analyses in subsequent reviews of the February 15th lab data. In light of personnel

FSME 20

changes and management reorganization that took place December 2010 into January 2011, Cameco's SOPs were not adequate to ensure quality assurance checks were being done.

Additional Non-conformances

1. Wells CP-173, CP-176, and FI-0257 plugged and abandoned without notification.

- Contained in the 1st quarter, 2011 Excursion Monitoring Report for permit #603 these wells were identified as plugged and abandoned in previous years 2005, 1995, & 2007 respectively but not reported to LQD.
- Under TFN 5 1/226, Mine Unit C Restoration Wells, in correspondence dated March 22, 2011, Cameco was requested to research wells described in Table 1 as plugged and abandoned to determine when they were reported to LQD. A thorough review of records discovered that two wells CP-173 & CP-176 could not be verified in reports to LQD as being reported as plugged and abandoned. Upon discovery, Cameco included them in the quarterly report, 1st Qtr. of 2011. Earlier records at LQD may indicate otherwise, but Cameco was unable to verify this. As such, we felt it was important to self-identify and report this to LQD.
- Well FI-0257 was recorded in Cameco's data base incorrectly as well FI-0262 and being plugged in 2007. During routine 5 yr. MITs in the wellfield in March of 2011, it was discovered that well FI-0262 was not plugged but a good well that passed the MIT. Research into the records found that the MIT sheet for well FI-0262 was mislabeled as FI-0257 in 2005 passing an MIT. FI-0262 was reported in the 3rd Qtr. Excursion Monitoring Report of 2007 as plugged August 15, 2007. In actuality, FI-0257 was plugged. Upon discovery of this past error, Cameco reported this in the quarterly report, 1st Qtr. 2011.

2. Failure to perform a full suite analyses prior to commencing restoration on wells DM-014 and FM-004.

- Cameco did not adequately review Mine Unit D-Extension Hydrologic Test Report under TFN 3 2/269 prior to commencing restoration concurrently in wellfields D and D-Extension in 2010. The wells DM-014 and FM-004 were designated as MP Wells (production zone monitoring) for D-Extension for the purposes of monitoring restoration progress. These references are found in the appendix J-baseline water quality data of the approved Hydrologic Test Report for Mine Unit D-Extension, dated November of 2000. Cameco has since began scanning and developing a database of historic records and commitments available to operations personnel. While much remains to be done with the database, we believe this will improve accessibility and search ability for Cameco employees.

3. Failure to monitor ET-4 and ET-5 excursion monitor wells.

- Cameco did not ensure these wells were continued in the Mine Unit D-Extension monitoring schedule after October, 2010 when Mine Unit E-South was preparing to

commence restoration. Wells ET-4 and ET-5 (originally designated at trend wells in Mine Unit E) were re-designated as overlying monitor wells for D-Extension wellfield under the approved TFN 3 2/269 for the Mine Unit D-Extension Hydrologic Test Report and referenced in the appendix J-baseline water quality data, dated November, 2000.

4. Missed 5 yr. mechanical integrity tests (MITs) on wells KP-029, KP-145, and CMP-020I.

- Under permit 633, injection and production wells require 5 yr. MITs. Cameco did not recognize KP-029 and KP-145 require a 5 yr. MIT when their designation changed from a MP (production zone monitoring) well to a production well. Five year MITs are not required for MP wells. The initial completion of these wells was in February and March of 2006 respectively, hence the 5 yr. MITs were due. Cameco in the 1st and 2nd quarter of 2011 migrated MIT data from an existing data base to a new data base. The discovery regarding these two wells was made in April of 2011 and came too late to meet the 5 year requirement.
- CMP-020I is an unusually labeled injection well that the new data base could not recognize as needing an MIT. Cameco did not correctly classify this well when migrating MIT data to the new data base. This discovery was made in July, 2011. The well should have had an MIT in May of 2011.

Cameco continues to move existing historical data to new databases; this transition and improvements in quality assurance may find more historical errors. LQD is welcome to review the new databases and its implementation during future inspections to better define the quality assurance measures being developed.

Please contact Ken Garoutte at 307-358-6541, ext. 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully,



Brent Berg
General Manager

BB/kg

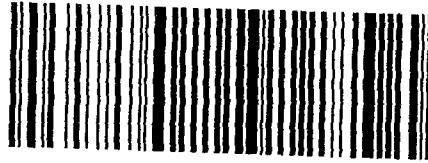
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Doug Mandeville, NRC (2 copies) Certified Mail # 7010 0780 0001 6001 9992
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Ec: Cameco-Cheyenne



CAMECO RESOURCES
Smith Ranch-Highland Operati
 P. O. Box 1210
 Glenrock, WY
 82637 USA

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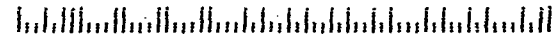
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 Washington, DC 20555-10001

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September 28, 2011

MEETING NOTICE

MEMORANDUM TO: Bill Von Till, Chief
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

FROM: Douglas Mandeville, Project Manager **/RA/**
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

SUBJECT: Cameco Resources, Inc., Smith Ranch Highland Facility

DOCKET NO: 04008964

DATE & TIME: October 18, 2011
11:00 a.m. to 12:30 p.m. ET

LOCATION: U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Room T8C5
Rockville, MD 20852

PURPOSE: The purpose of this meeting is to discuss the potential alternate concentration limit (ACL) application for Mine Unit B.

CATEGORY: This meeting is a Category 1 Public Meeting. The public is invited to observe the meeting and may ask questions at the end of the business portion of the meeting. The NRC's Policy Statement, "Enhancing Public Participation in NRC Meetings," effective May 28, 2002, applies to this meeting. The policy statement may be found on the NRC Web site at: <http://www.nrc.gov/reading-rm/doc-collections/commission/policy/67fr36920.html> and contains information regarding visitors and security. **Interested members of the public can participate in this meeting via a toll-free teleconference. For details, please call the NRC meeting contact by October 13, 2011.**

B. Von Till

2

PARTICIPANTS: NRC Licensee
Douglas Mandeville Josh Leftwich
Stephen Cohen et al.
Bill Von Till
Elise Striz
Ron Linton
John Saxton
Tom Lancaster
et al.

MEETING CONTACT Douglas Mandeville, FSME/DWMEP
301-415-0724
douglas.mandeville@nrc.gov

ENCLOSURE: Agenda

B. Von Till

2

PARTICIPANTS:	<u>NRC</u>	<u>Licensee</u>
	Douglas Mandeville	Josh Leftwich
	Stephen Cohen	et al.
	Bill Von Till	
	Elise Striz	
	Ron Linton	
	John Saxton	
	Tom Lancaster	
	et al.	

MEETING CONTACT: Douglas Mandeville, FSME/DWMEP
 301-415-0724
douglas.mandeville@nrc.gov

ENCLOSURE: Agenda

DISTRIBUTION:

BSpitzberg/RIV
 Meeting Attendees

LGersey/RIV

KMcConnell

PMNS

ML112710137

Office	DWMEP	DWMEP	DWMEP
Name	DMandeville	BGarrett	DMandeville
Date	9/28/11	9/ 28/11	9/28/11

OFFICIAL RECORD COPY

MEETING AGENDA
Cameco Resources, Inc.
October 18, 2011

MEETING PURPOSE: To discuss the potential alternate concentration limit (ACL) application for Mine Unit B at Cameco's Smith Ranch Highland in situ recovery facility.

MEETING PROCESS:

<u>Time</u>	<u>Topic</u>	<u>Lead</u>
11:00 a.m.	Introductions	All
	Discussion on ACL application	All
	Public Comments/Questions	
12:30 p.m.	Adjourn	

Enclosure



September 28, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES
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CERTIFIED MAIL #7011 0470 0000 7716 0126 RETURN RECEIPT REQUESTED

RE: HH 15-20 Wellfield Release, Mine Unit 15A, Remediation Proposal, Cameco Resources,
Permit 633

Dear Mr. Spackman,

Power Resources, Inc. d/b/a Cameco Resources (Cameco) is providing responses to comments in a letter dated September 22, 2011 from the Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD) regarding the proposal for the remediation of the header house 15-20 wellfield release of solutions submitted on September 14, 2011.

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully

Brent Berg
General Manager

BB/kg

Attachments: Response to LQD Comments
Revised HH 15-20 Remediation Proposal
Maps of HH 15-20 area of MU-15A

ec: Cameco Resources – Cheyenne

cc: File SR 4.3.3.1

Doug Mandeville, NRC (2 copies)
Document Control Desk, NRC

Certified Mail #7011 0470 0000 7716 0133

Certified Mail #7011 0470 0000 7716 0140

FSME20

SOIL REMEDIATION PROPOSAL, HH 15-20 WELLFIELD RELEASE

Permit 633, Cameco Resources

Cameco Resources provided LQD with a soil remediation proposal in a letter dated September 14, 2011 for the release of solutions that occurred May 3, 2011. LQD provided review comments in a letter dated September 22, 2011. Below are the comments from LQD and responses provided by Cameco.

COMMENTS

1. *Please place stockpiled contaminated topsoil on liner material. (SI)*

Cameco Response: Under Phase II of the remediation proposal, Cameco describes how soil removed will be taken directly to approved DOT IP-1 11(e)2 byproduct containers. Cameco does not intend to stockpile removed soil; nonetheless, if stockpiling becomes necessary, Cameco will place the removed soil onto barrier liner(s) with erosion control measures to contain the soil.

2. *The crystal for the Ludlum is a sodium iodide crystal, not sodium iodine. Please correct the text. (SI)*

Cameco Response: The reference to the sodium iodide crystal has been corrected on the first line under Remediation Plan of the attached revised proposal.

3. *The spill area extends beyond the southernmost line of the grid. An additional line should be added to the south end of the grid. Please add an additional line to the south end of the grid. (SI)*

Cameco Response: A revised map of grid lines is contained in the attached revised proposal.

4. *The Ludlum meter has two accumulation times. Please specify which accumulator time will be used for the Ludlum. (SI)*

Cameco Response: The Ludlum meter will be set to accumulate counts per second over a one minute time period.

5. *CR has committed to removing, in increments of 2-5 inches, all contaminated soil material to the depth in which the solution release leached. Until the sampling and removal process is completed, the depth and volume of soil removal is not known. Soils in the area of the fluid release range from 1.7ft (20 in) to 2.0ft (24 in). The topsoil or A-horizon ranges from 2 in to 6 in. If no more that 10-12 in of material is removed, CR may be able to obtain successful reclamation by seeding and mulching directly into the subsoil that remains. However, if soil material is removed to greater depths, alternative sources of topsoil or organic material (composted manure) incorporation might be necessary. When all contaminated soil material is removed, the exposed surface material should be visually, evaluated for hand texture and organic matter content to determine if*

seeding directly into the subsoil will provide a good seedbed. If not, additional soil or organic manure additives should be considered. (LS)

Cameco Response: Cameco appreciates the guidelines given to help with our reclamation of the impacted areas. Cameco will conduct a visual evaluation to determine if direct seeding, additional soil, or organic additives should be applied if more than 12 inches of soil is removed.

6. *Please provide a map showing the topographic contours for identification of any drainages through the spill area. (PCR)*

Cameco Response: A second map is provided with the attached revised remediation proposal showing a wider view of the Mine Unit 15A spill area with topographical contours and drainage areas displayed.

**Mine Unit 15A Wellfield Release, Header House 15-20 Area
Soil Remediation Proposal
Cameco Resources Permit 633**

INTRODUCTION

Cameco provided LQD a written notification in a letter dated May 9, 2011 of a release of solutions that occurred in wellfield 15A, header house 15-20 on May 3, 2011. Verbal notification of the release was provided to LQD on May 4, 2011. The written report estimated 1500 gallons of production fluid was released impacting an area of approximately 12,077 square feet.

The release involved eight (8) production wells (15P-409 through 15P-416). The impacted area was mapped using a Trimble GPS unit with the results transferred to the Smith Ranch-Highland Site Map for archiving. The impacted area was gamma surveyed using an unshielded Ludlum Model 19 MicroR meter and soil sampled at ten (10) locations including a background sample. See Table 1. The sample results indicated nine (9) sample locations were above the 5 pCi/g decommissioning criteria established by the NRC. A map showing the areas of impacted soil is attached for your review.

SOIL SAMPLING RESULTS

The sample results for uranium are reported in mg/Kg and require conversion to pCi/g, while the results for radium226 are reported in pCi/g. After conversion, uranium and radium results are summed and compared to the 5 pCi/g criteria using the NRC's Unity rule as found in 10 CFR Appendix A to Part 40, under I. Technical Criteria, *Criterion 6*, sub criterion (6). After subtracting background (Bkg), all nine (9) soil samples were above the 5 pCi/g Unity rule.

Conversion formula:

$$\text{mg/Kg} \cdot \text{Kg}/1\text{E}6\text{mg} \cdot 6.77\text{E}-7\text{Ci/g} \cdot \text{pCi}/1\text{E}-12\text{Ci} = \text{pCi/g}$$

The specific activity of uranium is $6.77\text{E}-7\text{ Ci/g}$ as per 10 CFR PART 20, appendix B.

Converting the uranium reported in mg/Kg to pCi/g is accomplished using the above formula.

TABLE 1

Sample ID	Uranium mg/kg	Radium pCi/g	Uranium pCi/g	Unity pCi/g	Unity-Bkg pCi/g	MicroR/hr
1	204	27.7	138	165.7	162.2	22
2	86	3.3	58	61.3	57.8	14
3	21.5	2.6	14	16.6	13.1	16
4	47.7	3.5	32.3	35.8	32.3	18
5	31.7	1.6	21.5	23.1	19.6	14
6	204	38.5	138	176.5	173	16
7	13.1	1.9	8.9	10.8	7.3	16
8	72.6	3.7	49.2	52.9	49.4	14
9	109	12.8	13.8	86.6	83.1	17
10 (Bkg)	3.5	1.1	2.4	3.5		17

REMEDIATION PLAN

A Ludlum Model 2221 Scaler/Ratemeter with a 2" sodium **iodide crystal** has been procured for environmental assessments for radionuclides. The meter will respond to gamma radiation in counts per second and the probe will be contained within a hand held portable lead shield. The probe will be positioned approximately 3-4" above the surveyed surface and exposed through an opening in the bottom of the shield. The counts per second will be **accumulated over a period of one minute** and correlated with known pCi/g concentrations to arrive at pCi conversion to be used during the walk over.

The area affected will be fenced off to prevent access as requested by WDEQ until remediation activities commence. The remediation will consist of four phases described below.

Phase I: Soil Surveying

A Health Physics Technician will walk over the impacted area while holding the shielded gamma meter. The walk over survey will be conducted following a grid pattern of parallel lines approximately 10 feet apart over the impacted area. The Technician will begin at a point 2-3 feet outside the delineated release area and position the Ratemeter 3-4" over the surface and determine the pCi concentration. Then the Technician will take one step (2-3 feet) along a straight line, position the Ratemeter 3-4" over the surface, and again determine the pCi concentration. The Technician will then take another step and determine the next reading. This process will continue in a straight line until a reading is taken beyond the delineated release area as depicted on the map. The Technician will then repeat the process on a parallel line approximately 10 feet away. The walk over survey will be completed once all the separate impacted areas as delineated on the map have been surveyed. See attached map demonstrating 10 foot parallel grid lines over the entire impacted area as an example. Actual survey lines used will vary to match up with the separate delineated areas.

The background Unity value will be subtracted from the reading displayed by the Ratemeter to determine the net pCi at a given point. Values over the 5 pCi conversion will be flagged for removal.

Phase II: Soil Removal

Header house 15-20 will be shut down during the removal operation. A 770CH-John Deere small profile grader together with a backhoe frontend loader will be used to remove the flagged soil from the impacted area and load directly to approved DOT IP-1 11(e) 2 byproduct containers. Areas flagged around the well heads will require hand shovel removal and will be placed onto nearby flagged areas. The grader will lay over 2-5" of flagged soil depending on the irregularity of the surface for removal by the loader. The freshly cut area is ready to re-survey to determine if more depth of soil is to be removed. A loader will remove laid over soil to approved DOT IP-1 11(e) 2 byproduct container(s) staged adjacent to the area on top of barrier liners. The barrier liners will capture loose soil that fall from the loading operation. The loose soil will be hand shoveled into the container. Once containers are loaded they will be shipped using site procedures complying with DOT regulations to an NRC approved 11 (e) 2 by-product disposal facility.

Phase III: Re-surveying

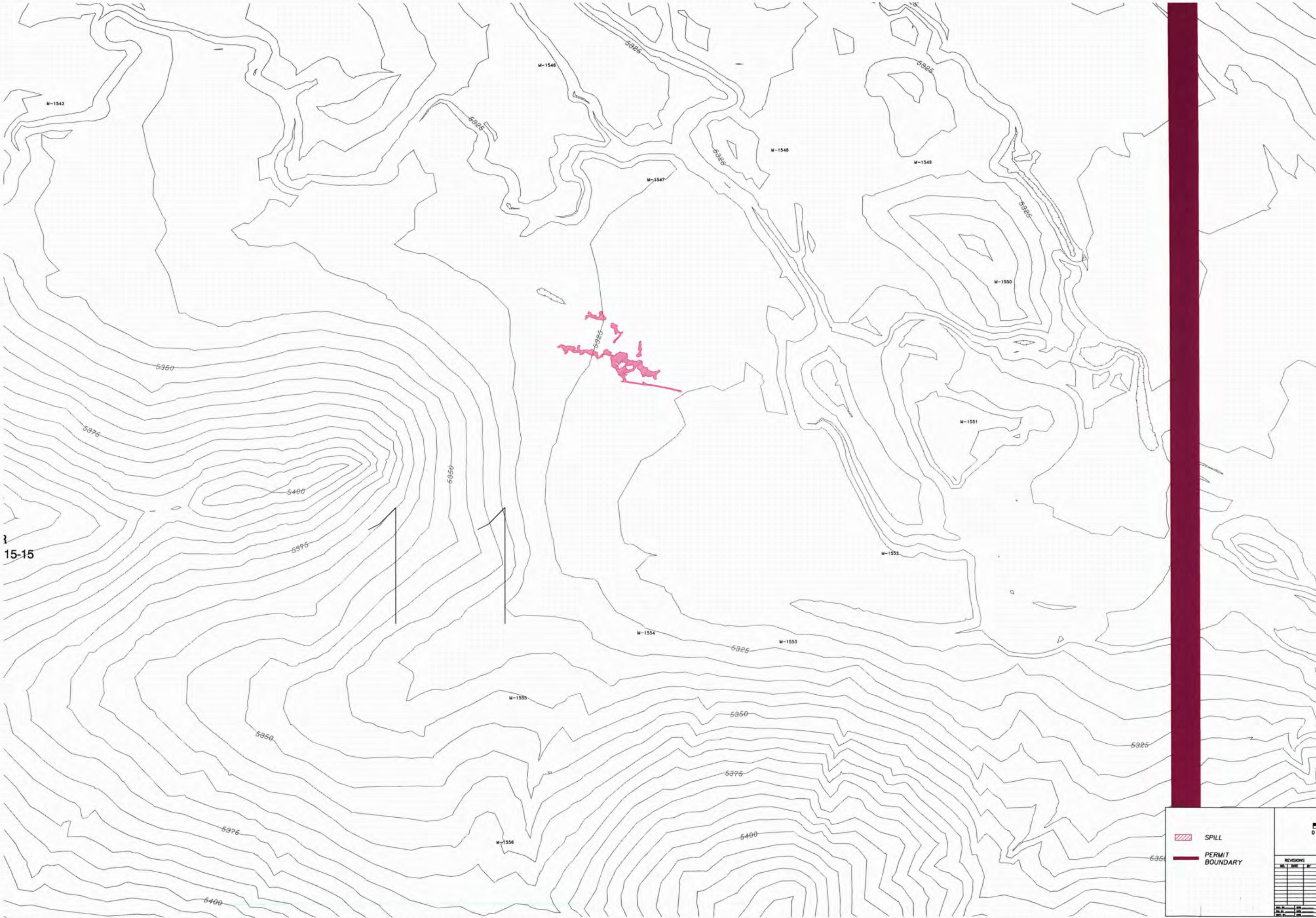
The above procedures described in Phase I and II will be repeated in the areas that had soil removed until the walkover gamma readings are within acceptable range.

Phase IV: Surface reclamation

Once all of the removed soil is all loaded to containers the areas that had soil removed will be mulched and drill seeded. The perimeter of the disturbed area of soil removal will have erosion and sedimentation controls installed until vegetation is established.

PLAN CONTINGENCIES

The remediation plan is contingent upon WDEQ/LQD approval according to the draft 'Tracking Sheets for Commitments & Deadlines for Compliance' provided to Cameco on August 24, 2011. The estimated time frame to complete the remediation once Phase I begins will depend on issues of weather, how equipment/personnel may be needed elsewhere, and arrangements to bring in approved DOT IP-1 11(e) 2 byproduct containers in a timely manner. Cameco's expectation is that WDEQ/LQD approval can be obtained expeditiously so that the remediation may begin in October, 2011.



15-15

SPILL

PERMIT BOUNDARY

SCALE IN FEET

0 75 150 300

N

REVISIONS	
NO.	DATE

Camco Inc.

251

MINE UNIT 15 HEADER HOUSE 20

SPILL LOCATION AND

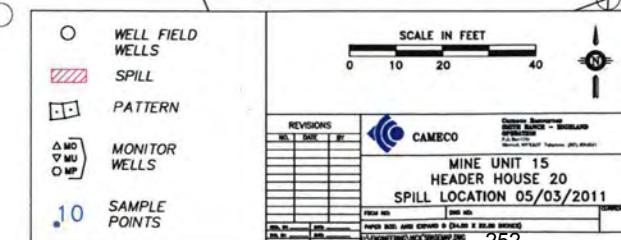
SURROUNDING TOPOGRAPHY

DATE: 01/15/2015

BY: J. B. BROWN

SCALE: 1" = 100'

PROJECT NO: 251





September 30, 2011

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
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CERTIFIED MAIL #7011 0470 0000 7716 1178 RETURN RECEIPT REQUESTED

RE: Excursion Report Summary Update, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 603 and 633

Dear Mr. Spackman:

Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the monthly Excursion Report Summary for the Smith Ranch-Highland Uranium Project. During the month of September (1) one new excursion was reported, KM-031. The Cameco Excursion Report table is attached. Monitor well DM-003 and DM-010 remain on excursion from the month of August.

Constituent levels in Monitor Well DM-003 stayed relatively stable throughout the month of September 2011. Monitor Well DM-010 levels improved slightly through the month. A copy of the monitor well report for well DM-003 and DM-010 is attached. Monitor Well KM-031 levels are fluctuating near the UCL levels. Additionally, graphs are attached for each well tracking alkalinity, chloride, and conductivity trends. A plan and compliance schedule for well DM-003 was submitted to LQD in a letter dated March 10, 2011 responding to 3rd Qtr. 2010 Excursion Monitoring Report comments from LQD. A hydrologic consultant from AQUI-VER has provided a model of excursion events and developed recommendations. See the attached AQUI-VER, Inc. Mine Unit D Excursion Recovery and Prevention Plan. Cameco will continue to evaluate the benefit of pumping the underground drift area working proximal to Mine Unit D and continue the bleed in Mine Units C and E to maintain stability. In a meeting held with LQD September 29, 2011, Cameco and LQD agreed to look at creating a restoration plan for Mine Unit C, D and E together as long as Cameco maintains control of wells on excursion, DM-003 and DM-010. The proposed restoration plan would control fluid movement in the underground mine workings.

FSUE20

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have questions.

Respectfully,

Brent Berg

by Dave Moody

Brent Berg
General Manager

BB/vg

Attachments: Cameco Resources Excursion Report
Monitor Well Report and Trend Graphs for DM-003
Monitor Well Report and Trend Graphs for DM-010
Monitor Well Report and Trend Graphs for KM-031
Aqui-Ver, Inc Mine Unit D Excursion Recovery and Prevention Plan

cc: File HUP 4.3.3.1 File SR 4.3.3.1
Mr. Doug Mandeville, NRC (2copies) - CERTIFIED MAIL #7011 0470 0000 7716 1161
Document Control Desk, NRC - CERTIFIED MAIL #7011 0470 0000 7716 1154

ec: Cameco-Cheyenne

Cameco Resources Excursion Report
Permit Nos. 603 & 633
(September 2011)

Well Identification	Initial Sample Date	Confirmation Sample Date	Excursion Status (on/off)	Parameters Exceeded	Verbal Notification Date	Written Notification Date	Excursion Resolution Date	LQD Concurrence Notification Date
DM-3	11/19/2009	11/20/2009	ON	Chloride Alkalinity	11/23/2009	11/25/2009		
DM-10	6/3/2011	6/6/2011	ON	Chloride Alkalinity	6/7/2011	6/10/2011		
KM-031	9/6/2011	9/8/2011	ON	Alkalinity Conductivity	9/12/2011	9/14/2011		



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September 30, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL # 7011 0470 0000 7716 0072 RETURN RECEIPT REQUESTED

RE: East Storage Pond Leak, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit to Mine No. 633

Dear Mr. Spackman:

On June 20, 2011, Power Resources, Inc. d/b/a Cameco Resources (Cameco) provided written notification to Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission regarding a leak into secondary containment discovered on June 13, 2011 at the East Evaporation Pond.

Cameco drained the pond to investigate the leak into secondary containment and repaired a tear in the primary liner on July 7, 2011. Following repairs, water was returned to the pond. On August 15, 2011 water was again discovered in the East Evaporation Pond Sump. Verbal notification was made to Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission on August 16, 2011 with written notification following in the monthly report on August 31, 2011.

The pond level was lowered for the second time to reexamine the primary liner. Another tear was discovered and repairs were made August 29, 2011. Following repairs, water has been returned to the pond. Routine monitoring has continued to ensure no leakage occurs as the water level rises above the area of repair. At this time the water level has not risen above the area of repair. No samples have been obtained since the August 15, 2011 leak was discovered due to the sump remaining dry.

A monthly report will continue to be submitted until the water level in the pond reaches the area of repair and Cameco ensures that the repair was successful. Please contact Larry Teahon at (307) 358-6541 ext. 435 if you have questions.

Sincerely,

Brent Berg
By Dave Moody

Brent Berg
General Manager

BB/vg

cc: File SR 4.3.3.1 File SR 4.3.3.4
Mr. Doug Mandeville – NRC (2-copies) CERTIFIED MAIL #7011 0470 0000 7716 0089
Document Control Desk, NRC CERTIFIED MAIL # 7011 0470 0000 7716 1147

ec: Cameco-Cheyenne



October 20, 2011

Mr. Lowell Spackman, District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
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CERTIFIED MAIL # 7011 0470 0000 7716 1222 RETURN RECEIPT REQUESTED

RE: Excursion at Monitor Well DM-010, Plan and Compliance Schedule, 90-day Notification,
Cameco Resources, Permit 603

Dear Mr. Spackman:

Power Resources, Inc. d/b/a Cameco Resources (Cameco) is herein providing a plan and compliance schedule pursuant to Chapter 11 of the Noncoal In Situ Mining, Section 12(d) (iii) for the excursion at monitor well DM-010. Cameco met with LQD on October 5, 2011 and discussed submitting a separate compliance schedule for well DM-010 to comply with the 90-day requirement, although excursion control is tied to the compliance schedule for well DM-003 on excursion. Attached is the plan and proposed compliance schedule for well DM-010.

Please contact Ken Garoutte at 307-358-6541, ext. 476 or Kenneth_Garoutte@cameco.com if you have any questions.

Respectfully,

Brent Berg
General Manager

BB/kg

Attachments: Well DM-010 Plan and Compliance Schedule

cc: File HUP: 4.3.3.1
Mr. Doug Mandeville, NRC (2copies) - CERTIFIED MAIL # 7011 0470 0000 7716 1239
Document Control Desk, NRC - CERTIFIED MAIL # 7011 0470 0000 7716 1246

ec: Cameco-Cheyenne

Excursion at Well DM-010, Plan and Compliance Schedule, 90-day Submittal

Cameco Resources, Permit 603

Introduction

Well DM-010 was confirmed to be on excursion June 6, 2011. Verbal notification to Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD) was given on June 7, 2011 and written notification was provided in a letter dated June 10, 2011. Guideline 8 sampling was conducted on July 11, 2011 and the results were attached to the monthly Excursion Report Summary Update letter dated August 31, 2011. Cameco contracted a consultant, Aqui-Ver, Inc., in August, 2011 to evaluate and propose recommendations to resolve excursions in Mine Unit D.

Plan to Bring DM-010 off Excursion

During a LQD site inspection on September 7 and 8, 2011, Cameco discussed that its consultant, Aqui-Ver, Inc., was preparing an excursion recovery plan as it applies to excursion events regarding wells DM-003 and DM-010. Cameco met with LQD September 29, 2011 and provided a copy of the draft recovery and prevention plan. LQD favored the recommendation to integrate restoration plans for Mine Units C, D, & E that would incorporate the excursion control and prevention.

Cameco formally submitted the Mine Unit D Excursion Recovery and Prevention Plan in the monthly Excursion Report Summary Update letter dated September 30, 2011.

Compliance Schedule

- December 2011: Cameco will submit Draft integrated restoration plan for Mine Unit D, E, and C with excursion control and prevention to resolve the excursion by the end of 2012.
- Monthly Progress Reports: Cameco will provide progress reports in the monthly Excursion Report Summary Update letters on wells DM-010 and DM-003.

AQUI-VER, INC

Hydrogeology, Water Resources & Data Services

Mr. David Moody
Cameco Resources
Smith Ranch/HUP Facility
P.O. Box 1210
Glenrock, WY 82637

September 1, 2011

Re: Mine Unit D Excursion Recovery and Prevention Plan

David:

This letter report summarizes results of our evaluation of recent excursions in Mine Unit D (MU-D) and our proposed excursion recovery and prevention plan. Our analysis included evaluation of historical groundwater quality and water level data for wells installed in the 40- and 50-Sand aquifers in MU-D, MU-C, and MU-E that are connected to underground mine workings in the area.

SUMMARY

Current and historical excursions in MU-D result from the discharge of high TDS water from underground mine workings (drifts) present in the 40-Sand production interval. The 40-Sand aquifer in MU-D is hydraulically connected to the overlying 50-Sand aquifer (production interval for MU-C and MU-E) by a series of raises and drifts connecting MU-C and MU-D, by collapsed mine workings within the MU-D footprint, and by exploration "fan" drilling during underground mine operations. The rate of discharge (and magnitude of the excursion) from underground workings is controlled by the difference in water level elevation between the 40- and 50-Sand aquifers (e.g. vertical hydraulic gradient). Although it should be possible to remediate existing excursions within MU-D by operating strategically located extraction wells, it will be necessary to improve the water quality within the underground workings if wellfield restoration and stability is to be achieved for the long-term (assuming chloride and bicarbonate restoration goals must be met to achieve wellfield closure).

Given the complexity and interconnected nature of groundwater flow between MU-C, MU-D, and MU-E, it is recommended current restoration plans for these mine units be updated and integrated to incorporate this excursion control and prevention plan. This work would include combining and updating existing independent groundwater models to account for underground mine workings that connect MU-C, MU-D, and MU-E.

BACKGROUND

Several monitor ring wells in MU-D have been on-and-off excursion status since early in the operations period, including wells DM-3, DM-9, and DM-10. These wells were placed on excursion having exceeded the Upper Control Limit (UCL) for chloride, alkalinity, and/or conductivity for at least two consecutive sampling events. Wells currently on excursion status include wells DM-3 and DM-10. Well DM-3 has been on excursion status since the fourth quarter of 2001. Well DM-10 had been off of excursion status for more than five years before returning to excursion status recently in June of 2011.

AQUI-VER, INC

Hydrogeology, Water Resources & Data Services

Former underground mine workings (drifts) are present in the 40-Sand production interval in Mine Unit D (**Figure 1**). The 40-Sand aquifer is hydraulically connected to the overlying 50-Sand aquifer (production interval for MU-C and MU-E) by virtue of a series of raises and drifts connecting MU-C and MU-D, by collapsed mine workings within the MU-D footprint, and by exploration “fan” drilling during underground mine operations.

The MU-D excursions are “non-conventional” because the excursion source is high TDS groundwater discharged from underground mine workings. A 2001 study of MU-D excursions concluded elevated chloride concentrations in MU-D are the result of the downward migration of high TDS groundwater from underground mine workings in Mine Unit C (50-Sand) into the underlying 40-Sand aquifer in MU-D¹. Based on our review of available information summarized below, we agree with this conclusion.

DATA ANALYSIS

Our assessment included an evaluation of certain groundwater quality and groundwater elevation data for the 40- and 50-Sand aquifers in MU-D, MU-C, and MU-E, including excursion wells DM-3 and DM-9.

Groundwater elevation data for the 40- and 50-Sand aquifers was contoured for select wells monitored over the period May 15 to May 26, 2011, as shown in **Figure 2** and **Figure 3**. Examination of these maps illustrates groundwater flow into the workings in the 50-Sand, and discharge from the workings in the 40-Sand in the MU-D area. In addition, water level elevations are shown to decrease significantly in the 40-Sand east of the mine workings due to significant withdrawal (bleed) of approximately 60-85 gpm in MU-D and D-Ext. These data support the conceptual model of groundwater flowing downward through the workings from the 50-Sand and discharging into the underlying 40-Sand in the MU-D area.

Groundwater chloride concentration data for the 40- and 50-Sand aquifers was contoured for select wells monitored over the period May 15 to May 26, 2011, as shown in **Figure 4**. Chloride concentrations were contoured for wells installed within underground mine workings (drifts and raises), as well as the surrounding aquifer. The chloride concentration within underground mine workings connecting the MU-C and MU-D areas was observed to be in excess of 70 mg/L. The distribution of chloride shown in **Figure 4** is consistent with the conceptual model of discharge of high TDS groundwater from mine workings in the MU-D area.

Water quality data for excursion wells DM-3 and DM-10 were examined for the period of record to identify any correlations between parameters and water level elevation. As expected, there is a strong correlation between water level elevation and water quality observed in both excursion wells, as shown in **Figure 5** and **Figure 6**. This correlation is most obvious over the 6-year period from approximately January of 2005 to January of 2011 observed in excursion well DM-10 (**Figure 6**). In general, increasing groundwater elevation is correlated to decreasing chloride concentrations in both excursion wells. In general, groundwater elevation greater than

¹ Letter from Hydro-Engineering to Leland Huffman (Cameco) dated December 14, 2001.

AQUI-VER, INC

Hydrogeology, Water Resources & Data Services

5085 ft-MSL promote acceptable water quality in excursion well DM-10. Although the trends in excursion well DM-3 are not quite as clear, better water quality is generally observed in when water level elevation is greater than 5110 ft-MSL. These data are also consistent with the conceptual model of decreasing downward flow through the mine workings into MU-D as 40-Sand water levels increase (decrease in downward hydraulic gradient), which results in a decrease in chloride concentration in adjacent monitoring wells.

An important conclusion of this analysis is the fact that downward flow from the mine workings into MU-D is a natural condition that can be reduced somewhat using engineering controls, but cannot be entirely prevented (even if sections of the workings could be plugged). Therefore, as long as the mine workings contain high TDS groundwater, there will be some amount of discharge of this water from the workings into MU-D. The only full-proof solution to prevent future excursions and maintain stability of MU-D restoration is to improve the quality of water within the underground mine workings.

EXCURSION MODELING

The proposed excursion recovery and prevention plan for MU-D was developed with the aid of a groundwater flow and chemical transport model previously developed for MU-D, D-Ext, and MU-E restoration planning. The model incorporates the influence of underground mine workings within the MU-D footprint, but is limited in size and does not include the MU-C area or underground mine workings that connect MU-C and MU-D.

Prior to using the groundwater flow model for excursion control and prevention, the chemical transport model (MT3D) was calibrated by reproducing the excursion currently observed in DM-3 and DM-10 in MU-D. **Figure 7** illustrates the calibrated chloride concentration in MU-D in May of 2011. The resulting chloride plume is generally consistent with observed chloride concentrations in site monitoring wells, including concentrations observed in excursion well DM-3 (approximately 25 mg/L). An exception exists in the vicinity of DM-10, where the model predicts lower chloride concentrations than observed, and instead predicts adjacent monitoring well DM-9 should be nearing excursion status. This observation is not surprising, however, since well DM-9 has been placed on excursion status in the past. Despite the small differences observed in modeled and observed chloride concentrations, the model is considered a reasonable representation of existing conditions and is further validation of the conceptual model of historical and recent excursions in MU-D.

The effectiveness of the proposed excursion recovery and prevention plan described below was tested using the calibrated groundwater flow and transport model. Results of the modeling indicate chloride concentrations in excursion wells DM-10 and DM-3 should decline to below UCL's (and removed from excursion status) within approximately 90 days of implementation of the plan, as illustrated in **Figure 8**.

AQUI-VER, INC

Hydrogeology, Water Resources & Data Services

EXCURSION RECOVERY AND PREVENTION PLAN

In order to improve water quality in excursion wells as quickly as possible, we recommend the following excursion recovery plan:

- Increase the overall water level elevation within MU-D by significantly reducing the existing 60 to 85 gpm bleed in MU-D and D-Ext to no more than 15 gpm across existing production pattern areas.
- Begin excursion recovery by operation of five new excursion recovery wells located in the vicinity of DM-3, DM-9, and DM-10, operating at a total pumping rate of approximately 55 gpm, as shown in **Figure 9**.
- Decrease the water level elevation in the overlying 50-Sand and underground mine workings by increasing the bleed in MU-C, ideally to include pumping from existing wells in underground workings in the vicinity of wellhouse-19 in conjunction with ongoing MU-C restoration. If an additional bleed can be taken from MU-E (Wellhouse E-12 or E-13 preferred), this would also be beneficial.

In order to improve and maintain water quality in MU-D throughout the restoration and stability monitoring period, it will be necessary to improve the water quality in underground workings within MU-D as follows:

- Inject RO permeate into underground workings using existing drift wells (up to five existing wells available), and using the workings as an injection source for the overall MU-D wellfield restoration plan (**Figure 9**). An injection rate of approximately 25 to 50 gpm from two or more MU-D drift wells is recommended. The restoration bleed in MU-D wellhouses D-2 and D-3 should be increased to approximately 50 gpm (slightly greater than the injection rate) to contain injected fluids, moderate water levels in the workings, and provide sweep of production areas adjacent to the workings.
- Improve water quality in the MU-C portion of the underground workings to assist in the long-term stability of water quality in MU-D and MU-C, as previously described. This could include pumping from existing drift wells in MU-C in Wellhouse 19 as previously described, in conjunction with MU-C restoration.

RECOMMENDATIONS

Results of this work should allow general excursion control and prevention to be implemented in MU-D. However, the scope of this work did not consider the impact of the plan on existing detailed groundwater restoration plans for MU-D, D-Ext, and MU-C. Current restoration plans (and supporting models) for MU-D, D-Ext, and MU-E do not adequately consider the important hydrologic influence of underground mine workings that connect MU-D and MU-C. Similarly, the restoration plan (and supporting model) for MU-C does not directly consider the influence of underground mine workings connecting MU-C and MU-D.

AQUI-VER, INC

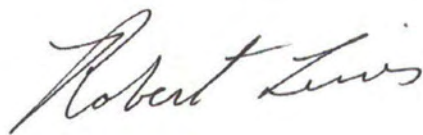
Hydrogeology, Water Resources & Data Services

Given the complexity and interconnected nature of groundwater flow between MU-C, MU-D, and MU-E, it is recommended current restoration plans for these mine units be updated and integrated to incorporate this excursion control and prevention plan. This work would include combining and updating existing independent groundwater models to account for underground mine workings that connect MU-C and MU-D.

If you have any questions or comments concerning this report, please contact me directly at 720-242-9510.

Sincerely,

AQUI-VER, INC

A handwritten signature in cursive script, reading "Robert L. Lewis".

Robert L. Lewis
Principal Hydrogeologist



Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matthew H. Mead, Governor

INT-022



John Corra, Director

October 21, 2011

Mr. Kenneth Garoutte
Cameco Resources, Inc.
PO Box 1210
Glenrock, WY 82637

**Subject: June 2011 Inspection Report & Compliance Concerns
Cameco Resources, Permits 603 & 633**

Dear Mr. Garoutte:

Please find enclosed the above referenced report. The June inspection was conducted with assistance from Cameco Resources (CR) staff on June 14 and June 16, 2011. Additional inspection was conducted on June 23, 2011 to address well completions and split sampling for a well excursion compliance issue. LQD also evaluated the reclamation on abandoned drill holes under drill notification DN236. Separate reports will be issued to address the additional inspections.

Through the April and June 2011 inspections of the permits, the LQD identified many compliance concerns with regard to drill hole and well abandonment, open and uncapped drill holes and wells, topsoil salvage and protection, erosion and sediment control, drilling without notification or approval of notification and compliance with the wellfield restoration schedule. Additional concerns identified through self-reporting of missed sampling events, failure to report a significant spill, abatement of spills and surety deficiencies has compounded the compliance issues from the inspections.

The CR executive and mine staff met with Department of Environmental Quality Director, John Corra and LQD staff in effort to resolve the issues on August 9, 2011. As a result of the meeting, CR agreed to resolve all legacy compliance issues and work with the LQD to resolve the recent compliance issues. LQD continues to work through the issues with CR. The task to clearly identify the issues and find a path forward has been cumbersome and complicated due to historical procedures and permitting that has not been kept up to date. Despite efforts to schedule compliance commitments and deadlines it was found that resolution to the issues will require time.



June 2011 Inspection Report
Permits 603 & 633, Cameco Resources
Page 2

LQD is continuing to work on the Draft Commitments and Deadlines Schedule. CR is working cooperatively to resolve many of the issues. The intent is to finalize the Schedule and track the prescribed deadlines for compliance. A decision to issue Notice of Violations or Letters of Conference and Conciliation has not been determined.

If you have any questions, please do not hesitate to contact me at prothw@wyo.gov or 777-7048.

Sincerely,



Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosure

cc: Cameco Resources, Cheyenne, WY w/att
Douglas Mandeville, NRC w/att

**PERMITS 603 & 633 INSPECTION REPORT
JUNE 2011
DISTRICT 1/LAND QUALITY DIVISION**

COMPANY: Cameco Resources Incorporated

LOCATION: North of Glenrock, Converse County (Smith-Highland Ranch Uranium Project)

DATE OF INSPECTION: June 14 & 16, 2011

DATE OF REPORT : July 16, 2011

INSPECTORS: Pam Rothwell, LQD District 1 Assistant Supervisor
Steve Ingle, LQD Hydrologist
Julie Powell, LQD Project Engineer
Robin Jones, LQD Vegetation Ecologist

CONDITIONS: Sunny to cloudy with occasional rain showers, 50-75°, light winds (15 mph)

CO. STAFF PRESENT: Dawn Kolkman, Cameco SHEQ Manager
Dave Moody, Cameco, Wellfield Operations Manager
Mike Bryson, Cameco, Wellfield Supervisor
Nick Blackburn, Wellfield Supervisor
Perry Herschberger, Drilling Supervisor
Craig Heiser, Wellfield Development Supervisor

INTRODUCTION

The focus of this inspection was to investigate numerous aspects of the SHRUP operation. LQD identified the following items to be investigated during the scheduled inspection:

- Plug and abandonment of drill hole sites.
- Abandoned wells.
- Deep disposal wells.
- PSR2 monitor wells.
- Irrigator.
- Booster pumps.
- Radium pond reclamation.

PRE-MEETING (June 14, 2011)

Pam Rothwell and Steve Ingle participated in a meeting prior to field inspection:

- CM-32 e-log showed no indication of mineral as explained by CR; working on well completion;
- Cameco has hired Dave McGee, Wildlife Biologist. He is mapping out raptors and sage grouse on the permit to delineate restricted areas;
- Excursion locations presented on a map by Dave Moody; CM-32 still stable; CM-33 may be indicating an increase toward excursion again; DM-03 still on excursion; DM-10 something going on, may be result of biofouling or influence of underground workings- Bob Lewis is reviewing – influence of abandoned haulage ways and production pattern;
- MU-D – intense effort in restoration; upgradient end of wellfield, IX @ 240 gpm in May;
- MU-C – over-pumping for restoration, need restoration wells, waiting on P&A cost decision;
- MU-E – waiting on the end of the sage grouse restriction (end of June) to continue installation of wells;
- MU-F – added 18 bell holes, looking at trend wells to determine header houses needed and also will be determining wells needed; watching for excursions; communication with landowner (Domsalla) for new production;
- Dave showed inspectors a map of the trunkline infrastructure that is planned to connect the satellites. Construction will not begin until the surety is updated;

INSPECTION SUMMARY (June 14, 2011)

Abandoned Drill Holes

Julie Powell was accompanied by Perry Herschberger and Craig Heiser to continue the inspection of a percentage of abandoned drill holes reported in the “2009 Annual Reports for PT 603 & 633”. Cameco was provided a list of thirty (30) drill holes to be inspected in March 2011. Thirteen (13) of the holes were inspected during the April 2011 field inspection and are noted in that inspection report. Results from this inspection are documented in **Table 1** and include the abandoned drill hole ID number, northing, easting, total hole depth, completion date, surface soil cap integrity result, concrete cap integrity result, and the depth measured to plugging material.

A total of seven (7) holes were inspected in the permit area during today’s inspection. Two (2) holes could not be located after extensive excavation (#451 and #986) and the inspection attempt was abandoned. It was also noted that hole #1029 was cemented to ground surface. Mr. Heiser indicated that this drill hole was completed with an eight (8) inch diameter size bit and was abandoned due to unacceptable vertical deviation. Due to the large diameter (larger than six (6) inches), Cameco policy dictated that the abandoned drill hole must be completely filled with cement. The hardened concrete was observed to ground surface elevation.

MU-K-North

While investigation for abandoned drill holes in the Mine-Unit K North area, numerous deficiencies were observed with erosion and sediment control. A small topsoil pile was noted near hole #3673-19-996 with no sediment control measures (see **Fig. 1**). Steep vertical cuts with no sediment control measures were also encountered in this area (see **Fig. 2**). Sediment was visibly being transported over existing straw wattles (**Fig. 3**) and abandoned silt fence was noted

in disrepair (*Fig. 4*). Mine-Unit K North was noted as a very active development area (see *Fig. 5*) and is lacking in adequate erosion and sediment control.

Plug & Abandonment of Wells

MU-15 investigation of wells requesting release of plug and abandonment cost (through 2010-2011 Annual Report). The wells inspected were plugged with concrete to surface, however the casing was not cut off and surface reclamation was not complete. CR will need to complete the abandonment part of P&A to receive the release of bond. No wells were given consent for P&A bond release during the inspection.

The inspectors noted many wells without caps and open with standing water at depth. Further investigation of the wellfield header houses noted many wells were not in operations as indicated by the tags in the header houses (see *Figs. 15 & 16*). Header houses 15-1, 15-2, 15-3, 15-4, 15-5, and 15-6 were observed with similar findings of few operational wells and low flow rates for production and injection.

The inspectors observed the plugging activities at a well (CP-241). The well was 539 feet deep. The equipment required includes a hose reel, a mixing unit, water truck, fork lift, backhoe and two pickup trucks; one with a flatbed and one used to tow the hose reel. A three man crew is needed to operate the equipment. The steps to abandon the well are outlined below:

- 1 A mud pit is dug to contain the water displaced from the well and the clean-out water from the hose reel. (see *Fig. 6*)
- 2 A measured amount of water is added to the mixing tub (see *Fig. 7*).
- 3 A hopper of dry cement is moved to the mixing unit and added with a cyclone mixer attached to the mixing unit (see *Fig. 8*).
- 4 The cement mixture is then added to the mixing tub (see *Fig. 9*).
- 5 For this well to get the correct cement/bentonite mixture, six sacks of plug gel (bentonite) is added to the cyclone mixer and the mixing tub (see *Fig. 10*). The pickup truck with the flatbed and a hopper of cement is in the background of this picture.
- 6 The cement and bentonite are mixed in the mixing tub until the desired consistency is achieved (see *Fig. 11*).
- 7 A mud weight is measured with a mud scale (see *Fig. 12*.)
- 8 When the correct mud weight is determined, the mixture is pumped through the hose reel and displaces the water in the well from the bottom to the top (see *Fig. 13*).
- 9 As the cement bentonite mixture is added to the well, the hose is gradually removed and the well is filled to the top of the casing with cement allowed to settle and refill (see *Fig. 14*).
- 10 The hose and mixing unit are flushed with clean water, which discharges into the mud pit.
- 11 The hole is temporarily capped.
- 12 The driller stated that the cement is allowed to set for approximately two days and a crew will check the well and add cement as needed to top of the hole.

INSPECTION SUMMARY (June 16, 2011)

Abandoned Drill Holes

Julie Powell continued the inspection of abandoned drill holes with Perry Herschberger and Nick Blackburn (Craig Hiser was unavailable). The inspection began in Mine-Unit 15 area where holes #1107 and #180 were located. The inspection moved into Mine-Unit 10. Attempts to locate hole #404 was unsuccessful. The inspector chose another hole nearby at random and hole #412 was located (substitute for #404). Holes #380, #1043, and #1019 were located. The remaining hole (#3673-23-1) is located a minimum one hour away. Due to its location and time remaining in the day, it was decided that this will be inspected during the next scheduled visit.

Of the thirty (30) abandoned drill holes needing to be inspected as part of the “2009 PT 603 & 633 Annual Reports”, twenty-three (23) have been completed at the conclusion of this inspection.

A field discussion with Mr. Herschberger regarding the mixing procedure for plugging material was conducted. According to Mr. Herschberger, plugging material is mixed on-site in a pit by emptying bags of dry material into the un-lined pit and adding an unmeasured volume of water until the viscosity reaches sixty-two (62) seconds per the Marsh Funnel Testing Procedure. The dry material and water is hand mixed with a wooden paddle and the resulting material is utilized in the plugging operation. A volume of water added to the dry material cannot be reported to LQD for the purpose of conducting volume calculations due to this inexact mixing procedure.

Mr. Herschberger also indicated that the Casper office completes exploration drill holes and the on-site crew at SHRUP completes production well drill holes. Each crew completes their own plug and abandonment procedures for drill holes and wells. He also reinforced Cameco’s position that they are in compliance with all plug and abandonment requirements and that the fallback in each drill hole is a result of the plugging material seeking the static water level of the aquifer.

The inspector requested the abandonment drilling sheets for the holes inspected. All drilling sheets for the abandoned holes inspected were obtained with the exception of hole #3673-19-1029. Cameco indicated that some of the abandonment sheets had not been provided to their office by the Casper operation. They also indicated that the missing sheets would be obtained and copies forwarded to the LQD. The information contained in the drilling sheets provided is summarized in *Table 2*.

MU-H Inspection

The inspectors noted wells without caps and open with standing water at depth (see *Figs. 17a, 17b and 17c*). Many of these wells did not appear to be operating. Also, the well covers for many of the wells were removed and stacked on the side of the wellfield (see *Fig 18*). Further investigation of the wellfield header houses confirmed that many wells were not in operations as indicated by the tags in the header houses (see *Figs. 19, 20 & 21*). Header houses H-1, H-2, H-3,

H-4, H-5, H-6, H-11, H-12, H-14 and H-16 were inspected. Limited injection and production were observed in many of the header houses.

Deep Disposal Well – Morton #1

The Morton #1 was not operating at the time of the inspection. CR was investigating the low annulus pressure and had repair parts ordered. The pressure reading was around 253 psi and the allowable range is 200-780 psi. DDW's 5-7 were operating. A pipeline was being installed to the Morton #1. There was substantial disturbance associated with the installation.

Satellite #2

CR is currently producing 91 gpm from Mine Unit C and re-injecting 55 gpm which represents a 25% RO bleed. Well DP-7 was being pumped to help control the excursion at Well DM-3 and Well DP-22 was being pumped to control the excursion at Well DM-10. Well DM-10 was being rewired at the time of the inspection to hopefully raise the production rate from two gpm to ten gpm. There is an apparent groundwater mound in the DP-21 and DP-22 area. CR's consultant Bob Lewis is investigating the drift problem. CR is currently in the RO phase in the D-Extension and is producing 281 gpm, not including the D-7 header house.

Radium Pond Reclamation

The reclamation project was observed. Pin flagging on the surface marked the grid of soil sampling that has been conducted.

MU-I Inspection

A booster house was inspected and found to include two large pumps. LQD inquired whether the booster pumps were included in the surety. This will be reviewed during the next surety review. The inspectors investigated header houses HH-1, HH-2, HH-3, HH-4, HH-5, and HH-6. From inspection of the header houses, it appeared the wellfield was in full operation with many production and injection wells in operation.

The inspector noted several drill rigs in the MU-I area and inquired as to whether the drilling was to expand the wellfield and whether there was LQD approval as the inspector was not aware of the locations in the Annual Report. CR could not provide a response during the inspection.

PSR2 and Irrigation Circle

The inspectors drove around the pond to evaluate the locations of the four new monitor wells installed at the request of the Nuclear Regulatory Commission. The irrigation circle was noted to be in operation.

Revegetation and Reclamation

Observations were made at the Cameco in-situ site mines of the following reclamation:

- The condition of some of the topsoil piles in Mine Unit 21 were observed. Two typical topsoil piles were observed. These piles were well vegetated, had a stable containment berm around the pile and were signed (see *Figs. 22 & 23*).
- Various re-seedings and repair areas were also visited. The bell-hole repair in Mine Unit 9 had been re-seeded. It was obvious the newly seeded plants were growing. Another area in Mine Unit 9, a recent re-seeding was also viewed. This area had young grass seedlings coming up in obvious drill seeder rows. Additionally, the K-8 thru K-9 area was viewed. The re-seeding in this area was young but coming along.

Abandoned Drill Holes:

The following table indicates the inspection results of each abandoned drill hole observed.

Table 1 – Abandoned Drill Hole Inspection Results

Hole Delineation Number	Northing	Easting	Total Hole Depth	Completion Date	Surface Cover	Concrete Cap	Depth to Plug
3673-19-996	880017	365647	880'	11/13/09	Good	Installed	120'
3673-19-1029	881022	365552	880'	2/24/10	Good	Installed	Cement to surface
3674-24-481	879794	364317	900'	1/22/10	Good	Installed	146'
3674-24-469	879448	364125	880'	11/25/09	Good	Installed	141'
3674-24-451	879646	364341	900'	9/15/09	-	Not found	Not found
3673-19-986	878716	364845	900'	10/20/09	-	Not found	Not found
3574-9-349	860408	339103	1001'	3/22/10	Good	Installed	17'
3574-16-380	852000	345000	1080'	10/22/09	Good	Installed	59'
3574-16-404	852750	344300	980'	10/16/09	Good	Installed	113'
3574-17-1019	852400	338600	1000'	11/10/10	Good	Installed	191'
3574-17-1043	853250	340650	1100'	11/14/09	Good	Installed	-
3574-19-207	849750	333600	920'	12/17/09	Good	Installed	71'
3673-23-1	880310	386098	400'	3/12/10	-	-	-
3574-9-180	859148	346578	961'	2/24/10	Good	Installed	6'
3574-10-1107	859077	349516	901'	3/15/10	Good	Installed	41'

The following table represents pertinent data provided on the drilling sheets for inspected plugged and abandoned drill holes. LQD continues to have concerns with the accuracy of the reported data. When comparing the data provided on the drill sheets, it becomes apparent that there are inconsistencies or incorrect information. By grouping similar depths of drill hole depths, the reported number of bags of plug gel used can easily be compared. These comparisons revealed a wide range of bags reported to be used for like sizes of drill holes and the same number of bags with similar viscosities reported to be used to fill holes with one-hundred (100) feet difference in depth. These situations clearly cannot be accurate or feasible.

Table 2 Drilling Sheet Summary of Information

Hole ID Number	Depth (ft)	Bags (ea)	Viscosity (sec)
3673-19-996	880	11	71
3674-24-469	880	7	75
3673-19-986	900	18	80
3674-24-451	900	10	72
3574-10-1107	901	10	89
3574-19-207	920	12	85
3574-9-180	961	10	65
3574-16-404	980	10	65
3574-8-349	1000	20	87
3574-17-1019	1000	12	75
3674-24-481	1000	10	68
3574-16-380	1080	12	90
3574-19-207	1100	10	80

Specific examples of inconsistency include:

- A variation of four (4) bags to fill drill holes eight hundred eighty (880) feet in total depth.
- A variation of eight (8) bags to fill drill holes nine hundred (900) feet in total depth.
- A variation of eight (8) bags to fill drill holes one thousand (1000) feet in total depth.
- Ten (10) bags reported to fill drill holes ranging from nine hundred (900) feet and eleven hundred (1100) feet in total depth.

COMPLIANCE ASSESSMENT

1. All but one abandoned drill hole (#3573-19-1029 was cemented to the surface due to its diameter of eight (8) inches and was abandoned due to MIT failure) inspected by LQD within the permitted area were out of compliance with the following Wyoming State Statute:

W.S. § 35-11-404(b)(ii): "Sealing. Drill holes which have encountered any ground water shall be sealed by leaving a column of drilling mud in the hole or by such other sealing procedure which is adequate to prevent fluid communication between aquifers"

As noted in the April 2011 inspection report, Cameco Resources has explained to LQD that according to their assessment, the plug gel being utilized for abandonment seeks that static water level once circulated into the drill hole. Based on the widely varying depths to plugging material observed during the April 2011 inspection, LQD was unable to confirm that this theory was feasible. It is LQD's recommendation that Cameco provide detailed analysis of their plugging and abandonment procedures and supporting documentation which indicates a feasible and accurate cause of the varying fall-back depths. Additionally, Cameco needs to advise LQD how these holes will be corrected to comply with the plugging requirement and the method to be used in the future to ensure proper plugging of all abandoned holes.

2. Similar to the April 2011 inspection results and report, the data contained on the "***Uncased Well Abandonment Delineation Drilling Sheets for SR/HO***" appears to be questionable in several instances. When comparing the reported bags of plugging material and viscosity for the same diameter and depth drill holes (see **Table 2**), the large variations of data presents difficulty in analysis. The questionable reported data needs to be verified and explained to LQD by Cameco.
3. Significant deficiency in sediment and erosion control continues to be a very high concern for LQD at the SHRUP mine sites. The lack of sediment control in the Mine Unit K North exploration areas are a repeat violation that LQD has attempted to impress upon the operator as a serious problem on numerous occasions. The inspector encountered instances of sediment washed onto native areas as a result of the mining activities. According the WEQA, § 35-11-415 (b)(viii), "*The operator...shall...prevent, throughout the mining and reclamation operation...the pollution of surface and subsurface waters on the lands affected...*" and according to the Wyoming Land Quality Division Noncoal Rules and Regulations (R&R), Chapter 3, Section 2(c)(i)(A), "*All topsoil or approved surface material shall be removed from all areas to be affected in the permit area prior to these areas being disturbed...*". The disturbance in Mine Unit K North does not include adequate sediment control with significant sediment being deposited on native areas.
4. It appears that Cameco is attempting to provide more protection of salvaged stockpiles with straw wattles and signs. However there were many instances of poorly protected topsoil stockpiles in areas of active drilling operations (specifically Mine Unit-K North). The instances noted during the inspection include topsoil stockpiles located on slopes without toe ditches or berms to contain the soil in the stockpile on the downslope sides of the piles.

These instances have resulted in loss of soil to the downslope disturbed areas. Failure to adequately protect topsoil is a violation of WEQA, § 35-11-406 (b)(viii).

5. Based upon discussions with Cameco staff as noted above regarding the method being utilized to mix plugging material coupled with the wide variations in bags of material used and their corresponding viscosities, LQD has concerns that the plugging material is not properly mixed prior to use. The specifications for plug gel indicate a specific ratio of water to be added to the dry material. This does not appear to be the method that Cameco or its subcontractors are utilizing. The specifications also note specific levels of water purity that will affect the performance of the material and treatments to counteract these performance inhibitors. Without specific information regarding the amount and quality of water being utilized to mix the plug gel material, it is impossible to perform analysis regarding the volume of material being utilized. LQD requests that Cameco address these concerns and provide specific information regarding the method of mixing plug material and an analysis of the inconsistent quantity and viscosity of plug material reported on the abandonment data sheets.
6. As noted in the inspection summary, Cameco does not have all of the abandonment drilling sheets onsite and would be receiving them from the Casper office. There is only one plug and abandonment sheet that has not been provided to LQD for this portion of the inspection. The plug and abandonment sheet for the following drill hole needs to be submitted to LQD:
 > 3673-19-1029
7. MU-15 and MU-H indicate very little production and no evidence of preparing for restoration. The approved permit schedule shows MU-15 beginning groundwater sweep in January 2010. The permit schedule indicates MU-H beginning groundwater sweep in January 2013. Both wellfields have many wells that are not in operations. An inspection of the header houses in each of the wellfields indicates minimal injection or production flows. There is concern that the wellfield reserves have been depleted and have not been moving into restoration. CR will need to provide evidence of sustained production in these wellfields or begin restoration. The LQD may recommend enforcement action for the lack of restoration in these wellfields.
8. The reclamation of the radium ponds appears to moving extremely slowly. LQD requests a formal update of the reclamation of these ponds by **November 1, 2011**.
9. Based upon a field review of the reclamation at the Cameco property, reclamation work seems to be progressing well. Especially, considering the conditions observed at this property during the 2010 growing season, Cameco appears to be making progress towards a reclamation program capable of repairing surface disturbance related to the mining operation. However, this is not to say perfection has been attained but it is obvious Cameco is putting forth more effort and committing more resources to the reclamation related issues at this property.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

October 25, 2011

Arlene Faunce, Radiation Safety Officer
Power Resources, Inc.
P.O. Box 1210
Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/11-002 AND NOTICE OF VIOLATION

Dear Ms. Faunce:

This refers to the announced, routine inspection conducted from August 29 through September 1, 2011, at the Smith Ranch uranium recovery facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection. The final exit briefing was conducted with you telephonically on September 27, 2011.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. The violations are related, a) to your failure to store byproduct waste bins within a restricted area, as required by a license condition, b) your failure to provide the NRC with copies of excursion and spill that had been reported to the State of Wyoming, as required by a license condition, and c) failure to have an alarm to notify wellfield operators that an exceedence had occurred, as required by the license application. These violations were evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited because the NRC identified the violations rather than your staff. In addition, the violations are being cited to ensure that you provide us with the corrective actions necessary to prevent recurrence of the violations.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Power Resources, Inc.

- 2 -

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey at 817-860-8299 or the undersigned at 817-860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Docket: 040-08964
License: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08964/11-002
3. NRC Information Notice 96-28

cc w/Enclosure:

Ms. Carol Bilbrough
Program Manager
Wyoming Department of Environmental Quality
Land Quality Division
122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Herschler Building - Third Floor West
122 West 25th
Cheyenne, Wyoming 82002

Wyoming Radiation Control Program Director

Power Resources, Inc.

- 3 -

bcc w/enclosure via e-mail:

R. Caniano, D:DNMS

V. Campbell, DD:DNMS

J. Whitten, C:NMSB-B

B. Spitzberg, C:RSFS

L. Gersey, RSFS

E. Striz, FSME/DWMEP/DURLD

D. Mandeville, FSME/DWMEP/DURLD

B. VonTill, FSME/DWMEP/DURLD

M. Herrera, Fee Coordinator, DRMA

DRAFT: S:\DNMS\NMSB-B\LMG\2011 UR\PRI-SR IR 2011-002.docx

FINAL: R:_DNMS\2011\PRI-SR IR 2011-002.docx

ADAMS	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> SUNSI Review Complete		Reviewer Initials: LMG
		<input checked="" type="checkbox"/> Publicly Available		<input checked="" type="checkbox"/> Non-sensitive	
		<input type="checkbox"/> Non-publicly Available		<input type="checkbox"/> Sensitive	
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LMGersey	EStriz	DBSpitzberg			
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**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket: 040-08964

License: SUA-1548

Report: 040-08964/11-002

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: August 29 through September 1, 2011

Inspector: Linda M. Gersey, Health Physicist
Repository and Spent Fuel Safety Branch

Accompanied by: Elise Striz, Hydrogeologist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Drew Persinko, Deputy Director
Division of Environmental Protection and Performance
Assessment Directorate
Office of Federal and State Materials and Environmental
Management Programs

Approved by: D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Attachment: Supplemental Inspection Information

NOTICE OF VIOLATION

Power Resources, Inc.
Converse County, Wyoming

Docket: 040-08964
License: SUA-1548

During an NRC inspection conducted on August 29 through September 1, 2011, three violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

- 1) License Condition 10.1.7 states, in part, that the licensee shall maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal.

Contrary to the above, on August 30, 2011, the licensee had two byproduct disposal bins, containing contaminated materials, stored in an unrestricted area adjacent to the Central Processing Plant.

This is a Severity Level IV violation (Section 6.7).

- 2) License Condition 12.1 states, in part, that if the licensee is required to report any wellfield excursions, spills, or pond leaks of source, 11e.(2) byproduct material, and process chemicals that may have an impact on the environment, or any other incidents/events, to State or Federal Agencies, a report shall be made to the NRC Headquarters Project Manager within 24 hours. Also, once a notification of a spill is made, the licensee is required to submit a written report documenting the event, corrective actions, and the outcome within 30 days.

Contrary to the above, the licensee failed to provide a 30 day follow-up report for a spill that occurred on May 5, 2011, in Mine Unit 15A. The licensee also failed to provide NRC with copies of correspondence addressed to the Wyoming Department of Environmental Quality, dated May 9, 2011, August 12, 2011 and August 26, 2011, related to the spill at Mine Unit 15A.

This is a Severity Level IV violation (Section 6.9).

- 3) Section 3.3 of the NRC approved license application states, in part, that monitoring and alarm instrumentation are employed to provide centralized monitoring of key process components, and when operating parameters move outside specified normal operating ranges, an alarm will notify the operator to initiate corrective action to alleviate the problem.

Contrary to the above, on May 3, 2011, a release of production fluids occurred in Mine Unit 15A involving eight production wells, which caused operating parameters to move outside of the specified normal operating range. As a result of this occurrence, no automatic alarm was received at satellite building SR-1 to tell the night shift operator that there was a problem.

This is a Severity Level IV violation (Section 6.3).

Pursuant to the provisions of 10 CFR 2.201, Power Resources, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission,

ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within 2 working days.

Dated this 25th day of October 2011

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/11-001

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation, and radioactive waste management.

Management Organization and Controls

- The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress (Section 1.2).
- The licensee completed the safety and environmental review panel evaluations in accordance with license requirements (Section 1.2).

In-Situ Leach Facilities

- With the exception of the three violations identified in this report, the licensee was conducting plant site operations in accordance with license and regulatory requirements (Section 2.2).
- An Unresolved Item related to the purge storage reservoir 2 and its impact on groundwater remains open (Section 2.2a).
- A violation related to the alternate decommissioning schedule for mine units was closed (Section 2.2c).
- Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements (Section 2.2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3.2).
- The doses to employees were below occupational dose limits (Section 3.2).

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license, with two exceptions (Section 4.2).
- One violation was identified related to the failure of the licensee to provide a 30 day spill report to the NRC (Section 4.2c).
- One violation was identified related to failure to have an alarm that allows an operator to initiate corrective action (Section 4.2c)

- One unresolved item was identified related to failure to evaluate wells that may have exceeded injections pressures after an incident (Section 4.2c).

Inspection of Transportation Activities and Radioactive Waste Management

- One violation related to failure to follow DOT requirements while transporting licensed material was closed (Section 5.2).
- One violation was identified related to the storage of byproduct storage bins containing contaminated materials in an unrestricted area (Section 5.2).
- The licensee was transporting radioactive material in accordance with NRC and DOT requirements (Section 5.2).
- The licensee had collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application (Section 5.2).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was mining uranium using the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1, and SR-2) were in service and supporting ten operating wellfields. Seven wellfields were in active restoration. Three wellfields were in development and five were in delineation phase. Uranium processing and drying operations were in progress at the Smith Ranch Central Processing Plant (CPP). Uranium recovery operations were on standby at the Highland CPP.

The licensee was conducting limited work at its other licensed satellite facilities. In order to initiate operations at the Reynolds Ranch satellite, the licensee was in the process of obtaining approval for the Reynolds Ranch Environmental Assessment from the U.S. Bureau of Land Management and pursuant approval from the Wyoming Department of Environmental Quality (WDEQ). The Gas Hills, Ruth, and North Butte satellites are not in operation at this time. The licensee, however, has installed a meteorological station at North Butte, drilled 400 delineation holes, designed the first wellfield, and is planning the first pumping test for the fourth quarter 2012. The licensee has installed a meteorological station at Gas Hills and drilled two test holes to evaluate the target formation for the proposed deep disposal well. No activity is occurring or planned at the Ruth Satellite. Both the Gas Hills and Ruth Satellite are inspected once per quarter by the licensee.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organizational structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. The inspectors reviewed the licensee's current organizational structure and found that it was in agreement with the structure specified in Figure 9-1. At the time of the inspection, the licensee had 155 full time employees. The licensee had 14 vacancies, one of which was the manager of safety, health, environment, and quality. The licensee's radiation safety staff consisted of one Radiation Safety Officer (RSO), one qualified health physics technician (HPT), and two HPTs in training. The licensee uses contractors for drilling work and as needed. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

Since the previous inspection, in February 2011, two changes to the radiation safety staff occurred. On March 3, 2011, the licensee evaluated the approval of a new RSO, through the Safety and Environmental Review Panel (SERP) process, recorded as SERP 03/11-2. Although the licensee concluded that the new RSO met the education, training, experience, and knowledge, as required under NRC Regulatory Guide (RG)

8.31, they asked the NRC for specific approval of the RSO in letter dated June 3, 2011. The NRC responded to this written request in letter dated August 19, 2011, which stated that formal review and a determination would be made during the next inspection. The inspectors reviewed the credentials for the new RSO and agreed with the licensee's determination that the RSO was qualified for the position and that no license amendment was required for this change. On September 1, 2011, the inspectors attended the SERP evaluation (SERP 08/11-1) conducted by the licensee to evaluate if one of the radiation safety staff had the education, training, and experience, as required in RG 8.31, to be a qualified HPT. The inspectors reviewed the qualifications of the proposed HPT and agreed with the licensee's determination that the individual was qualified to be an HPT and this action did not require NRC approval or license amendment.

b. Safety and Environmental Review Panel

The inspectors reviewed ORC/SERP 02/10-1, Deep Disposal Well (DDW) Installation, related to the installation of WDEQ permitted deep disposal wells, DDW-6, DDW-9, and DDW-10 within the license area. The SERP documented the technical details of these wells. The well installation was described in the Operational Review Committee (ORC) minutes. The committee found the installation, injection formation, monitoring and operation of these wells to be the same as existing permitted deep disposal wells. Therefore, the SERP concluded the installation and operation the deep injection wells are not contrary to the license or reviews conducted by the NRC during previous review or approvals. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions.

The inspectors reviewed ORC/SERP 08/10-1, Mine Unit D-Extension Restoration, related to starting restoration at the MU-D ext by adding it to the restoration plan as required by License Condition (LC) 10.1.9b. The ORC minutes contained the restoration plan for this mine unit and concluded a SERP must be conducted. The final SERP appears to be a summary document of the ORC analysis. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions; however, the inspectors suggested that the ORC minutes should be included in the SERP documents in the future to show a comprehensive analysis was conducted.

The inspectors reviewed ORC/SERP 03/11-1, conducted on May 5, 2011, related to the change to training frequency during a given year. The change removed the word "quarterly" from the license application and inserted "at most four times per year." The licensee determined that the change would not alter the presentation of required information but would provide more flexibility in scheduling annual training sessions. The SERP also determined that the change would not compromise employee safety nor degrade the time devoted to radiation safety training. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions.

1.3 Conclusions

The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress. The licensee completed the SERP evaluations in accordance with license requirements.

2 In-Situ Leach Facilities (89001)

2.1 Inspection Scope

Determine if in-situ recovery activities were being conducted by the licensee in accordance with the NRC's regulatory requirements and the license.

2.2 Observation and Findings

a. Unresolved Item 040-08964/0801-03

In response to Unresolved Item 040-08964/0801-03, identified by inspectors during the March 2008 inspection, the licensee committed to install four shallow monitoring wells (MW-1S, MW-2S, MW-3S, and MW-4S) near Purge Storage Reservoir 2 (PSR2) to determine whether or not PSR2 was leaking into the surrounding groundwater. The licensee's commitment was documented in a letter to the NRC dated June 22, 2009. The wells have been installed and sampling of the wells was conducted on September 11, 2009, March 23, 2010, June 30, 2010, September 28, 2010, November 18, 2010 and March 16, 2011. The groundwater samples were analyzed for bicarbonate, chloride, sulfate, barium, selenium, uranium, and radium-226 concentrations by a contract laboratory.

The inspectors evaluated the water quality monitoring well data (2009-2011) from the four new wells and historical monitoring data from the South and East shallow wells (1996-date). They compared the PSR2 pond water quality data (1996-date) provided in the semi-annual monitoring reports to the water quality in the six shallow monitoring wells. The inspectors concluded from this analysis that the water quality in five out of the six shallow monitoring wells reflected elevated concentrations for chloride, conductivity, natural uranium, and selenium similar in magnitude to those found in the PSR2 pond water. In addition, for the original PSR 2 South and East monitoring wells which have water quality data from 1996 to date, these constituents demonstrated an increasing trend with time.

During the inspection, the licensee provided the inspectors with two separate reports prepared by a contractor who was hired by the licensee to determine if the waste water in PSR2 was leaking into the surrounding groundwater. The first report was titled, "Purge Storage Reservoir No. 2 Shallow Groundwater Characterization Monitoring Plan," dated August 17, 2011. The second report was titled, "Work Plan for Installing Groundwater Monitoring Wells," dated August 30, 2011.

The first contractor report presented an analysis of water levels and selenium in the four new monitoring wells around PSR2. It also presented a groundwater characterization plan to provide the data necessary to determine whether the waste water in PSR 2 is leaking into shallow groundwater beneath the impoundment. The report stated that the "groundwater encountered in the shallow monitoring wells is considered to be perched and laterally discontinuous." The report also stated "the uppermost continuous water – bearing zone is postulated to be at a depth of at least approximately 50-60 feet below ground surface (bgs). The inspectors noted that in the original application for PSR2 approved by NRC in 1994, the licensee stated that the first groundwater detected underneath PSR2 was located at 200 feet bgs and no groundwater was present above this depth.

The contractor report also presented the selenium concentrations in the four new monitoring wells. The inspectors noted these values ranged from 1.76-2.3 milligrams per liter (mg/l) in the new west well, MW1S; 0.003 to 0.006 mg/l in the new north well, MW2S; 0.554 to 0.840 mg/l in the new east well, MW-4S; and 0.178 to 0.44 mg/l in the new south well, MW-3S. These values of selenium are of the same magnitude as the historical concentrations of selenium in the pond water in PSR2, with the exception of the north well. The inspectors noted that the well completion reports provided by the licensee during the inspection indicated the north well was completed in a zone 8-15 feet higher than the other three shallow wells, which could explain why it did not show similar concentrations to the other wells.

Based on the information provided in the first contractor report and NRC's internal analysis, the inspectors conclude that the presence of perched groundwater, which was not described before PSR2 was approved by NRC, indicates that water has seeped from PSR2 into the surrounding sediments. In addition, the associated water quality in this perched water as measured in the four new shallow monitoring wells and the historic South and East wells also support the conclusion that water from PSR2 is seeping into the surrounding sediments. However, the inspectors noted the presence of water seeping into the sediments from PSR2 is not evidence that the seepage is leaking into deeper groundwater aquifers. Therefore, the inspectors conclude that the licensee must conduct further characterization of the groundwater under PSR2 to determine if the seeping water has impacted a groundwater aquifer.

One of the contractor reports described an acceptable characterization plan to evaluate if there is any movement of fluids to the next deeper sandstone below the new shallow monitoring wells. The second contractor report described the associated work plan for this characterization plan. The inspectors found the characterization plan and work plan to be generally satisfactory to make a determination if the fluids seeping from PSR2 have impacted a groundwater aquifer; however, the inspectors, in consultation with the licensee's NRC project manager, would like the characterization to include an analysis of bicarbonate, chloride, conductivity, sulfate, barium, selenium, natural uranium and radium-226 in all of the monitoring wells instead of only selenium. The licensee has committed to conduct this characterization as described in the contractor's characterization and work plan and include testing of the additional listed constituents in the new and all existing wells. Once this characterization is completed, the licensee will determine if the groundwater in the next lower sandstone has been impacted by the seepage of PSR2 fluids into the surrounding sediments. The results will be reviewed in future inspections and Unresolved Item 040-08964/0801-03 remains open.

b. Recovery Operations and Restoration

At the time of this inspection, recovery operations were being performed at Highland Mine Units (MU) F, H, I, J, and K. Recovery operations were also being conducted at Smith Ranch Mine Units 2, 3, 9, and 15/15A. Restoration activities were in progress at MUs C, D/D-extension, and E on the Highlands side and MUs 1 and 4 on the Smith Ranch side. MUK North is awaiting approval for operation from WDEQ. MU4A is in restoration planning awaiting a SERP to be concluded. Development is underway in MUs 7 and 10. Delineation is underway in MUs 8, 11, 16, 17, and I extension. The bioremediation trial at MUC had mixed results, and the mine unit was returned to conventional groundwater restoration treatment. Wells in several older mine units, MUs

C, D and E, had to be replaced prior to performing full-scale restoration activities, which delayed implementation of the restoration activities.

At the time of the inspection, the licensee had seven deep disposal wells that were installed and available for use. Two additional wells were permitted for operation but had not been installed. In addition to the deep disposal wells, the licensee was authorized to dispose of wastewater via land application. Since the last inspection, the licensee operated one of two land application irrigators in the months of June, July and August 2011. Section 5.2.c of this inspection report provides additional details about the disposal of wastewater via land application.

The inspectors also conducted a review of the licensee's control of its disposal pathways for plant wastewater. The sources of wastewater include the production bleed stream, plant wash-down water, sump water, laboratory wastes, and reverse osmosis system water. At the CPP, the sources of wastewater also include the yellowcake thickener overflow and filter press wash water. As described in the license application, the licensee is authorized to dispose of wastewater through land application or by deep-disposal well injection.

At this time, seven wellfields are in restoration, with MUC in restoration since 1999. Only one wellfield, MUA, has been approved for restoration by NRC. The licensee has indicated that one factor that has hampered restoration activities in the past was the limited disposal capacity. With the recent installation of additional disposal wells, DDW-6, DDW-8 and DDW-10, the licensee has added disposal capacity. However, based on inspector interviews with licensee staff, the deep disposal wells are not performing as expected due to plugging problems from scaling. The licensee stated that all seven DDWs were operating at much lower capacity than permitted and would require acid treatment to restore some capacity. The range of permitted capacity for the seven DDWs was reported as 105-150 gallons per minute (gpm) with an average of 134.4 gpm. The range of actual capacity reported by the licensee for the seven wells was 38-85 gpm with an average of 49.8 gpm. Another factor limiting restoration was reported in the past to be the lack of infrastructure to connect all satellites to all waste treatment operations and DDWs. The licensee stated it is planning to install a five mile pipeline between Smith Ranch CPP and the Highlands Satellite 2 to carry reverse osmosis (RO) reject. The licensee stated this pipeline will enable it to access the waste disposal treatment system and deep disposal wells on the Highland operation to improve restoration operations.

The WDEQ and NRC have approved restoration activities at MUA. The groundwater restoration completion report for MUB was submitted to the NRC by letter dated June 26, 2009. NRC staff completed its acceptance review and determined that the report was insufficient. The licensee was notified by letter dated September 29, 2009, that the report was considered unacceptable for the purposes of conducting a detailed technical review. One issue regarding the MUB restoration was the existing long-term excursion status of one monitoring well B42. During the previous inspection, the licensee reported that monitoring well B42 failed a mechanical integrity test (MIT) and was replaced by MW B42 A. During the inspection, the inspectors reviewed the sampling report for MW B42A for a water quality sample taken on December 21, 2010. The report showed that none of the excursion indicators were exceeded at the well. The natural uranium was 0.0514 mg/l. The inspectors also inquired if any excursion monitoring was being conducted at MUB since the WDEQ has approved the restoration.

The licensee provided the inspectors with a February 8, 2005, memo from WDEQ which stated that all routine excursion monitoring at MUB may be discontinued. The inspectors found this documentation to be consistent with the NRC license application, Section 6.1.3.4, which states that excursion monitoring would be conducted until stability monitoring is completed and approved by WDEQ. The licensee stated they intend to apply for alternate concentration limits for the MUB when it resubmits the restoration report for NRC review and approval.

c. VIO 040-08964/0902-01

During the September 2009 inspection, one violation (VIO 040-08964/0902-01) of NRC requirements was identified related to the licensee's failure to decommission mine units within 24 months and failure to request an alternate decommissioning schedule for mine units that required greater than 24 months to decommission. The licensee responded to this violation by stating that a schedule is pending WDEQ review under a Consent Order between the licensee and the WDEQ for decommissioning, initiating groundwater restoration activities in one mine unit, and initiating infrastructure improvements at additional mine units, and that this schedule will be submitted as an alternate schedule to NRC pending WDEQ approval. During the review period, WDEQ staff issued comments to the licensee on the proposed schedule.

The licensee responded to the violation in letter dated September 14, 2011, requesting review and approval of an alternate decommissioning schedule for restoration of mine units. The licensee provided a restoration schedule that has been approved by the WDEQ. The NRC project manager will review and provide the approval of the restoration schedule. This response to this violation is considered adequate and is considered closed.

d. Site Tours

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured included the Smith Ranch CPP, the Highlands CPP (which is not operating) and the surrounding areas, the four operating satellites, the Selenium Plant, selected mine units, selected header houses (HH), PSR2, and the area used for storage of old equipment (referred to as the "boneyard"). The inspectors reviewed the status of plant equipment, radiation protection postings and site security. Plant parameters were within required operating intervals, plant equipment appeared to be in good condition, radiological postings were in place, and site security was adequate. In summary, the licensee was maintaining control of the areas and equipment in accordance with license and regulatory requirements.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the plant. The surveys were conducted using a Ludlum Model 19 microRoentgen survey meter (NRC 015546, calibration due date of 02/21/2012) and a Ludlum Model 2401-EC2 survey meter (NRC 016294G, calibration due date of 01/03/12). The inspectors did not identify any areas that had not already been identified and posted as radiation areas by the licensee.

2.3 Conclusions

With the exception of the three violations identified in this report, the licensee was conducting plant site operations in accordance with license and regulatory requirements. An Unresolved Item related to the PSR2 and its impact on groundwater remains open. A violation related to the alternate decommissioning schedule for mine units was closed. Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements..

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine whether the licensee's radiation protection program was being conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records for January through July 2011. Approximately 60 employees were monitored for external exposures using thermoluminescent dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included CPP operators, satellite/restoration operators, health physics staff, and maintenance workers. The highest deep dose equivalent for January through July 2011 was 346 millirems (3.46 milliSieverts).

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's radon-222 air sampling records and the uranium particulate and worker breathing zone sample results for December through July 2011. The highest derived airborne concentration in hours (DAC-hrs) for radon daughters for an employee for the time reviewed was 70.82 DAC-hrs. The highest employee airborne uranium exposure was 1.35 DAC-hrs. The inspectors confirmed that the licensee had conducted sampling at the required intervals, and the sample results were included in the worker's total effective dose equivalent exposure records.

The licensee collected urine bioassay samples to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with License Conditions 11.2 and 11.3. From January through August 2011, only one bioassay sample result exceeded the action level of 15 micrograms per liter ($\mu\text{g/l}$), the action level specified in Chapter 9 of the licensee's approved license application for implementation of corrective actions. On March 31, 2011, an employee's urine bioassay result was reported by the analytical laboratory as 51.2 $\mu\text{g/l}$. The licensee had an albuminuria test on the sample and the results were non-detect. A second bioassay was collected on April 1, 2011, and the results were non-detect. The licensee performed an investigation and do not believe the individual received a true intake because the worker was in an area of very low natural uranium and no other workers from the same crew has positive bioassays. The licensee will assign a dose to the individual based on the bioassay result. The inspectors reviewed the investigation documentation and agree with the licensee's findings.

The licensee also monitors for soluble uranium intake in compliance with 10 CFR 20.1201e. The highest soluble intake of uranium from January through August 2011 was calculated to be 1.2 milligrams of uranium. This is below the regulatory limit of 10 milligrams.

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations throughout the satellite buildings and CPP areas to verify radiation area postings and to assess external radiation conditions. At the time of the inspection, the inspectors determined that the licensee was conducting the gamma radiation surveys on a weekly frequency in all areas, except the header houses. The header houses were surveyed on a monthly basis. The inspectors reviewed the survey results and found them to meet the requirements of the license.

Alpha contamination surveys were conducted by the licensee on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application authorizes the licensee to conduct monthly process area surveys. The inspectors reviewed the survey results and found them to meet the requirements of the license.

c. Training

The licensee is required to conduct training in accordance with License Condition 9.7 and license application Section 9.6 for its contractors and new employees and provide annual refresher training for current employees. The inspectors reviewed radiation safety training records for two current employees and several new contractors hired since the previous inspection. All training activities and records were in accordance with the requirements of the license.

d. Instrumentation

The inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation survey instruments. On an annual basis, the licensee sends all portable survey instruments to an outside vendor for calibration. The inspectors reviewed instrument calibration certificates for several portable survey instruments and found the calibration certificates to be adequate and the instruments currently calibrated. The inspectors observed survey meters being used by the licensee's employees when exiting restricted areas. The survey instruments examined by the inspectors were found to be in calibration and were being used appropriately by the licensee's staff.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. The doses to employees are below occupational dose limits.

4 Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA (87102 and 88045)

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment.

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.65. The inspectors reviewed the licensee's Semiannual Effluent and Environmental Monitoring Report for January 1 through June 20, 2011, dated August 26, 2011 (referred to in this report as "semiannual report"). The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, and surface water. As part of the licensee's wastewater land application permit from the WDEQ, soil and vegetation, irrigation fluid and radium treatment system samples, soil water samples at the irrigation areas, and monitor wells at PSR2 are sampled.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in the air. None of the sample results for the first and second quarters of 2011 exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B.

The licensee also sampled for radon-222 concentrations in the air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the first and second quarters of 2011. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations using thermoluminescent dosimeters. For the first and second quarters of 2011, all sample results were comparable to background level.

b. Groundwater and Surface Water Environmental Monitoring

The surface and groundwater monitoring program consists of quarterly sampling of groundwater and surface water for natural uranium and radium-226 in nearby wells and surface water sites used for livestock or for domestic water services which are located within 1 kilometer of the operating wellfields. The sampling consists of 10 surface water (stock) ponds, 7 windmills (groundwater), and 11 wells (groundwater). The semiannual report provided by the licensee at the time of inspection, showed sample data for 3 out of 20 possible surface water samples for the 2011 first and second quarter sampling events. Ten samples were not collected because the stock ponds were reported as dry. For the groundwater locations, the semiannual report provided sample data for 14 out of

36 possible groundwater samples. Twenty-two samples were not collected because the windmill or well was not operating at the time of sample collection. All reported values for natural uranium and radium-226 were within the respective effluent concentration limits. The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application and License Condition 11.6.

The semiannual report also included results from Satellites 2 and 3 radium filter press effluents which are monitored as one grab sample after selenium treatment. The monitoring results show that none of the radium-226 concentrations in the six samples exceeded the 10 CFR Part 20, Appendix B, effluent concentration limit of 6.00E-8 microcuries per milliliter ($\mu\text{Ci}/\text{ml}$).

Water levels are measured on a quarterly basis and groundwater samples are collected on a semiannual basis from the six shallow groundwater monitoring wells located at PSR2. The required monitoring data were obtained and reported in the semiannual report and the sample results continue to be trended by the licensee for a study to resolve Unresolved Item 040-08964/0801-03 (see Section 2.2a of this report).

During the review period, Irrigator 1 did not operate during the monitoring period. In the semiannual report, the licensee included monthly grab samples of the fluid through Irrigator 2 during the month that it operated (June 2011). The radium concentration in one sample exceeded the estimated limit in the original license application but was below the effluent limit in Table 2 of 10 CFR Part 20, Appendix B.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report to the NRC any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment, that is required to be reported to a State or Federal Agency. Within 30 days of notification to the NRC, the licensee is required to submit a written report that details the conditions leading to the spill or incident, corrective actions taken, and the results achieved.

The licensee stated that four spills had taken place since the last inspection. The first spill occurred on May 3, 2011 in MU15A as a consequence of a power and automatic shutdown valve failure at HH15-20 which led to an over injection event. The licensee indicated they left a voicemail with the NRC Project Manager on May 4, 2011. However, the licensee failed to provide a follow-up report on this spill. This failure is a violation (VIO 040-08964/1102-01) of LC 12.1, which requires, in part, that once a notification of a spill is made, the licensee is required to submit a written report documenting the event, corrective actions, and the outcome within 30 days. The licensee also failed to provide NRC with copies of correspondence addressed to the WDEQ, dated May 9, 2011, August 12, 2011 and August 26, 2011, related to the spill at Wellfield 15A. The licensee staff agreed during the inspection they could not find evidence they sent NRC the 30 day report or the three letters to the WDEQ.

The inspectors reviewed the licensee's in-house version of the report of the May 3, 2011, MU15A spill in the wellfield serviced by HH15-20, which was provided to WDEQ on May 9, 2011 but not to NRC. The inspectors also visited the spill location and HH15-20 and interviewed several licensee staff with knowledge of the spill event. The report, location visit and interviews indicated that the spill was caused by a power failure of unknown origin at HH15-20 sometime on the night of May 3, 2011. The power failure shut down all 20 production wells in the HH15-20. The power failure should also have triggered an automatic shutdown of a pressure restrictor valve on the main injection line to the header house to stop injection into the wells. However, this valve, known as a Cla-Valve pressure restrictor, failed to shut down either electronically through a solenoid or mechanically in response to an increase in pressure on the downstream side from loss of production. This valve failure allowed injection to continue into the 38 injection wells serviced by the HH at a licensee estimated rate of 400 gpm.

No automatic alarm was received at satellite building SR-1 to tell the night shift operator that there was a problem. The alarm light on the front of the header house was only equipped with 15 minutes of battery power so no visual alarm was maintained. The over injection apparently continued for the entire night shift. An operator came on the morning shift and noticed a problem with the flow and pressure reports in the wellfield. The operator, however, had no method to identify the source of the problem, so he had to perform a random check of all header houses until he found the valve failure at 8:00 am at HH 15-20. By this time, the over injection into the ore zone had caused a sufficient increase in ore zone aquifer pressure to cause eight production wells to flow at the surface. The size of the surface spill was estimated to be 1500 gallons of pregnant lixiviant with a concentration of 99 parts per million natural uranium. The licensee was able to recover approximately 200 gallons. On May 4, 2011, the licensee staff replaced the valve and returned all the wells in HH15-20 to operation.

Section 3.3 of the licensee's approved license application, states in part, "when operating parameters move outside specified normal operating ranges, an alarm will notify the operator to initiate corrective action to alleviate the problem." The inspectors questioned why no alarm had notified operators of the valve failure and over injection at HH15-20 which led to the spill. The licensee responded that there was a red light alarm on the front of the HH. However, the licensee indicated this alarm only had fifteen minutes of battery power and was not detected. The inspectors noted HH 15-20 is a newer HH with updated design and equipment including a camera and is tied into computer monitoring at SR-1, although no alarm was provided to the operator to enable them to identify the problem at HH15-20 and take corrective actions. This failure to have an alarm that allows an operator to initiate corrective action is a violation (VIO 040-08964/1102-02) of Section 3.3 of the license application.

The inspectors identified one Unresolved Item (URI 040-08964/1102-03) related to the incident in HH 15-20. The licensee has a commitment in Section 3.2.4.7 of the approved license application which states in part, "the surface injection pressures will not exceed the maximum surface pressures posted in each header house". The licensee had not evaluated whether they had exceeded the maximum injection pressure of 110 pounds per square inch (psi) listed on the main injection line at HH15-20 during the over injection event. Section 3.2.4.6 of the approved license application states in part, "During wellfield operations, injection pressure at the injection well heads will not exceed the integrity test pressure." The licensee did not evaluate if they had exceeded the integrity test pressure during the over injection event; however, they indicated that all

injection wells in the wellfield had a pressure relief valve which would open at 150 psig. Also, Section 3.2.4.6 of the approved license application states in part, "Any injection well with evidence of suspected subsurface damage will require a new mechanical integrity test (MIT) prior to the well being returned to service." The licensee had not performed MITs to see if the over injection had damaged the injection wells prior to returning the wells to service the next day. During the inspection, the licensee stated that HH15-20 had been taken out of production and they would MIT the remaining wells impacted by this incident. This Unresolved Item will remain open until the licensee determines if any injection pressures have been exceeded on the HH injection line or at the injection well heads. This information will be reviewed during a future inspection to determine if any violations of the license occurred.

The second spill was reported on May 19, 2011, at a bellhole 1 near Satellite SR-2. The follow up report on May 26, 2011, stated the release resulted from restarting the wells and booster pumps after a power outage and discovering a gasket failure. The release was 790 gallons. The inspectors found this spill was properly reported and handled. The third spill was reported on July 25, 2011. In the follow up report dated July 29, 2011, the licensee stated 53 gallons of injection fluids were accidentally released to a well that was being repaired at the wellhead, when flow was started before the repairs were completed. The inspectors found this spill was properly reported and corrected. The last spill involved the failure of a pumping test water tank in Mine Unit K north which released approximately 35,000 gallons of water to the surface on March 10, 2011. WDEQ was informed on June 8, 2011 and the NRC project manager was notified on June 7, 2011. The 30 day follow up letter was not provided to the NRC. The licensee is being issued a violation (see above) related to failure to report events to the NRC as required by LC 12.1.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. The licensee has approximately 1,300 groundwater monitoring wells that are sampled during a typical month using six field sampling personnel. The inspectors reviewed some of the groundwater sampling records and concluded that these records indicated operational groundwater monitoring was being conducted as required by the license.

Two wells, DM-003 and CM-32, were in long term excursion status during the prior inspection. CM-32 went off excursion in April 2011. Since the last inspection, the licensee reported three new wells went in excursion. Well JM-005 was reported on excursion on March 9, 2011, and a follow up report was provided on March 14, 2011. Well DM-010 was reported on excursion on June 08, 2011. However, no required follow up report was provided to NRC. The licensee is being issued a violation (see above) related to failure to report events to the NRC as required by LC 12.1. An excursion at KM-031 was reported to NRC on June 15, 2011, with a follow-up report on June 21, 2011. At the time of the inspection only two wells, DM-003 and DM-010, remained on excursion for the entire licensed area. These wells are believed to be subject to the influence of nearby underground mine workings from previous uranium mine operators not associated with this licensee. The licensee has hired a consultant to evaluate if the current pumping design to correct the excursions at these wells is the appropriate approach.

Aside from this failure to provide follow-up reports for the excursion at DM-010, the inspectors determined that the licensee had conducted the requisite monitoring for the

excursion monitoring program and submitted the required reports within a timely manner pursuant to License Condition 11.5.

Since the last inspection, the licensee reported two separate leak events in the east storage pond. NRC was notified of the first leak into the secondary containment on June 13, 2011. The licensee drained the pond to investigate the leak and repaired a tear in the primary liner on July 7, 2011. Following the repairs, water was returned to the pond. On August 15, 2011, a second leak was discovered in the east evaporation pond sump. The licensee notified the NRC. The pond level was lowered for a second time to examine the leak and repairs were made on August 29, 2011. Water was being returned to the pond at the time of the inspection. NRC inspectors found the leak was reported and corrected in a manner consistent with LC 12.1.

License Condition 10.1.3 requires, in part, that an MIT be performed prior to an injection or recovery well being brought into service and every 5 years thereafter. The inspectors concluded that the licensee has performed MIT tests as required, with the exception of MU 15A wells impacted by the May 3, 2011, spill, pursuant to LC 10.1.3.

4.3 Conclusions

The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license, with two exceptions. One violation was identified related to the failure of the licensee to provide a 30 day spill report to the NRC. One violation was identified related to failure to have an alarm that allows an operator to initiate corrective action. One unresolved item was identified, related to failure to evaluate if well that may have exceeded injections pressures after an incident.

5 **Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)**

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The inspectors reviewed the licensee's transportation records maintained since the February 2011 inspection. Trucks with tanker trailers are routinely utilized by the licensee to transport resin to and from the satellite buildings and the CPP. The inspectors reviewed selected resin tanker trailer shipping papers and found them to include the pertinent information required by Department of Transportation (DOT) regulations.

License Condition 9.6 requires, in part, that the licensee possess a waste disposal agreement to dispose of 11e.(2) byproduct material at an offsite location. In 2010, the licensee generated a waste disposal contract with a new vendor. Since the previous inspection, twenty-six waste disposal shipments were made to the newly contracted waste disposal site. Material sent for disposal consisted of 11e.(2) contaminated

equipment, such as filters, pipes, and pumps. The inspectors reviewed selected shipping records found them to be complete.

The licensee also ships licensed yellowcake material off site. From January through August 2011, a total of 28 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. Beginning in January 2011, the licensee began shipping yellowcake to Canada for processing. The licensee has an NRC export license, held by a broker, that authorizes yellowcake to be brought into Canada for conversion into uranium hexafluoride and then returned to the U.S. for future processing. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with DOT and NRC regulations.

During the August 2010 inspection, one violation (VIO 040-08964/1002-01), was identified related to the failure of the licensee to comply with appropriate DOT regulations while transporting licensed material over public highways. Specifically, the licensee shipped water transfer filters and trash classified as 11e.(2) waste from Satellites SR-2 and SR-1 to the CPP without performing radiation or contamination surveys to ensure compliance with DOT requirements. In addition, the licensee transported radium-226 contaminated filters to an analytical laboratory without verifying compliance with DOT radiation or contamination limits. These examples are violations of 10 CFR 71.5(a), which requires that a licensee who transports licensed material outside of the site of usage comply with the applicable requirements of the regulations appropriate to the mode of transport of the DOT in 49 CFR Parts 170 through 189.

The licensee responded to the violation in letter dated February 23, 2011. NRC staff found the response did not adequately address the violation and requested additional information. Specifically, the licensee did not state how they will transport over public highways water filters and trash classified as 11e.(2) byproduct material from Satellites SR-2 and SR-1 to the CPP using the appropriate DOT requirements. By letter dated June 17, 2011, the licensee stated they had updated the transportation procedures to include shipment of contaminated filters using the appropriate DOT requirements. The inspectors reviewed the procedures and found them to be responsive to the violation. This violation is closed.

b. Solid Radioactive Waste

The inspectors identified one violation (VIO 040-08964/1102-04) related to the location of byproduct storage bins. License Condition 10.1.7 states, in part, that the licensee shall maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal. The inspectors found that the licensee had two byproduct disposal bins, containing contaminated materials, stored in an unrestricted area adjacent to the Central Processing Plant.

c. Review of Wastewater Treatment Activities

The license application authorizes the licensee to dispose of wastewater at both the Satellites 1 and 2 land application facilities. Prior to discharge to the purge storage reservoirs, the plant wastewater is processed to remove the excess uranium, radium-226, and selenium concentrations in the water. After treatment, the wastewater is sampled to ensure that it meets the criteria specified in the license application as well as WDEQ requirements for land application.

During 2011, the licensee disposed of wastewater at the Satellite No. 2 land application facility, but not the Satellite No. 1 land application facility. The licensee operated Irrigator No. 2 during July-August 2011. In accordance with Tables 5-8 and 5-9 of the license application, the licensee samples the irrigation fluid monthly at the PSR 2 suction line for the irrigator pivot for natural uranium, radium-226, selenium, and other chemical constituents. The licensee's sample results indicate that the natural uranium and radium-226 concentrations were less than the NRC's effluent concentration limits, and the selenium concentrations were less than the WDEQ's limit.

5.3 Conclusions

One violation related to failure to follow DOT requirements while transporting licensed material was closed. One violation was identified related to the storage of byproduct storage bins in an unrestricted area. The licensee was transporting radioactive material in accordance with NRC and DOT requirements. The licensee had collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application.

6 **Exit Meeting Summary**

The NRC inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 1, 2011. The final exit briefing was conducted by telephone on September 25, 2011. During the inspection, the licensee did not identify any information reviewed by the NRC inspectors as proprietary that was included in the report.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Berg, General Manager
 D. Moody, Operations Manager
 J. McCarthy, Assistant Radiation Safety Officer
 A. Faunce, Radiation Safety Officer

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/1102-01	VIO	Failure to provide a 30 day incident report to the NRC
040-08964/1102-02	VIO	Failure to have an alarm for operators to initiate a corrective action
040-08964/1102-03	URI	Failure to evaluate if wells exceeded injections pressures after an incident
040-08964/1102-04	VIO	Failure to store byproduct waste material in a restricted area

Closed

040-08964/1002-01	VIO	Failure to perform radiation and contamination surveys on packages used for shipment of licensed material.
040-08964/0902-01	VIO	Failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule

Discussed

040-08964/0801-03	URI	Verify whether PSR2 was leaking into the groundwater
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LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
CPP	central processing plant
CFR	<i>Code of Federal Regulations</i>
DAC-hrs	derived air concentration hours
DDW	deep disposal well
bgs	bellow ground surface
DOT	U.S. Department of Transportation
gpm	gallons per minute
HH	header house
HPT	health physics technician
IP	NRC Inspection Procedures
LC	License Condition
MIT	mechanical integrity test
µg/l	microgram per liter
mg/l	milligrams per liter
MU	mine unit
µCi/ml	microcuries per milliliter
ORC	Operational Review Committee
psi	pounds per square inch
PSR	purge storage reservoir
RG	NRC Regulatory Guide
RO	reverse osmosis
RSO	Radiation Safety Officer
SERP	Safety and Environmental Review Panel
URI	unresolved item
VIO	violation
WDEQ	Wyoming Department of Environmental Quality

**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

October 28, 2011

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL #7011 0470 0000 7716 1277 RETURN RECEIPT REQUESTED

RE: Excursion Report Summary Update, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 603 and 633

Dear Mr. Spackman:


Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the monthly Excursion Report Summary for the Smith Ranch-Highland Uranium Project. During the month of October (0) zero new excursions were reported. The Cameco Excursion Report table is attached. Monitor well DM-003 and DM-010 remain on excursion from the month of September. Monitor well KM-031 went off excursion on October 18, 2011. Guideline 8 samples pursuant to Chapter 11 regulations were taken. Cameco has not received results for the sampling but will submit them with the November excursion report.

Constituent levels in Monitor Well DM-003 and DM-010 have stayed relatively stable throughout the month of October 2011. Copies of the monitor well reports for these wells are attached. Additionally, graphs are attached for each well tracking alkalinity, chloride, and conductivity trends. A Plan and Compliance Schedule for well DM-003 was submitted to LQD in a letter dated March 10, 2011 responding to 3rd Qtr. 2010 Excursion Monitoring Report comments from LQD. A Plan and Compliance Schedule for the well DM-010 was submitted to LQD in a letter dated October 20, 2011 proposing to have DM-010 off excursion by the end of 2012 and stating that Cameco will submit progress reports through the monthly excursion report summary. LQD has acknowledged receipt of said letter and found acceptable the plan and schedule via an email dated October 25, 2011, cc. to Ken Garoutte, Cameco, from Pam Rothwell, LQD to Steve Ingle, LQD.

FSME20

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have questions.

Respectfully,



Brent Berg
General Manager

BB/vg

Attachments: Cameco Resources Excursion Report
Monitor Well Report and Trend Graphs for DM-003
Monitor Well Report and Trend Graphs for DM-010
Monitor Well Report for KM-031

cc: File HUP 4.3.3.1 File SR 4.3.3.1
Mr. Doug Mandeville, NRC (2copies) - CERTIFIED MAIL #7011 0470 0000 7716 1284
Document Control Desk, NRC - CERTIFIED MAIL #7011 0470 0000 7716 1291

ec: Cameco-Cheyenne

Cameco Resources Excursion Report
Permit Nos. 603 & 633
(October 2011)

Well Identification	Initial Sample Date	Confirmation Sample Date	Excursion Status (on/off)	Parameters Exceeded	Verbal Notification Date	Written Notification Date	Excursion Resolution Date	LQD Concurrence Notification Date
DM-3	11/19/2009	11/20/2009	ON	Chloride Alkalinity	11/23/2009	11/25/2009		
DM-10	6/3/2011	6/6//2011	ON	Chloride Alkalinity	6/7/2011	6/10/2011		
KM-031	9/6/2011	9/8/2011	OFF	Alkalinity Conductivity	9/12/2011	9/14/2011	10/18/2011	



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

October 25, 2011

Arlene Faunce, Radiation Safety Officer
Power Resources, Inc.
P.O. Box 1210
Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/11-002 AND NOTICE OF VIOLATION

Dear Ms. Faunce:

This refers to the announced, routine inspection conducted from August 29 through September 1, 2011, at the Smith Ranch uranium recovery facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection. The final exit briefing was conducted with you telephonically on September 27, 2011.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. The violations are related, a) to your failure to store byproduct waste bins within a restricted area, as required by a license condition, b) your failure to provide the NRC with copies of excursion and spill that had been reported to the State of Wyoming, as required by a license condition, and c) failure to have an alarm to notify wellfield operators that an exceedence had occurred, as required by the license application. These violations were evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited because the NRC identified the violations rather than your staff. In addition, the violations are being cited to ensure that you provide us with the corrective actions necessary to prevent recurrence of the violations.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Power Resources, Inc.

- 2 -

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey at 817-860-8299 or the undersigned at 817-860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Docket: 040-08964
License: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08964/11-002
3. NRC Information Notice 96-28

cc w/Enclosure:

Ms. Carol Bilbrough
Program Manager
Wyoming Department of Environmental Quality
Land Quality Division
122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Herschler Building - Third Floor West
122 West 25th
Cheyenne, Wyoming 82002

Wyoming Radiation Control Program Director

Power Resources, Inc.

- 3 -

bcc w/enclosure via e-mail:

R. Caniano, D:DNMS

V. Campbell, DD:DNMS

J. Whitten, C:NMSB-B

B. Spitzberg, C:RSFS

L. Gersey, RSFS

E. Striz, FSME/DWMEP/DURLD

D. Mandeville, FSME/DWMEP/DURLD

B. VonTill, FSME/DWMEP/DURLD

M. Herrera, Fee Coordinator, DRMA

DRAFT: S:\DNMS\NMSB-B\LMG\2011 UR\PRI-SR IR 2011-002.docx

FINAL: R:_DNMS\2011\PRI-SR IR 2011-002.docx

ADAMS	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> SUNSI Review Complete		Reviewer Initials: LMG
		<input checked="" type="checkbox"/> Publicly Available		<input checked="" type="checkbox"/> Non-sensitive	
		<input type="checkbox"/> Non-publicly Available		<input type="checkbox"/> Sensitive	
DNMS: RSFS	FSME:DURLD	C: RSFS			
LMGersey	EStriz	DBSpitzberg			
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T=Telephone

E=E-mail

F=Fax

**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket: 040-08964

License: SUA-1548

Report: 040-08964/11-002

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: August 29 through September 1, 2011

Inspector: Linda M. Gersey, Health Physicist
Repository and Spent Fuel Safety Branch

Accompanied by: Elise Striz, Hydrogeologist
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental
Management Programs

Drew Persinko, Deputy Director
Division of Environmental Protection and Performance
Assessment Directorate
Office of Federal and State Materials and Environmental
Management Programs

Approved by: D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Attachment: Supplemental Inspection Information

NOTICE OF VIOLATION

Power Resources, Inc.
Converse County, Wyoming

Docket: 040-08964
License: SUA-1548

During an NRC inspection conducted on August 29 through September 1, 2011, three violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

- 1) License Condition 10.1.7 states, in part, that the licensee shall maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal.

Contrary to the above, on August 30, 2011, the licensee had two byproduct disposal bins, containing contaminated materials, stored in an unrestricted area adjacent to the Central Processing Plant.

This is a Severity Level IV violation (Section 6.7).

- 2) License Condition 12.1 states, in part, that if the licensee is required to report any wellfield excursions, spills, or pond leaks of source, 11e.(2) byproduct material, and process chemicals that may have an impact on the environment, or any other incidents/events, to State or Federal Agencies, a report shall be made to the NRC Headquarters Project Manager within 24 hours. Also, once a notification of a spill is made, the licensee is required to submit a written report documenting the event, corrective actions, and the outcome within 30 days.

Contrary to the above, the licensee failed to provide a 30 day follow-up report for a spill that occurred on May 5, 2011, in Mine Unit 15A. The licensee also failed to provide NRC with copies of correspondence addressed to the Wyoming Department of Environmental Quality, dated May 9, 2011, August 12, 2011 and August 26, 2011, related to the spill at Mine Unit 15A.

This is a Severity Level IV violation (Section 6.9).

- 3) Section 3.3 of the NRC approved license application states, in part, that monitoring and alarm instrumentation are employed to provide centralized monitoring of key process components, and when operating parameters move outside specified normal operating ranges, an alarm will notify the operator to initiate corrective action to alleviate the problem.

Contrary to the above, on May 3, 2011, a release of production fluids occurred in Mine Unit 15A involving eight production wells, which caused operating parameters to move outside of the specified normal operating range. As a result of this occurrence, no automatic alarm was received at satellite building SR-1 to tell the night shift operator that there was a problem.

This is a Severity Level IV violation (Section 6.3).

Pursuant to the provisions of 10 CFR 2.201, Power Resources, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission,

ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within 2 working days.

Dated this 25th day of October 2011

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/11-001

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation, and radioactive waste management.

Management Organization and Controls

- The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress (Section 1.2).
- The licensee completed the safety and environmental review panel evaluations in accordance with license requirements (Section 1.2).

In-Situ Leach Facilities

- With the exception of the three violations identified in this report, the licensee was conducting plant site operations in accordance with license and regulatory requirements (Section 2.2).
- An Unresolved Item related to the purge storage reservoir 2 and its impact on groundwater remains open (Section 2.2a).
- A violation related to the alternate decommissioning schedule for mine units was closed (Section 2.2c).
- Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements (Section 2.2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3.2).
- The doses to employees were below occupational dose limits (Section 3.2).

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license, with two exceptions (Section 4.2).
- One violation was identified related to the failure of the licensee to provide a 30 day spill report to the NRC (Section 4.2c).
- One violation was identified related to failure to have an alarm that allows an operator to initiate corrective action (Section 4.2c)

- One unresolved item was identified related to failure to evaluate wells that may have exceeded injections pressures after an incident (Section 4.2c).

Inspection of Transportation Activities and Radioactive Waste Management

- One violation related to failure to follow DOT requirements while transporting licensed material was closed (Section 5.2).
- One violation was identified related to the storage of byproduct storage bins containing contaminated materials in an unrestricted area (Section 5.2).
- The licensee was transporting radioactive material in accordance with NRC and DOT requirements (Section 5.2).
- The licensee had collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application (Section 5.2).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was mining uranium using the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1, and SR-2) were in service and supporting ten operating wellfields. Seven wellfields were in active restoration. Three wellfields were in development and five were in delineation phase. Uranium processing and drying operations were in progress at the Smith Ranch Central Processing Plant (CPP). Uranium recovery operations were on standby at the Highland CPP.

The licensee was conducting limited work at its other licensed satellite facilities. In order to initiate operations at the Reynolds Ranch satellite, the licensee was in the process of obtaining approval for the Reynolds Ranch Environmental Assessment from the U.S. Bureau of Land Management and pursuant approval from the Wyoming Department of Environmental Quality (WDEQ). The Gas Hills, Ruth, and North Butte satellites are not in operation at this time. The licensee, however, has installed a meteorological station at North Butte, drilled 400 delineation holes, designed the first wellfield, and is planning the first pumping test for the fourth quarter 2012. The licensee has installed a meteorological station at Gas Hills and drilled two test holes to evaluate the target formation for the proposed deep disposal well. No activity is occurring or planned at the Ruth Satellite. Both the Gas Hills and Ruth Satellite are inspected once per quarter by the licensee.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organizational structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. The inspectors reviewed the licensee's current organizational structure and found that it was in agreement with the structure specified in Figure 9-1. At the time of the inspection, the licensee had 155 full time employees. The licensee had 14 vacancies, one of which was the manager of safety, health, environment, and quality. The licensee's radiation safety staff consisted of one Radiation Safety Officer (RSO), one qualified health physics technician (HPT), and two HPTs in training. The licensee uses contractors for drilling work and as needed. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

Since the previous inspection, in February 2011, two changes to the radiation safety staff occurred. On March 3, 2011, the licensee evaluated the approval of a new RSO, through the Safety and Environmental Review Panel (SERP) process, recorded as SERP 03/11-2. Although the licensee concluded that the new RSO met the education, training, experience, and knowledge, as required under NRC Regulatory Guide (RG)

8.31, they asked the NRC for specific approval of the RSO in letter dated June 3, 2011. The NRC responded to this written request in letter dated August 19, 2011, which stated that formal review and a determination would be made during the next inspection. The inspectors reviewed the credentials for the new RSO and agreed with the licensee's determination that the RSO was qualified for the position and that no license amendment was required for this change. On September 1, 2011, the inspectors attended the SERP evaluation (SERP 08/11-1) conducted by the licensee to evaluate if one of the radiation safety staff had the education, training, and experience, as required in RG 8.31, to be a qualified HPT. The inspectors reviewed the qualifications of the proposed HPT and agreed with the licensee's determination that the individual was qualified to be an HPT and this action did not require NRC approval or license amendment.

b. Safety and Environmental Review Panel

The inspectors reviewed ORC/SERP 02/10-1, Deep Disposal Well (DDW) Installation, related to the installation of WDEQ permitted deep disposal wells, DDW-6, DDW-9, and DDW-10 within the license area. The SERP documented the technical details of these wells. The well installation was described in the Operational Review Committee (ORC) minutes. The committee found the installation, injection formation, monitoring and operation of these wells to be the same as existing permitted deep disposal wells. Therefore, the SERP concluded the installation and operation the deep injection wells are not contrary to the license or reviews conducted by the NRC during previous review or approvals. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions.

The inspectors reviewed ORC/SERP 08/10-1, Mine Unit D-Extension Restoration, related to starting restoration at the MU-D ext by adding it to the restoration plan as required by License Condition (LC) 10.1.9b. The ORC minutes contained the restoration plan for this mine unit and concluded a SERP must be conducted. The final SERP appears to be a summary document of the ORC analysis. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions; however, the inspectors suggested that the ORC minutes should be included in the SERP documents in the future to show a comprehensive analysis was conducted.

The inspectors reviewed ORC/SERP 03/11-1, conducted on May 5, 2011, related to the change to training frequency during a given year. The change removed the word "quarterly" from the license application and inserted "at most four times per year." The licensee determined that the change would not alter the presentation of required information but would provide more flexibility in scheduling annual training sessions. The SERP also determined that the change would not compromise employee safety nor degrade the time devoted to radiation safety training. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance-based license conditions.

1.3 Conclusions

The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress. The licensee completed the SERP evaluations in accordance with license requirements.

2 In-Situ Leach Facilities (89001)

2.1 Inspection Scope

Determine if in-situ recovery activities were being conducted by the licensee in accordance with the NRC's regulatory requirements and the license.

2.2 Observation and Findings

a. Unresolved Item 040-08964/0801-03

In response to Unresolved Item 040-08964/0801-03, identified by inspectors during the March 2008 inspection, the licensee committed to install four shallow monitoring wells (MW-1S, MW-2S, MW-3S, and MW-4S) near Purge Storage Reservoir 2 (PSR2) to determine whether or not PSR2 was leaking into the surrounding groundwater. The licensee's commitment was documented in a letter to the NRC dated June 22, 2009. The wells have been installed and sampling of the wells was conducted on September 11, 2009, March 23, 2010, June 30, 2010, September 28, 2010, November 18, 2010 and March 16, 2011. The groundwater samples were analyzed for bicarbonate, chloride, sulfate, barium, selenium, uranium, and radium-226 concentrations by a contract laboratory.

The inspectors evaluated the water quality monitoring well data (2009-2011) from the four new wells and historical monitoring data from the South and East shallow wells (1996-date). They compared the PSR2 pond water quality data (1996-date) provided in the semi-annual monitoring reports to the water quality in the six shallow monitoring wells. The inspectors concluded from this analysis that the water quality in five out of the six shallow monitoring wells reflected elevated concentrations for chloride, conductivity, natural uranium, and selenium similar in magnitude to those found in the PSR2 pond water. In addition, for the original PSR 2 South and East monitoring wells which have water quality data from 1996 to date, these constituents demonstrated an increasing trend with time.

During the inspection, the licensee provided the inspectors with two separate reports prepared by a contractor who was hired by the licensee to determine if the waste water in PSR2 was leaking into the surrounding groundwater. The first report was titled, "Purge Storage Reservoir No. 2 Shallow Groundwater Characterization Monitoring Plan," dated August 17, 2011. The second report was titled, "Work Plan for Installing Groundwater Monitoring Wells," dated August 30, 2011.

The first contractor report presented an analysis of water levels and selenium in the four new monitoring wells around PSR2. It also presented a groundwater characterization plan to provide the data necessary to determine whether the waste water in PSR 2 is leaking into shallow groundwater beneath the impoundment. The report stated that the "groundwater encountered in the shallow monitoring wells is considered to be perched and laterally discontinuous." The report also stated "the uppermost continuous water – bearing zone is postulated to be at a depth of at least approximately 50-60 feet below ground surface (bgs). The inspectors noted that in the original application for PSR2 approved by NRC in 1994, the licensee stated that the first groundwater detected underneath PSR2 was located at 200 feet bgs and no groundwater was present above this depth.

The contractor report also presented the selenium concentrations in the four new monitoring wells. The inspectors noted these values ranged from 1.76-2.3 milligrams per liter (mg/l) in the new west well, MW1S; 0.003 to 0.006 mg/l in the new north well, MW2S; 0.554 to 0.840 mg/l in the new east well, MW-4S; and 0.178 to 0.44 mg/l in the new south well, MW-3S. These values of selenium are of the same magnitude as the historical concentrations of selenium in the pond water in PSR2, with the exception of the north well. The inspectors noted that the well completion reports provided by the licensee during the inspection indicated the north well was completed in a zone 8-15 feet higher than the other three shallow wells, which could explain why it did not show similar concentrations to the other wells.

Based on the information provided in the first contractor report and NRC's internal analysis, the inspectors conclude that the presence of perched groundwater, which was not described before PSR2 was approved by NRC, indicates that water has seeped from PSR2 into the surrounding sediments. In addition, the associated water quality in this perched water as measured in the four new shallow monitoring wells and the historic South and East wells also support the conclusion that water from PSR2 is seeping into the surrounding sediments. However, the inspectors noted the presence of water seeping into the sediments from PSR2 is not evidence that the seepage is leaking into deeper groundwater aquifers. Therefore, the inspectors conclude that the licensee must conduct further characterization of the groundwater under PSR2 to determine if the seeping water has impacted a groundwater aquifer.

One of the contractor reports described an acceptable characterization plan to evaluate if there is any movement of fluids to the next deeper sandstone below the new shallow monitoring wells. The second contractor report described the associated work plan for this characterization plan. The inspectors found the characterization plan and work plan to be generally satisfactory to make a determination if the fluids seeping from PSR2 have impacted a groundwater aquifer; however, the inspectors, in consultation with the licensee's NRC project manager, would like the characterization to include an analysis of bicarbonate, chloride, conductivity, sulfate, barium, selenium, natural uranium and radium-226 in all of the monitoring wells instead of only selenium. The licensee has committed to conduct this characterization as described in the contractor's characterization and work plan and include testing of the additional listed constituents in the new and all existing wells. Once this characterization is completed, the licensee will determine if the groundwater in the next lower sandstone has been impacted by the seepage of PSR2 fluids into the surrounding sediments. The results will be reviewed in future inspections and Unresolved Item 040-08964/0801-03 remains open.

b. Recovery Operations and Restoration

At the time of this inspection, recovery operations were being performed at Highland Mine Units (MU) F, H, I, J, and K. Recovery operations were also being conducted at Smith Ranch Mine Units 2, 3, 9, and 15/15A. Restoration activities were in progress at MUs C, D/D-extension, and E on the Highlands side and MUs 1 and 4 on the Smith Ranch side. MUK North is awaiting approval for operation from WDEQ. MU4A is in restoration planning awaiting a SERP to be concluded. Development is underway in MUs 7 and 10. Delineation is underway in MUs 8, 11, 16, 17, and I extension. The bioremediation trial at MUC had mixed results, and the mine unit was returned to conventional groundwater restoration treatment. Wells in several older mine units, MUs

C, D and E, had to be replaced prior to performing full-scale restoration activities, which delayed implementation of the restoration activities.

At the time of the inspection, the licensee had seven deep disposal wells that were installed and available for use. Two additional wells were permitted for operation but had not been installed. In addition to the deep disposal wells, the licensee was authorized to dispose of wastewater via land application. Since the last inspection, the licensee operated one of two land application irrigators in the months of June, July and August 2011. Section 5.2.c of this inspection report provides additional details about the disposal of wastewater via land application.

The inspectors also conducted a review of the licensee's control of its disposal pathways for plant wastewater. The sources of wastewater include the production bleed stream, plant wash-down water, sump water, laboratory wastes, and reverse osmosis system water. At the CPP, the sources of wastewater also include the yellowcake thickener overflow and filter press wash water. As described in the license application, the licensee is authorized to dispose of wastewater through land application or by deep-disposal well injection.

At this time, seven wellfields are in restoration, with MUC in restoration since 1999. Only one wellfield, MUA, has been approved for restoration by NRC. The licensee has indicated that one factor that has hampered restoration activities in the past was the limited disposal capacity. With the recent installation of additional disposal wells, DDW-6, DDW-8 and DDW-10, the licensee has added disposal capacity. However, based on inspector interviews with licensee staff, the deep disposal wells are not performing as expected due to plugging problems from scaling. The licensee stated that all seven DDWs were operating at much lower capacity than permitted and would require acid treatment to restore some capacity. The range of permitted capacity for the seven DDWs was reported as 105-150 gallons per minute (gpm) with an average of 134.4 gpm. The range of actual capacity reported by the licensee for the seven wells was 38-85 gpm with an average of 49.8 gpm. Another factor limiting restoration was reported in the past to be the lack of infrastructure to connect all satellites to all waste treatment operations and DDWs. The licensee stated it is planning to install a five mile pipeline between Smith Ranch CPP and the Highlands Satellite 2 to carry reverse osmosis (RO) reject. The licensee stated this pipeline will enable it to access the waste disposal treatment system and deep disposal wells on the Highland operation to improve restoration operations.

The WDEQ and NRC have approved restoration activities at MUA. The groundwater restoration completion report for MUB was submitted to the NRC by letter dated June 26, 2009. NRC staff completed its acceptance review and determined that the report was insufficient. The licensee was notified by letter dated September 29, 2009, that the report was considered unacceptable for the purposes of conducting a detailed technical review. One issue regarding the MUB restoration was the existing long-term excursion status of one monitoring well B42. During the previous inspection, the licensee reported that monitoring well B42 failed a mechanical integrity test (MIT) and was replaced by MW B42 A. During the inspection, the inspectors reviewed the sampling report for MW B42A for a water quality sample taken on December 21, 2010. The report showed that none of the excursion indicators were exceeded at the well. The natural uranium was 0.0514 mg/l. The inspectors also inquired if any excursion monitoring was being conducted at MUB since the WDEQ has approved the restoration.

The licensee provided the inspectors with a February 8, 2005, memo from WDEQ which stated that all routine excursion monitoring at MUB may be discontinued. The inspectors found this documentation to be consistent with the NRC license application, Section 6.1.3.4, which states that excursion monitoring would be conducted until stability monitoring is completed and approved by WDEQ. The licensee stated they intend to apply for alternate concentration limits for the MUB when it resubmits the restoration report for NRC review and approval.

c. VIO 040-08964/0902-01

During the September 2009 inspection, one violation (VIO 040-08964/0902-01) of NRC requirements was identified related to the licensee's failure to decommission mine units within 24 months and failure to request an alternate decommissioning schedule for mine units that required greater than 24 months to decommission. The licensee responded to this violation by stating that a schedule is pending WDEQ review under a Consent Order between the licensee and the WDEQ for decommissioning, initiating groundwater restoration activities in one mine unit, and initiating infrastructure improvements at additional mine units, and that this schedule will be submitted as an alternate schedule to NRC pending WDEQ approval. During the review period, WDEQ staff issued comments to the licensee on the proposed schedule.

The licensee responded to the violation in letter dated September 14, 2011, requesting review and approval of an alternate decommissioning schedule for restoration of mine units. The licensee provided a restoration schedule that has been approved by the WDEQ. The NRC project manager will review and provide the approval of the restoration schedule. This response to this violation is considered adequate and is considered closed.

d. Site Tours

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured included the Smith Ranch CPP, the Highlands CPP (which is not operating) and the surrounding areas, the four operating satellites, the Selenium Plant, selected mine units, selected header houses (HH), PSR2, and the area used for storage of old equipment (referred to as the "boneyard"). The inspectors reviewed the status of plant equipment, radiation protection postings and site security. Plant parameters were within required operating intervals, plant equipment appeared to be in good condition, radiological postings were in place, and site security was adequate. In summary, the licensee was maintaining control of the areas and equipment in accordance with license and regulatory requirements.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the plant. The surveys were conducted using a Ludlum Model 19 microRoentgen survey meter (NRC 015546, calibration due date of 02/21/2012) and a Ludlum Model 2401-EC2 survey meter (NRC 016294G, calibration due date of 01/03/12). The inspectors did not identify any areas that had not already been identified and posted as radiation areas by the licensee.

2.3 Conclusions

With the exception of the three violations identified in this report, the licensee was conducting plant site operations in accordance with license and regulatory requirements. An Unresolved Item related to the PSR2 and its impact on groundwater remains open. A violation related to the alternate decommissioning schedule for mine units was closed. Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements..

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine whether the licensee's radiation protection program was being conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records for January through July 2011. Approximately 60 employees were monitored for external exposures using thermoluminescent dosimeters that were exchanged on a quarterly basis.

Occupationally monitored employees included CPP operators, satellite/restoration operators, health physics staff, and maintenance workers. The highest deep dose equivalent for January through July 2011 was 346 millirems (3.46 milliSieverts).

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's radon-222 air sampling records and the uranium particulate and worker breathing zone sample results for December through July 2011. The highest derived airborne concentration in hours (DAC-hrs) for radon daughters for an employee for the time reviewed was 70.82 DAC-hrs. The highest employee airborne uranium exposure was 1.35 DAC-hrs. The inspectors confirmed that the licensee had conducted sampling at the required intervals, and the sample results were included in the worker's total effective dose equivalent exposure records.

The licensee collected urine bioassay samples to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with License Conditions 11.2 and 11.3. From January through August 2011, only one bioassay sample result exceeded the action level of 15 micrograms per liter ($\mu\text{g/l}$), the action level specified in Chapter 9 of the licensee's approved license application for implementation of corrective actions. On March 31, 2011, an employee's urine bioassay result was reported by the analytical laboratory as 51.2 $\mu\text{g/l}$. The licensee had an albuminuria test on the sample and the results were non-detect. A second bioassay was collected on April 1, 2011, and the results were non-detect. The licensee performed an investigation and do not believe the individual received a true intake because the worker was in an area of very low natural uranium and no other workers from the same crew has positive bioassays. The licensee will assign a dose to the individual based on the bioassay result. The inspectors reviewed the investigation documentation and agree with the licensee's findings.

The licensee also monitors for soluble uranium intake in compliance with 10 CFR 20.1201e. The highest soluble intake of uranium from January through August 2011 was calculated to be 1.2 milligrams of uranium. This is below the regulatory limit of 10 milligrams.

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations throughout the satellite buildings and CPP areas to verify radiation area postings and to assess external radiation conditions. At the time of the inspection, the inspectors determined that the licensee was conducting the gamma radiation surveys on a weekly frequency in all areas, except the header houses. The header houses were surveyed on a monthly basis. The inspectors reviewed the survey results and found them to meet the requirements of the license.

Alpha contamination surveys were conducted by the licensee on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application authorizes the licensee to conduct monthly process area surveys. The inspectors reviewed the survey results and found them to meet the requirements of the license.

c. Training

The licensee is required to conduct training in accordance with License Condition 9.7 and license application Section 9.6 for its contractors and new employees and provide annual refresher training for current employees. The inspectors reviewed radiation safety training records for two current employees and several new contractors hired since the previous inspection. All training activities and records were in accordance with the requirements of the license.

d. Instrumentation

The inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation survey instruments. On an annual basis, the licensee sends all portable survey instruments to an outside vendor for calibration. The inspectors reviewed instrument calibration certificates for several portable survey instruments and found the calibration certificates to be adequate and the instruments currently calibrated. The inspectors observed survey meters being used by the licensee's employees when exiting restricted areas. The survey instruments examined by the inspectors were found to be in calibration and were being used appropriately by the licensee's staff.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. The doses to employees are below occupational dose limits.

4 Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA (87102 and 88045)

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment.

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.65. The inspectors reviewed the licensee's Semiannual Effluent and Environmental Monitoring Report for January 1 through June 20, 2011, dated August 26, 2011 (referred to in this report as "semiannual report"). The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, and surface water. As part of the licensee's wastewater land application permit from the WDEQ, soil and vegetation, irrigation fluid and radium treatment system samples, soil water samples at the irrigation areas, and monitor wells at PSR2 are sampled.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in the air. None of the sample results for the first and second quarters of 2011 exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B.

The licensee also sampled for radon-222 concentrations in the air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the first and second quarters of 2011. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations using thermoluminescent dosimeters. For the first and second quarters of 2011, all sample results were comparable to background level.

b. Groundwater and Surface Water Environmental Monitoring

The surface and groundwater monitoring program consists of quarterly sampling of groundwater and surface water for natural uranium and radium-226 in nearby wells and surface water sites used for livestock or for domestic water services which are located within 1 kilometer of the operating wellfields. The sampling consists of 10 surface water (stock) ponds, 7 windmills (groundwater), and 11 wells (groundwater). The semiannual report provided by the licensee at the time of inspection, showed sample data for 3 out of 20 possible surface water samples for the 2011 first and second quarter sampling events. Ten samples were not collected because the stock ponds were reported as dry. For the groundwater locations, the semiannual report provided sample data for 14 out of

36 possible groundwater samples. Twenty-two samples were not collected because the windmill or well was not operating at the time of sample collection. All reported values for natural uranium and radium-226 were within the respective effluent concentration limits. The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application and License Condition 11.6.

The semiannual report also included results from Satellites 2 and 3 radium filter press effluents which are monitored as one grab sample after selenium treatment. The monitoring results show that none of the radium-226 concentrations in the six samples exceeded the 10 CFR Part 20, Appendix B, effluent concentration limit of 6.00E-8 microcuries per milliliter ($\mu\text{Ci}/\text{ml}$).

Water levels are measured on a quarterly basis and groundwater samples are collected on a semiannual basis from the six shallow groundwater monitoring wells located at PSR2. The required monitoring data were obtained and reported in the semiannual report and the sample results continue to be trended by the licensee for a study to resolve Unresolved Item 040-08964/0801-03 (see Section 2.2a of this report).

During the review period, Irrigator 1 did not operate during the monitoring period. In the semiannual report, the licensee included monthly grab samples of the fluid through Irrigator 2 during the month that it operated (June 2011). The radium concentration in one sample exceeded the estimated limit in the original license application but was below the effluent limit in Table 2 of 10 CFR Part 20, Appendix B.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report to the NRC any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment, that is required to be reported to a State or Federal Agency. Within 30 days of notification to the NRC, the licensee is required to submit a written report that details the conditions leading to the spill or incident, corrective actions taken, and the results achieved.

The licensee stated that four spills had taken place since the last inspection. The first spill occurred on May 3, 2011 in MU15A as a consequence of a power and automatic shutdown valve failure at HH15-20 which led to an over injection event. The licensee indicated they left a voicemail with the NRC Project Manager on May 4, 2011. However, the licensee failed to provide a follow-up report on this spill. This failure is a violation (VIO 040-08964/1102-01) of LC 12.1, which requires, in part, that once a notification of a spill is made, the licensee is required to submit a written report documenting the event, corrective actions, and the outcome within 30 days. The licensee also failed to provide NRC with copies of correspondence addressed to the WDEQ, dated May 9, 2011, August 12, 2011 and August 26, 2011, related to the spill at Wellfield 15A. The licensee staff agreed during the inspection they could not find evidence they sent NRC the 30 day report or the three letters to the WDEQ.

The inspectors reviewed the licensee's in-house version of the report of the May 3, 2011, MU15A spill in the wellfield serviced by HH15-20, which was provided to WDEQ on May 9, 2011 but not to NRC. The inspectors also visited the spill location and HH15-20 and interviewed several licensee staff with knowledge of the spill event. The report, location visit and interviews indicated that the spill was caused by a power failure of unknown origin at HH15-20 sometime on the night of May 3, 2011. The power failure shut down all 20 production wells in the HH15-20. The power failure should also have triggered an automatic shutdown of a pressure restrictor valve on the main injection line to the header house to stop injection into the wells. However, this valve, known as a Cla-Valve pressure restrictor, failed to shut down either electronically through a solenoid or mechanically in response to an increase in pressure on the downstream side from loss of production. This valve failure allowed injection to continue into the 38 injection wells serviced by the HH at a licensee estimated rate of 400 gpm.

No automatic alarm was received at satellite building SR-1 to tell the night shift operator that there was a problem. The alarm light on the front of the header house was only equipped with 15 minutes of battery power so no visual alarm was maintained. The over injection apparently continued for the entire night shift. An operator came on the morning shift and noticed a problem with the flow and pressure reports in the wellfield. The operator, however, had no method to identify the source of the problem, so he had to perform a random check of all header houses until he found the valve failure at 8:00 am at HH 15-20. By this time, the over injection into the ore zone had caused a sufficient increase in ore zone aquifer pressure to cause eight production wells to flow at the surface. The size of the surface spill was estimated to be 1500 gallons of pregnant lixiviant with a concentration of 99 parts per million natural uranium. The licensee was able to recover approximately 200 gallons. On May 4, 2011, the licensee staff replaced the valve and returned all the wells in HH15-20 to operation.

Section 3.3 of the licensee's approved license application, states in part, "when operating parameters move outside specified normal operating ranges, an alarm will notify the operator to initiate corrective action to alleviate the problem." The inspectors questioned why no alarm had notified operators of the valve failure and over injection at HH15-20 which led to the spill. The licensee responded that there was a red light alarm on the front of the HH. However, the licensee indicated this alarm only had fifteen minutes of battery power and was not detected. The inspectors noted HH 15-20 is a newer HH with updated design and equipment including a camera and is tied into computer monitoring at SR-1, although no alarm was provided to the operator to enable them to identify the problem at HH15-20 and take corrective actions. This failure to have an alarm that allows an operator to initiate corrective action is a violation (VIO 040-08964/1102-02) of Section 3.3 of the license application.

The inspectors identified one Unresolved Item (URI 040-08964/1102-03) related to the incident in HH 15-20. The licensee has a commitment in Section 3.2.4.7 of the approved license application which states in part, "the surface injection pressures will not exceed the maximum surface pressures posted in each header house". The licensee had not evaluated whether they had exceeded the maximum injection pressure of 110 pounds per square inch (psi) listed on the main injection line at HH15-20 during the over injection event. Section 3.2.4.6 of the approved license application states in part, "During wellfield operations, injection pressure at the injection well heads will not exceed the integrity test pressure." The licensee did not evaluate if they had exceeded the integrity test pressure during the over injection event; however, they indicated that all

injection wells in the wellfield had a pressure relief valve which would open at 150 psig. Also, Section 3.2.4.6 of the approved license application states in part, "Any injection well with evidence of suspected subsurface damage will require a new mechanical integrity test (MIT) prior to the well being returned to service." The licensee had not performed MITs to see if the over injection had damaged the injection wells prior to returning the wells to service the next day. During the inspection, the licensee stated that HH15-20 had been taken out of production and they would MIT the remaining wells impacted by this incident. This Unresolved Item will remain open until the licensee determines if any injection pressures have been exceeded on the HH injection line or at the injection well heads. This information will be reviewed during a future inspection to determine if any violations of the license occurred.

The second spill was reported on May 19, 2011, at a bellhole 1 near Satellite SR-2. The follow up report on May 26, 2011, stated the release resulted from restarting the wells and booster pumps after a power outage and discovering a gasket failure. The release was 790 gallons. The inspectors found this spill was properly reported and handled. The third spill was reported on July 25, 2011. In the follow up report dated July 29, 2011, the licensee stated 53 gallons of injection fluids were accidentally released to a well that was being repaired at the wellhead, when flow was started before the repairs were completed. The inspectors found this spill was properly reported and corrected. The last spill involved the failure of a pumping test water tank in Mine Unit K north which released approximately 35,000 gallons of water to the surface on March 10, 2011. WDEQ was informed on June 8, 2011 and the NRC project manager was notified on June 7, 2011. The 30 day follow up letter was not provided to the NRC. The licensee is being issued a violation (see above) related to failure to report events to the NRC as required by LC 12.1.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. The licensee has approximately 1,300 groundwater monitoring wells that are sampled during a typical month using six field sampling personnel. The inspectors reviewed some of the groundwater sampling records and concluded that these records indicated operational groundwater monitoring was being conducted as required by the license.

Two wells, DM-003 and CM-32, were in long term excursion status during the prior inspection. CM-32 went off excursion in April 2011. Since the last inspection, the licensee reported three new wells went in excursion. Well JM-005 was reported on excursion on March 9, 2011, and a follow up report was provided on March 14, 2011. Well DM-010 was reported on excursion on June 08, 2011. However, no required follow up report was provided to NRC. The licensee is being issued a violation (see above) related to failure to report events to the NRC as required by LC 12.1. An excursion at KM-031 was reported to NRC on June 15, 2011, with a follow-up report on June 21, 2011. At the time of the inspection only two wells, DM-003 and DM-010, remained on excursion for the entire licensed area. These wells are believed to be subject to the influence of nearby underground mine workings from previous uranium mine operators not associated with this licensee. The licensee has hired a consultant to evaluate if the current pumping design to correct the excursions at these wells is the appropriate approach.

Aside from this failure to provide follow-up reports for the excursion at DM-010, the inspectors determined that the licensee had conducted the requisite monitoring for the

excursion monitoring program and submitted the required reports within a timely manner pursuant to License Condition 11.5.

Since the last inspection, the licensee reported two separate leak events in the east storage pond. NRC was notified of the first leak into the secondary containment on June 13, 2011. The licensee drained the pond to investigate the leak and repaired a tear in the primary liner on July 7, 2011. Following the repairs, water was returned to the pond. On August 15, 2011, a second leak was discovered in the east evaporation pond sump. The licensee notified the NRC. The pond level was lowered for a second time to examine the leak and repairs were made on August 29, 2011. Water was being returned to the pond at the time of the inspection. NRC inspectors found the leak was reported and corrected in a manner consistent with LC 12.1.

License Condition 10.1.3 requires, in part, that an MIT be performed prior to an injection or recovery well being brought into service and every 5 years thereafter. The inspectors concluded that the licensee has performed MIT tests as required, with the exception of MU 15A wells impacted by the May 3, 2011, spill, pursuant to LC 10.1.3.

4.3 Conclusions

The licensee implemented environmental, groundwater, and surface water monitoring programs in accordance with the license, with two exceptions. One violation was identified related to the failure of the licensee to provide a 30 day spill report to the NRC. One violation was identified related to failure to have an alarm that allows an operator to initiate corrective action. One unresolved item was identified, related to failure to evaluate if well that may have exceeded injections pressures after an incident.

5 **Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)**

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The inspectors reviewed the licensee's transportation records maintained since the February 2011 inspection. Trucks with tanker trailers are routinely utilized by the licensee to transport resin to and from the satellite buildings and the CPP. The inspectors reviewed selected resin tanker trailer shipping papers and found them to include the pertinent information required by Department of Transportation (DOT) regulations.

License Condition 9.6 requires, in part, that the licensee possess a waste disposal agreement to dispose of 11e.(2) byproduct material at an offsite location. In 2010, the licensee generated a waste disposal contract with a new vendor. Since the previous inspection, twenty-six waste disposal shipments were made to the newly contracted waste disposal site. Material sent for disposal consisted of 11e.(2) contaminated

equipment, such as filters, pipes, and pumps. The inspectors reviewed selected shipping records found them to be complete.

The licensee also ships licensed yellowcake material off site. From January through August 2011, a total of 28 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. Beginning in January 2011, the licensee began shipping yellowcake to Canada for processing. The licensee has an NRC export license, held by a broker, that authorizes yellowcake to be brought into Canada for conversion into uranium hexafluoride and then returned to the U.S. for future processing. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with DOT and NRC regulations.

During the August 2010 inspection, one violation (VIO 040-08964/1002-01), was identified related to the failure of the licensee to comply with appropriate DOT regulations while transporting licensed material over public highways. Specifically, the licensee shipped water transfer filters and trash classified as 11e.(2) waste from Satellites SR-2 and SR-1 to the CPP without performing radiation or contamination surveys to ensure compliance with DOT requirements. In addition, the licensee transported radium-226 contaminated filters to an analytical laboratory without verifying compliance with DOT radiation or contamination limits. These examples are violations of 10 CFR 71.5(a), which requires that a licensee who transports licensed material outside of the site of usage comply with the applicable requirements of the regulations appropriate to the mode of transport of the DOT in 49 CFR Parts 170 through 189.

The licensee responded to the violation in letter dated February 23, 2011. NRC staff found the response did not adequately address the violation and requested additional information. Specifically, the licensee did not state how they will transport over public highways water filters and trash classified as 11e.(2) byproduct material from Satellites SR-2 and SR-1 to the CPP using the appropriate DOT requirements. By letter dated June 17, 2011, the licensee stated they had updated the transportation procedures to include shipment of contaminated filters using the appropriate DOT requirements. The inspectors reviewed the procedures and found them to be responsive to the violation. This violation is closed.

b. Solid Radioactive Waste

The inspectors identified one violation (VIO 040-08964/1102-04) related to the location of byproduct storage bins. License Condition 10.1.7 states, in part, that the licensee shall maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal. The inspectors found that the licensee had two byproduct disposal bins, containing contaminated materials, stored in an unrestricted area adjacent to the Central Processing Plant.

c. Review of Wastewater Treatment Activities

The license application authorizes the licensee to dispose of wastewater at both the Satellites 1 and 2 land application facilities. Prior to discharge to the purge storage reservoirs, the plant wastewater is processed to remove the excess uranium, radium-226, and selenium concentrations in the water. After treatment, the wastewater is sampled to ensure that it meets the criteria specified in the license application as well as WDEQ requirements for land application.

During 2011, the licensee disposed of wastewater at the Satellite No. 2 land application facility, but not the Satellite No. 1 land application facility. The licensee operated Irrigator No. 2 during July-August 2011. In accordance with Tables 5-8 and 5-9 of the license application, the licensee samples the irrigation fluid monthly at the PSR 2 suction line for the irrigator pivot for natural uranium, radium-226, selenium, and other chemical constituents. The licensee's sample results indicate that the natural uranium and radium-226 concentrations were less than the NRC's effluent concentration limits, and the selenium concentrations were less than the WDEQ's limit.

5.3 Conclusions

One violation related to failure to follow DOT requirements while transporting licensed material was closed. One violation was identified related to the storage of byproduct storage bins in an unrestricted area. The licensee was transporting radioactive material in accordance with NRC and DOT requirements. The licensee had collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application.

6 **Exit Meeting Summary**

The NRC inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 1, 2011. The final exit briefing was conducted by telephone on September 25, 2011. During the inspection, the licensee did not identify any information reviewed by the NRC inspectors as proprietary that was included in the report.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Berg, General Manager
 D. Moody, Operations Manger
 J. McCarthy, Assistant Radiation Safety Officer
 A. Faunce, Radiation Safety Officer

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/1102-01	VIO	Failure to provide a 30 day incident report to the NRC
040-08964/1102-02	VIO	Failure to have an alarm for operators to initiate a corrective action
040-08964/1102-03	URI	Failure to evaluate if wells exceeded injections pressures after an incident
040-08964/1102-04	VIO	Failure to store byproduct waste material in a restricted area

Closed

040-08964/1002-01	VIO	Failure to perform radiation and contamination surveys on packages used for shipment of licensed material.
040-08964/0902-01	VIO	Failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule

Discussed

040-08964/0801-03	URI	Verify whether PSR2 was leaking into the groundwater
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LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
CPP	central processing plant
CFR	<i>Code of Federal Regulations</i>
DAC-hrs	derived air concentration hours
DDW	deep disposal well
bgs	bellow ground surface
DOT	U.S. Department of Transportation
gpm	gallons per minute
HH	header house
HPT	health physics technician
IP	NRC Inspection Procedures
LC	License Condition
MIT	mechanical integrity test
µg/l	microgram per liter
mg/l	milligrams per liter
MU	mine unit
µCi/ml	microcuries per milliliter
ORC	Operational Review Committee
psi	pounds per square inch
PSR	purge storage reservoir
RG	NRC Regulatory Guide
RO	reverse osmosis
RSO	Radiation Safety Officer
SERP	Safety and Environmental Review Panel
URI	unresolved item
VIO	violation
WDEQ	Wyoming Department of Environmental Quality



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 Glenrock, WY
 82637 USA

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 Fax: (307) 358-4533
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October 28, 2011

Mr. Lowell Spackman, District 1 Supervisor
 Land Quality Division
 Wyoming Department of Environmental Quality
 Herschler Building
 122 West 25th Street
 Cheyenne, WY 82002

CERTIFIED MAIL # 7011 0470 0000 7716 1215 RETURN RECEIPT REQUESTED

**RE: East Storage Pond Leak, Cameco Resources, Smith Ranch-Highland Uranium
 Project, Permit to Mine No. 633**

Dear Mr. Spackman:

On June 20, 2011, Power Resources, Inc. d/b/a Cameco Resources (Cameco) provided written notification to Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission regarding a leak into secondary containment discovered on June 13, 2011 at the East Evaporation Pond.

Cameco drained the pond to investigate the leak into secondary containment and repaired a tear in the primary liner on July 7, 2011. Following repairs, water was returned to the pond. On August 15, 2011 water was again discovered in the East Evaporation Pond Sump. Verbal notification was made to the Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission on August 16, 2011 with written notification following in the monthly report on August 31, 2011.

The pond level was lowered for the second time to reexamine the primary liner. Another tear was discovered and repairs were made August 29, 2011. Following repairs, water is being returned to the pond. Routine monitoring will continue to ensure no leakage occurs as the water level rises above the area of repair. At this time the water level has risen to the area of repair but has not fully submersed it yet. No samples have been obtained since the August 15, 2011 leak was discovered due to the sump remaining dry.

A monthly report will continue to be submitted until the water level in the pond has submersed the area of repair and Cameco ensures that the repair was successful. Please contact Ken Garoutte at (307) 358-6541 ext. 476 if you have questions.

Sincerely,



Brent Berg
General Manager

BB/vg

cc: File SR 4.3.3.1 File SR 4.3.3.4
Mr. Doug Mandeville – NRC (2 Copies) Certified Mail # 7011 0470 0000 7716 1253
Document Control Desk, NRC Certified Mail # 7011 0470 0000 7716 1260

ec: CR-Cheyenne

From: Kenneth Garoutte [Kenneth_Garoutte@Cameco.com]
Sent: Monday, November 07, 2011 2:24 PM
To: Mandeville, Douglas
Cc: Brent Berg; Josh Leftwich; Scott Bakken; Dave Moody; Michael Bryson; Derek Eager; Victoria Gitthens; Karen Siebken
Subject: Evaporation Pond Leak notification

Doug,

At approximately 12:13 pm , today, 11/7/11, I left a voice mail with you giving verbal notification of a confirmed leak in our East Evaporation Pond. A written notification will be submitted to the WDEQ and a copy forwarded to the NRC. Pam Rothwell of the WDEQ-LQD has been contacted.

Ken Garoutte
SHEQ Coordinator
Cameco Resources
Smith Ranch-Highland
P.O. Box 1210
Glenrock, Wy 82637

(307) 358-6541 ext. 476
Kenneth_Garoutte@cameco.com

This e-mail and any files transmitted with it are personal and confidential, and are intended solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this e-mail and any files transmitted with it (without making any copies) and contact Cameco Resources at once at 307-358-6541.

SAFETY BY CHOICE, NOT BY CHANCE!

This email and any files transmitted with it are personal and confidential, and are solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this email and any files transmitted with it (without making any copies) and advise the author immediately.

From: Kenneth Garoutte [Kenneth_Garoutte@Cameco.com]
Sent: Tuesday, November 15, 2011 1:17 PM
To: Mandeville, Douglas
Cc: Brent Berg; Dave Moody; Michael Bryson; Stephen Shire; Victoria Gitthens; Beverly Johnson; Karen Siebken; Dee DeWald
Subject: Missed MP well sampling in Mine Unit One, August and October

Doug, this email is to provide confirmation that you were contacted this day at ~10:45 am regarding missed MP-well sampling in Mine Unit One in August and October. Two (2) of 19 MP wells were not sampled in August and three (3) of 19 MP wells were not sampled in October that were scheduled on a 60-day sampling cycle to monitor restoration progress. Lowell Spackman of the WDEQ has also been contacted.

Ken Garoutte
SHEQ Coordinator
Cameco Resources
Smith Ranch-Highland
P.O. Box 1210
Glenrock, Wy 82637

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Kenneth_Garoutte@cameco.com

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November 30, 2011

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street
Cheyenne, WY 82002

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CERTIFIED MAIL #7011 0470 0000 7716 4407 RETURN RECEIPT REQUESTED

RE: Excursion Report Summary Update, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 603 and 633

Dear Mr. Spackman:

Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the monthly Excursion Report Summary for the Smith Ranch-Highland Uranium Project. During the month of November zero (0) new excursions were reported. The Cameco Excursion Report table is attached. Monitor well DM-003 and DM-010 remain on excursion from the month of October. Monitor well KM-031 went off excursion on October 18, 2011. Guideline 8 samples pursuant to Chapter 11 regulations were taken. Cameco has not received results for the sampling but will submit them with the December excursion report.

Constituent levels in Monitor Well DM-003 have stayed relatively stable throughout the month of November 2011. Alkalinity and chloride levels in Monitor Well DM-010 have stayed stable with conductivity showing a gradual decrease. Copies of the monitor well reports for these wells are attached. Also attached please find graphs tracking alkalinity, chloride, and conductivity trends for each well.

A Plan and Compliance Schedule for well DM-003 was submitted to LQD in a letter dated March 10, 2011 responding to 3rd Qtr. 2010 Excursion Monitoring Report comments from LQD. A Plan and Compliance Schedule for the well DM-010 was submitted to LQD in a letter dated October 20, 2011 proposing to have DM-010 off excursion by the end of 2012 and stating that Cameco will submit progress reports through the monthly excursion report summary. LQD has acknowledged receipt of said letter and found acceptable the plan and schedule via an email dated October 25, 2011, cc. to Ken Garoutte, Cameco, from Pam Rothwell, LQD to Steve Ingle,

LQD. Cameco is conducting additional monitoring in an effort to merge Mine Units C, D and E in a comprehensive ground water restoration plan. Cameco plans to review this plan with LQD in December 2011.

Please contact Ken Garoutte @ 307-358-6541, ext 476 or Kenneth.Garoutte@cameco.com if you have questions.

Respectfully,



Brent Berg
General Manager

BB/vg

Attachments: Cameco Resources Excursion Report
Monitor Well Report and Trend Graphs for DM-003
Monitor Well Report and Trend Graphs for DM-010

cc: File HUP 4.3.3.1 File SR 4.3.3.1
Mr. Doug Mandeville, NRC (2copies) - CERTIFIED MAIL #7011 0470 0000 7716 4391
Document Control Desk, NRC - CERTIFIED MAIL #7011 0470 0000 7716 4384

ec: Cameco-Cheyenne

Cameco Resources Excursion Report
Permit Nos. 603 & 633
(November 2011)

Well Identification	Initial Sample Date	Confirmation Sample Date	Excursion Status (on/off)	Parameters Exceeded	Verbal Notification Date	Written Notification Date	Excursion Resolution Date	LQD Concurrence Notification Date
DM-3	11/19/2009	11/20/2009	ON	Chloride Alkalinity	11/23/2009	11/25/2009		
DM-10	6/3/2011	6/6/2011	ON	Chloride Alkalinity	6/7/2011	6/10/2011		



Cameco Resources
Smith Ranch - Highland Operation
Monitor Well Report

Well ID: DM-003

NRC/WDEQ UCL	Chloride (mg/L)	Alkalinity (mg/L CaCO₃)	Conductivity (µMhos/cm)	U₃O₈ (mg/L)	Water Elevation	Comment
	18	188	962			
11/22/2011	22	229	867	0	5093.5	
11/15/2011	22	232	934	0	5095.0	
11/08/2011	22	232	940	0	5096.2	
11/01/2011	21	235	936	0	5103.0	
10/26/2011	21	233	927	0	5097.5	
10/19/2011	21	229	928	0	5095.4	
10/11/2011	21	226	937	0	5095.4	
10/04/2011	21	232	919	0	5094.0	Uranium Below Detection Limit
09/27/2011	22	237	955	0	5093.5	Uranium Below Detection Limit
09/20/2011	22	236	938	0	5094.6	Uranium Below Detection Limit
09/13/2011	21	232	859	0	5094.8	Uranium below .5
09/06/2011	22	233	906	0	5095.3	Uranium below .5
08/23/2011	22	235	922	0	5099.6	Uranium Below Detection Limit
08/16/2011	22	234	855	0	5099.6	Uranium below .5
08/09/2011	22	234	934	0	5103.4	Uranium below .5
08/02/2011	22	236	942	0	5104.4	Uranium Below Detection Limit
07/26/2011	22	238	897	0	5107.9	Uranium below .5
07/19/2011	23	238	937	0	5112.6	Uranium below detection limit
07/12/2011	23	241	948	0	5110.3	Uranium below detection limit
07/05/2011	23	242	911	0	5106.8	Uranium below detection limit
06/28/2011	23	243	883	0	5102.6	Uranium below detection limit
06/20/2011	23	245	926	0	5093.9	Uranium below .5
06/14/2011	22	238	913	0	5095.4	Uranium below .5

11/29/2011



Cameco Resources
Smith Ranch - Highland Operation
Monitor Well Report

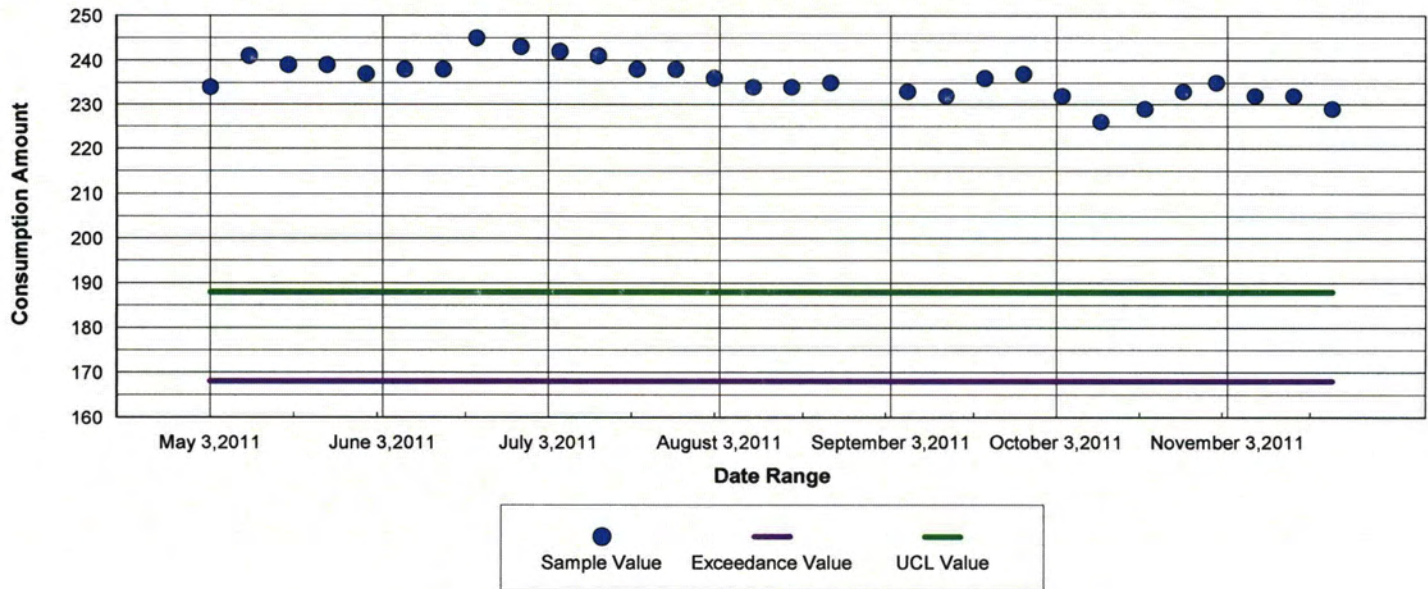
Well ID: DM-003

<i>NRC/WDEQ UCL</i>	<i>Chloride (mg/L)</i>	<i>Alkalinity (mg/L CaCO₃)</i>	<i>Conductivity (µMhos/cm)</i>	<i>U₃O₈ (mg/L)</i>	<i>Water Elevation</i>	<i>Comment</i>
	18	188	962			
06/07/2011	23	238	929	0	5099.1	Uranium below detection limit
05/31/2011	22	237	907	0	5099.7	Uranium below detection limit
05/24/2011	23	239	938	0	5103.9	Uranium below detection limit
05/17/2011	22	239	910	0	5107.2	Uranium below detection limit
05/10/2011	22	241	888	0	5099.6	Uranium below detection limit
05/03/2011	22	234	843	0	5100.5	Uranium below detection limit



Cameco Resources
Smith Ranch - Highland

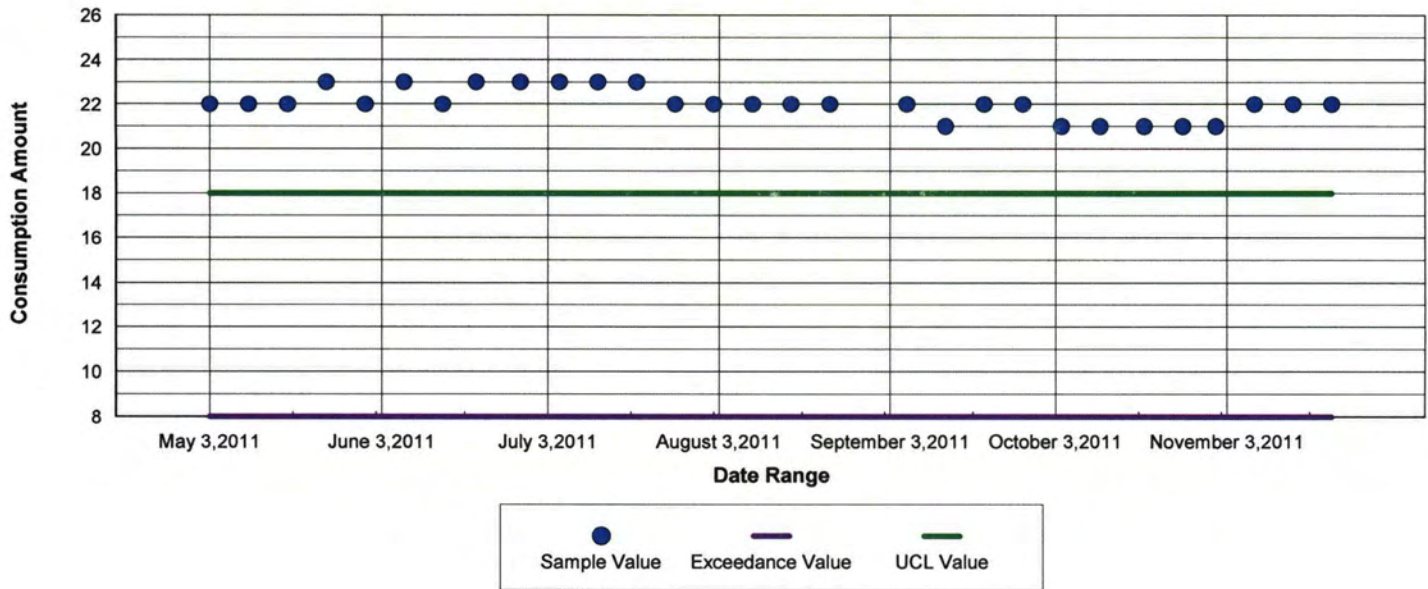
Alkalinity
Trending Analysis
Well : DM-003





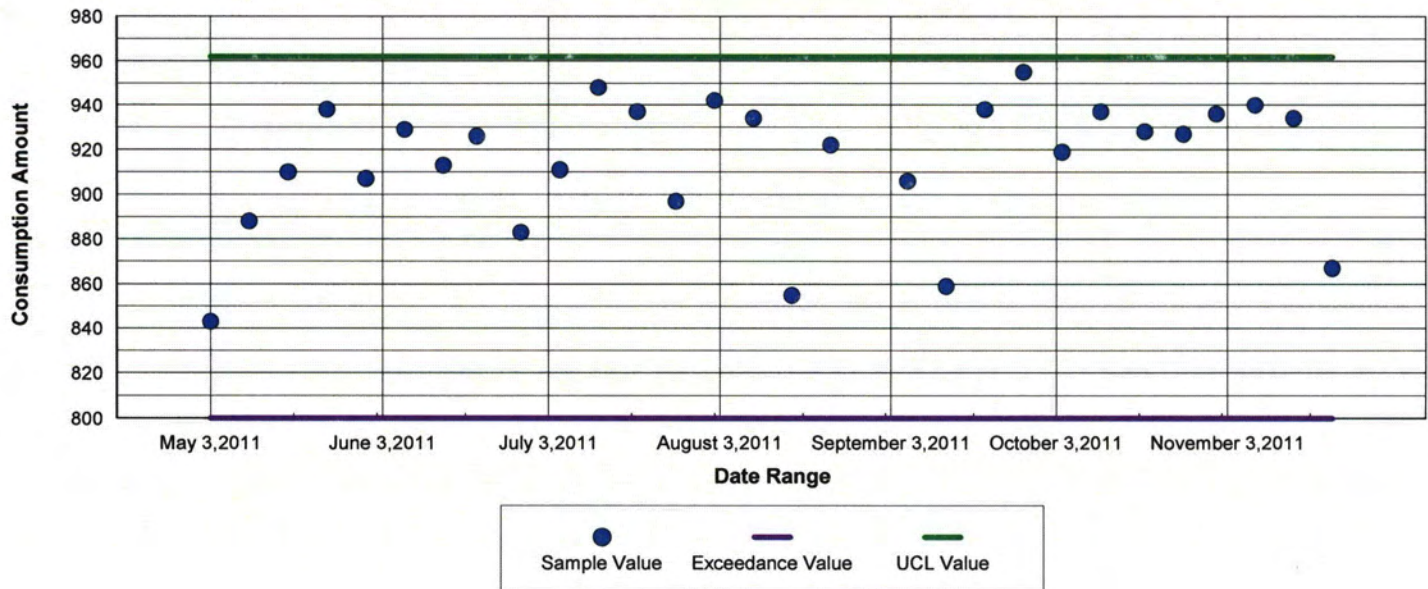
Cameco Resources
Smith Ranch - Highland

Chloride
Trending Analysis
Well : DM-003



Conductivity Trending Analysis

Well : DM-003





Cameco Resources
Smith Ranch - Highland Operation
Monitor Well Report

Well ID: DM-010

<i>NRC/WDEQ UCL</i>	<i>Chloride (mg/L)</i>	<i>Alkalinity (mg/L CaCO₃)</i>	<i>Conductivity (µMhos/cm)</i>	<i>U₃O₈ (mg/L)</i>	<i>Water Elevation</i>	<i>Comment</i>
	18	188	962			
11/22/2011	22	236	875	0	5066.0	
11/15/2011	23	241	913	0	5068.0	
11/08/2011	23	242	984	0	5085.4	
11/01/2011	24	246	992	0	5081.1	
10/25/2011	23	243	984	0	5084.7	
10/19/2011	23	240	977	0	5056.2	
10/11/2011	22	230	986	0	5059.0	
10/04/2011	24	240	945	0	5055.4	Uranium below detection limit
09/27/2011	24	244	959	0	5053.6	Uranium below detection limit
09/20/2011	25	243	989	0	5051.2	Uranium below detection limit
09/13/2011	25	235	904	0	5046.9	Uranium below .5
09/06/2011	26	238	963	0	5054.6	Uranium below detection limit
08/23/2011	27	242	979	0	5067.7	Uranium below detection limit
08/16/2011	27	246	920	0	5074.4	Uranium below detection limit
08/09/2011	26	241	988	0	5064.0	Uranium below detection limit
08/02/2011	30	246	1016	0	5058.2	Uranium below detection limit
07/26/2011	32	254	1025	0	5055.6	Uranium below .5
07/19/2011	35	265	1052	0	5115.4	Uranium below detection limit
07/11/2011	35	263	1002	0	5112.5	Uranium below .5
07/05/2011	34	259	1045	0	5109.2	Uranium below detection limit
06/30/2011	32	256	1040	0	5080.3	Uranium below detection limit
06/20/2011	33	258	990	0	5078.4	Uranium below detection limit
06/14/2011	31	252	1002	0	5067.8	Uranium below detection limit

11/29/2011



Cameco Resources
Smith Ranch - Highland Operation
Monitor Well Report

Well ID: DM-010

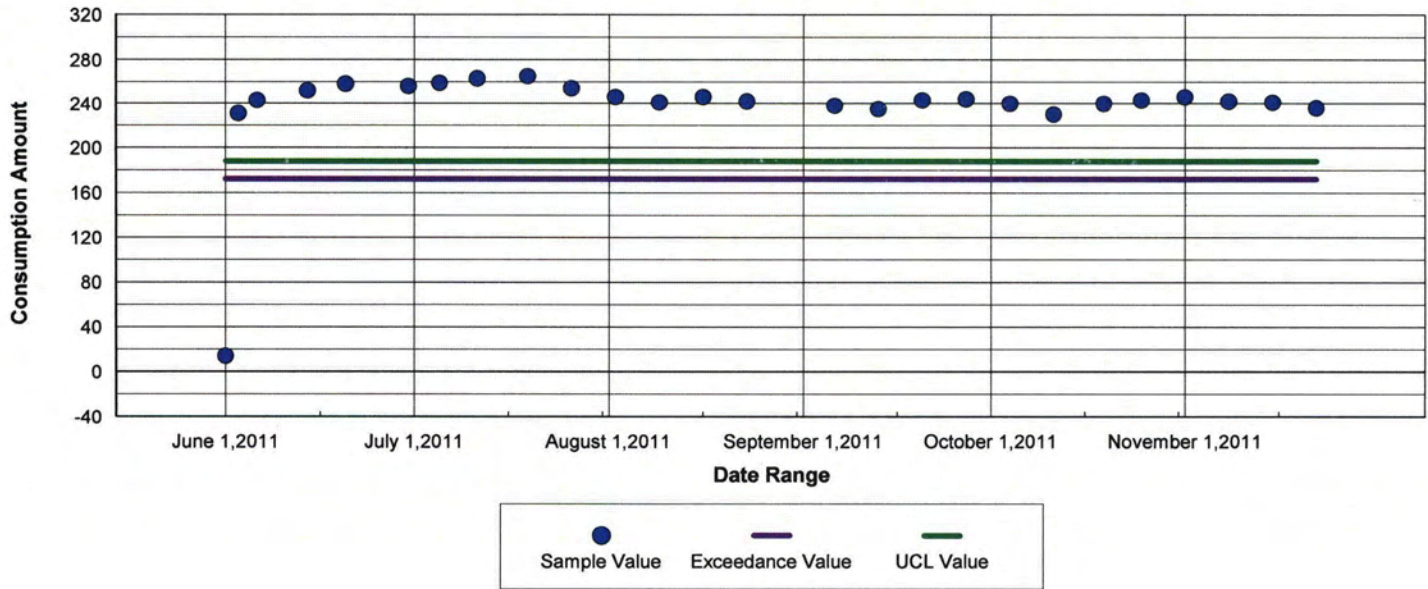
<i>NRC/WDEQ UCL</i>	<i>Chloride (mg/L)</i>	<i>Alkalinity (mg/L CaCO₃)</i>	<i>Conductivity (µMhos/cm)</i>	<i>U₃O₈ (mg/L)</i>	<i>Water Elevation</i>	<i>Comment</i>
	18	188	962			
06/06/2011	30	243	947	0	5067.9	Uranium below detection limit
06/03/2011	29	231	968		5061.4	
06/01/2011	19	14	537		5060.7	Resample & Retest

11/29/2011

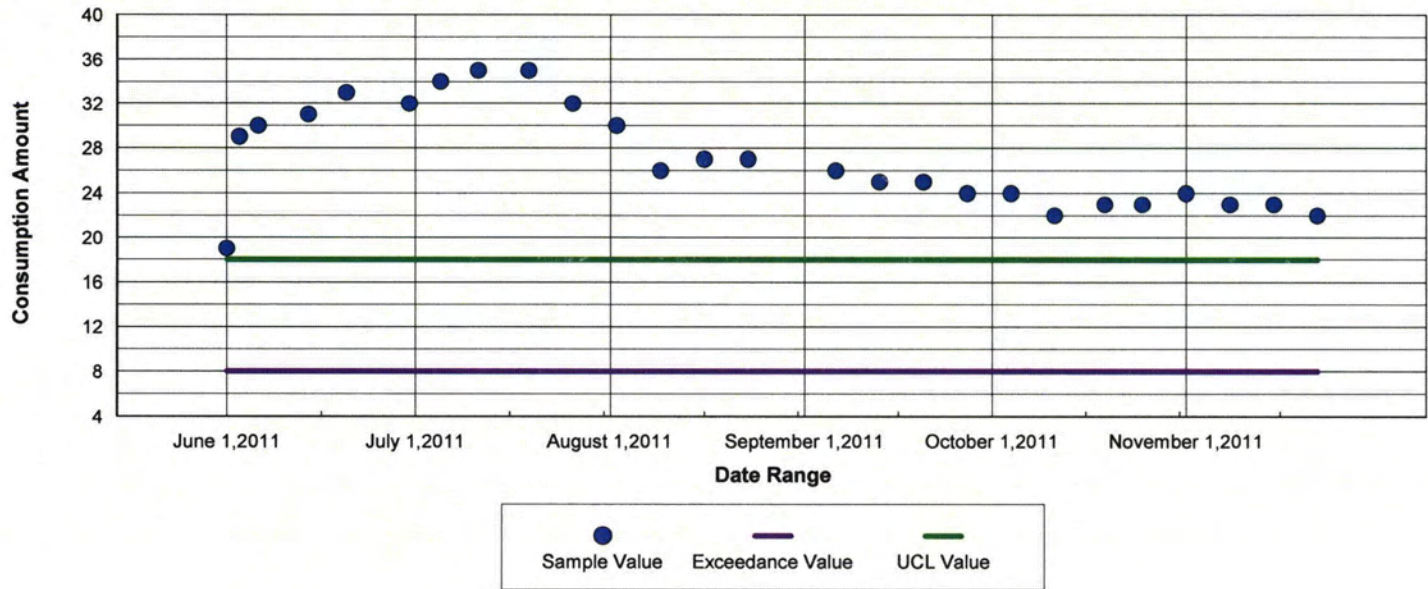


Cameco Resources
Smith Ranch - Highland

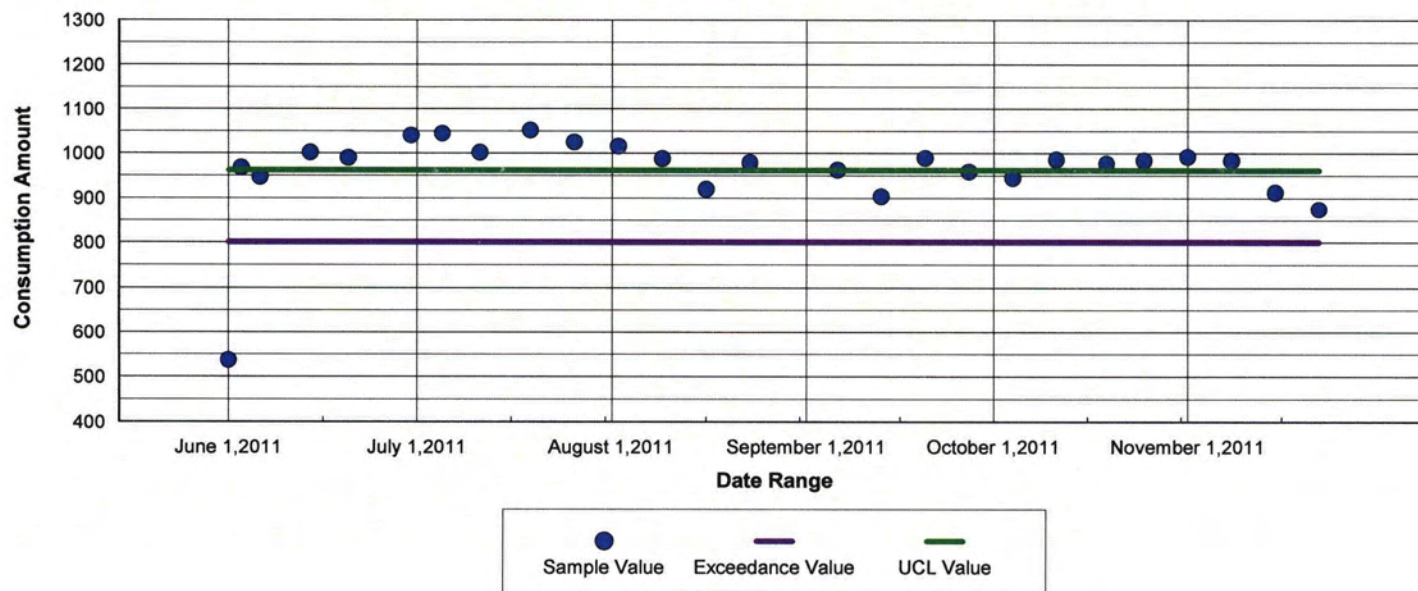
Alkalinity
Trending Analysis
Well : DM-010



Chloride
Trending Analysis
Well : DM-010



Conductivity Trending Analysis



**CAMECO RESOURCES**Smith Ranch-Highland
Operation

Mail:

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Glenrock, WY

82637 USA

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November 30, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CERTIFIED MAIL # 7011 0470 0000 7716 0539 RETURN RECEIPT REQUESTED

**RE: East Evaporation Pond Leak, Cameco Resources, Smith Ranch-Highland Uranium
Project, Permit to Mine No. 633**

Dear Mr. Spackman:

On June 20, 2011, Power Resources, Inc. d/b/a Cameco Resources (Cameco) provided written notification to Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission regarding a leak into secondary containment discovered on June 13, 2011 at the East Evaporation Pond. Cameco drained the pond to investigate the leak into secondary containment and repaired a tear in the primary liner on July 7, 2011. Following repairs, water was returned to the pond.

On August 15, 2011 water was again discovered in the East Evaporation Pond Sump. Verbal notification was made to the Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission on August 16, 2011 with written notification following in the monthly report on August 31, 2011. The pond level was lowered for the second time to reexamine the primary liner. Another tear was discovered and repairs were made August 29, 2011. Following repairs, water was returned to the pond.

On November 4, 2011 water was again discovered in the East Evaporation Pond Sump. Verbal notification was made to the Wyoming Department of Environmental Quality, Land Quality Division and the Nuclear Regulatory Commission on November 7, 2011.

Samples were collected from the sump on November 4, 2011 and analyzed for chloride, specific conductance, uranium and bicarbonate. Results are provided in the table below along with the results of the samples taken in June and August. No samples have been obtained since the November 4, 2011 leak was discovered due to the sump remaining dry.

Weekly Sample Results

Sample Date	Chloride (mg/L)	Conductivity (mS/cm)
06/15/2011	257	3194
06/20/2011	413	3645
08/15/2011	464	3647
08/16/2011	435	3924
11/04/2011	407	3869

Monthly Sample Results

Sample Date	Chloride (mg/L)	Conductivity (mS/cm)	Bicarbonate (mg/L)	Uranium (mg/L)	Sulfate (ppm)
06/20/2011	413	3645	925	248	905
08/16/2011	435	3924	811	158	947
11/04/2011	407	3869	650	179	Not analyzed

The pond level is currently being lowered to again, reexamine the primary liner. At this time no tear has been exposed. However, a tear was discovered at a level higher than the water level. This tear is scheduled for repair the week of December 5th, 2011. Additionally, Cameco has concluded that there is a possibility the sump could be collecting runoff water and considering that a tear in the liner may not be the cause of water in the sump. Cameco has inspected the top of the liner on the roadway side of the pond embankment and visible voids were found. Cameco will repair the roadway and slope the road away from the pond to ensure that runoff is not the cause of water in the sump. These repairs are scheduled for the week of December 5th, 2011.

Routine monitoring will be conducted and a monthly report will continue to be submitted until the basis for the water found in the sump is determined and successful abated. Please contact Ken Garoutte at (307) 358-6541 ext. 476 if you have questions.

Sincerely,



Brent Berg
General Manager

BB/vg

cc: File SR 4.3.3.1 File SR 4.3.3.4
Mr. Doug Mandeville – NRC (2 Copies) Certified Mail # 7011 0470 0000 7716 0546
Document Control Desk, NRC Certified Mail # 7011 0470 0000 7716 0553

ec: CR-Cheyenne

From: Victoria Gitthens [Victoria_Gitthens@cameco.com]
Sent: Tuesday, December 06, 2011 2:41 PM
To: Mandeville, Douglas
Cc: Kenneth Garoutte; John McCarthy; Brent Berg; Dave Moody; Michael Bryson; Karen Siebken; Stephen Shire; Beverly Johnson; Arlene Faunce
Subject: FW: Fluid Release at HH 9-3, Mine Unit 9 on 12-6-11

Doug,

This email is to provide confirmation that you were contacted this day at ~12:30 pm regarding a fluid release in Mine Unit 9, HH9-3. Wellfield Operator discovered fluid release at HH9-3 at approximately 5:40 am on December 6, 2011. Approximately 1779 gallons of fluid was released from what is believed to be a frozen low flow meter run. A gamma survey will be conducted over the release area and soil samples collected. An investigation to the cause will be conducted. Pam Rothwell of the DEQ-LQD has also been contacted as well as Joe Hunter of DEQ-WQD.

Thank you,
Vickie

Victoria Gitthens
SHEQ Coordinator
Cameco Resources
Smith Ranch-Highland Operation
P.O. Box 1210
Glenrock, Wyoming 82637

Office: 307-358-6541 (ext. 462)
E-mail: Victoria_Gitthens@cameco.com

This e-mail and any files transmitted with it are personal and confidential, and are intended solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this e-mail and any files transmitted with it (without making any copies) and contact Cameco Resources at once at (Local Office Number).

This email and any files transmitted with it are personal and confidential, and are solely for the use of the individual or entity addressed. Therefore, if you are not the intended recipient, please delete this email and any files transmitted with it (without making any copies) and advise the author immediately.



December 8, 2011

Mr. Lowell Spackman, District 1 Supervisor
Land Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

CAMECO RESOURCES

Smith Ranch-Highland
Operation

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82637 USA

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Fax: (307) 358-4533

www.cameco.com

CERTIFIED MAIL #7011 0470 0000 7716 0560 RETURN RECEIPT REQUESTED

RE: Release of Solutions Report, Cameco Resources, Smith Ranch Highland Uranium
Project, Permit 633

Dear Mr. Spackman:

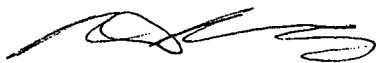
In accordance with WDEQ regulation and the NRC License SUA 1548, Power Resources, Inc. d/b/a Cameco Resources (Cameco) is herein providing written notification of a release of solution that occurred at Smith Ranch Highland Uranium Project in Converse County, Wyoming on December 6, 2011. Verbal notifications were made to Pam Rothwell of Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD), Mr. Doug Mandeville of the Nuclear Regulatory Commission (NRC), and with Joe Hunter of WDEQ-Water Quality Division (WDEQ-WQD) via Connie Osborne (WDEQ-WQD) at approximately 12:30 pm on December 6, 2011. The WDEQ-WQD Incident Number is #1112061245.

At approximately 5:40 am on December 6, 2011, an estimated 1779 gallons of injection fluid was released from Header House 9-3 in Mine Unit 9. Low flow through the 9I-093 meter run, located at the rear of the header house, caused the meter run to freeze and break. The main trunk line valve was shut off eliminating flow through the meter run. The meter run has been replaced and is back in operation.

The release is located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 8, T-35N, R-74W of Converse County, Wyoming. A field map is attached. The release will be updated into the site base map for inclusion in the Annual Report. A solution sample was collected and resulting analysis indicated 0.7 ppm U₃O₈. A gamma survey of the release area will be conducted using a MicroR meter. In accordance with NRC guidelines and Cameco's SOP on spills, soil samples (0-2 and 0-6 inches) will be collected and sent to Energy Labs for analysis. Once results are received Cameco will provide the WDEQ-LQD with an update that will include a map depicting the locations the samples were taken and a Remediation Plan if analysis is over decommissioning standard.

Please contact Ken Garoutte at 307-358-6541, ext 476 or Kenneth_Garoutte@cameco.com if you have questions.

Respectfully,



Brent Berg
General Manager

BB/vg

Attachments: Map

cc: File SR4.3.3.1
Mr. Doug Mandeville, NRC (2 copies) Certified Mail #7011 0470 0000 7716 0577
Document Control Desk, NRC Certified Mail #7011 0470 0000 7716 0584
Mr. Joe Hunter, WDEQ Water Quality Certified Mail #7011 0470 0000 7716 0591

ec: Cameco Resources-Cheyenne