



CAMECO RESOURCES
Corporate Office
2020 Carey Avenue
Suite 600
Cheyenne, WY
82001 USA

Tel: (307) 316-7600
Fax: (307) 635-9949
www.cameco.com

February 1, 2012

**Mr. Larry Camper, Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Two White Flint North, Mailstop T8 F5
Rockville, MD 20852-2738**

**RE: Request for License Renewal of NRC License SUA-1548; Submittal of License
Renewal Application in Response to Acceptance Review Comments**

Dear Mr. Camper:

On August 12, 2010, Power Resources, Inc. d/b/a Cameco Resources (Cameco) submitted a request to renew NRC License SUA-1548 (SUA-1548), including a license renewal application (LRA) and Form 313, to NRC for its consideration. By letter dated February 4, 2011, NRC Staff provided Cameco with its acceptance review comments. Based on these comments and additional discussion between NRC and Cameco in public meetings dated March 17, 2011 and September 19-20, 2011, Cameco has revised the LRA in its entirety and is submitting it for review and approval. It is Cameco's intent that this LRA supersede its August 12, 2010 submission. Consistent with the last renewal, Cameco requests that the LRA be approved as a Performance Based License for an additional 10-year period.

Approval of this LRA will authorize Cameco to continue in-situ leach uranium recovery (ISR) operations at the Smith Ranch site and its related remote satellite facilities for an additional ten (10) year period beginning August 12, 2010. The ORC/SERP process will be used to evaluate plans for the North Butte remote satellite plant and design specifications for the proposed surge ponds. Cameco is also requesting approval of the following items that are either new or have been changed since the last renewal:

1. Yellowcake slurry production and the use of deep disposal wells at the Gas Hills Remote Satellite.
2. Designs and specifications for the evaporation ponds at the Gas Hills Remote Satellite.
3. Flow rate increases at the Reynolds Ranch, North Butte and Gas Hills satellites.
4. Processing and receiving of toll shipments of loaded IX resin and slurried source material at the Highland CPF.

Operating Plans for North Butte and Gas Hills

License Condition 10.2.1 of SUA-1548 requires: "Before engaging in any commercial insitu leach activities not previously assessed by the NRC, the licensee shall prepare a new operating plan in accordance with the guidance in NUREG-1569 (June 2003), for NRC review and approval, and shall prepare and record an environmental evaluation on such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment." The North Butte Operating Plan is contained within the LRA and is described along with the operating envelope for North Butte that has previously been assessed by NRC in Section 1 of the Technical Report.

License Condition 10.3.2 of SUA-1548 requires that prior to the onset of commercial in situ leach activities at the Gas Hills Remote Satellite, Cameco must prepare a new operations plan in accordance with the guidance in NUREG-1569 for NRC review and approval. This requirement differs from the requirement for North Butte and Ruth in that it does not limit the submittal to "those activities not previously assessed by the NRC". A description of the Gas Hills Operating Plan included in this LRA is also provided in Section 1 of the Technical Report. Cameco requests approval for the Gas Hills Operations Plan with this renewal. The Environmental Report contains the environmental evaluation for all operating plans associated with SUA-1548.

Since Cameco is not actively developing the Ruth Remote Satellite at this time and available data for Ruth are limited, Cameco will defer submittal of an operating plan and updated environmental evaluation for Ruth. When a firm schedule is known, Cameco will satisfy the outstanding requirement for the Ruth Remote Satellite in License Condition 10.2.1.

Items to be Submitted

It should be noted that Cameco is continuing to collect and assemble certain data associated with this renewal. These data include baseline site meteorological data (Gas Hills and Smith Ranch), baseline site air particulate data (North Butte, Gas Hills, and Reynolds), and radiological dose data (Smith Ranch). In addition, Cameco is completing its cumulative hydrologic impact analysis report for the Gas Hills remote satellite.

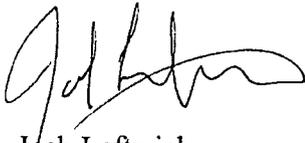
Cameco has undertaken a sampling program to evaluate a variety of radiation protection issues raised by NRC with respect to other ISR facilities. The SUA-1548 sampling plan will last for one year after which it will be evaluated in coordination with NRC to determine whether additional sampling is required or if the program can be discontinued.

Content of this Submittal

A new NRC Form 313 is provided in Attachment 1 to this letter. Attachment 2 provides specific responses to the NRC's written comments provided in February 2011. Attachment 3 provides an Affidavit to Withhold Cultural Resource Information from Public Disclosure. Attachment 4 provides two hard copies of the LRA and Attachment 5 provides an electronic copy of the LRA.

If you have any questions regarding this LRA, please contact me at 307.316.7588 or email Josh_Leftwich@cameco.com.

Sincerely,
CAMECO RESOURCES



Josh Leftwich
Director- Safety, Health, Environment & Quality

Attachments:

- 1) NRC Form 313
- 2) Responses to NRC written comments provided in February 2011
- 3) Affidavit to Withhold Cultural Resource Information from Public Disclosure
- 4) Two hard copies of the LRA
- 5) Electronic copy of the LRA.

cc: Document Control Desk, NRC
File NRC
Cameco-Cheyenne

APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

OFFICE OF FEDERAL & STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS
 DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS
 U.S. NUCLEAR REGULATORY COMMISSION
 WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
 DIVISION OF NUCLEAR MATERIALS SAFETY
 U.S. NUCLEAR REGULATORY COMMISSION, REGION I
 475 ALLENDALE ROAD
 KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
 U.S. NUCLEAR REGULATORY COMMISSION, REGION III
 2443 WARRENVILLE ROAD, SUITE 210
 LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
 U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
 612 E. LAMAR BOULEVARD, SUITE 400
 ARLINGTON, TX 76011-4125

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER _____
- C. RENEWAL OF LICENSE NUMBER SUA-1548

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

Power Resources Inc. dba Cameco Resources
2020 Carey Avenue, Suite 600
Cheyenne, WY 82001

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Power Resources Inc. dba Cameco Resources
Smith Ranch-Highland Operation
762 Ross Road
Douglas, WY 82633

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Josh Leftwich

TELEPHONE NUMBER

(307) 316-7588

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY **2.A.(2)** AMOUNT ENCLOSED \$ **0.00**

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE

Paul Goranson, President

SIGNATURE



DATE

1/27/12

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

**APPLICATION FOR RENEWAL
SOURCE MATERIAL LICENSE SUA-1548
Responses to Items 5 through 11, NRC Form 313**

Licensee: Power Resources, Inc. dba Cameco Resources
2020 Carey Avenue, Suite 600
Cheyenne, Wyoming 82001

5. RADIOACTIVE MATERIAL

a) Element and Mass Number:

Uranium (natural uranium, or U^{nat} ; a mixture of U^{238} , U^{234} , and U^{235})
Byproduct material as defined in 10 CFR 40.4

b) Chemical and/or physical form

Chemical form is U_3O_8 ; uranium product is termed yellowcake and exists as a solution (0 to 50 grams/liter), a slurry (1% to 50% U), or dried product (50% to 80% U).

c) Maximum amount which will be possessed at any one time:

Power Resource, Inc. requests unlimited possession amount.

6. PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED:

The licensed material will be used as fuel for the generation of electricity by nuclear power plants.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE:

This information is provided in detail in the Nuclear Regulatory Commission Source Material License No. SUA-1548 Renewal for Cameo Resources Smith Ranch Project Technical Report, Section 5.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS:

This information is provided in detail in Section 5 of the Technical Report.

9. FACILITIES AND EQUIPMENT:

This information is provided in detail in Section 3 of the Technical Report.

10. RADIATION SAFETY PROGRAM:

This information is provided in detail in Section 5 of the Technical Report.

11. WASTE MANAGEMENT:

This information is provided in detail in Section 4 of the Technical Report.

RESPONSE TO NRC COMMENTS

DATED FEBRUARY 4, 2010

Safety Review

NRC Comment No. 1: Groundwater Restoration Standards – In several places within the license renewal application (LRA), Power Resources, Inc. (PRI) stated that the goal of the groundwater restoration is to return the groundwater quality of the recovery zone at SR-HUP to the standard of baseline water quality on a mine unit average, using Best Practicable Technology (BPT). If baseline cannot be achieved, PRI has stated it will achieve pre-injection class of use based on Wyoming Department of Environmental Quality (WDEQ) standards. Although staff recognizes that this is the current restoration standard in condition 10.1.9 of license SUA-1548, as discussed in U.S. Nuclear Regulatory Commission (NRC) Regulatory Issue Summary 09-05, dated April 29, 2009 (ADAMS Accession Number ML083510622), NRC regulations require that the groundwater quality be returned to the standards identified in Criterion 5B(5) of 10 CFR

Part 40, Appendix A. Those standards are background, the values in the table in Criterion 5C of 10 CFR Part 40, Appendix A, or an alternate concentration limit (ACL) established by NRC in accordance with Criterion 5B(6). The proposal to restore groundwater to its pre-injection class of use is not consistent with the requirements of Criterion 5B (5). This issue was previously raised by the staff in a request for additional information (RAI) on proposed revisions to Chapter 6 of the application dated November 25, 2009 (ADAMS Accession Number ML093230136); however, in its response to this RAI, PRI rescinded the proposed revisions (ADAMS Accession Number ML100820230). Note that in a letter to NMA dated May 11, 2010 (ADAMS Accession Number ML101330387), the staff reiterated its position on the applicability of Criterion 5B(5) to ISR facilities. The NRC staff requests that PRI correct this inconsistency in its supplemented LRA.

Cameco Response: The LRA submission presents corrected language in the TR, Section 6.1.1, "Aquifer Exemption and Restoration Goals", regarding the restoration goal to meet the requirements in Criterion 5B(5) of 10 CFR Part 40, Appendix A. Section 6.1.1 states, "*The approved primary groundwater restoration goal for SUA-1548 is to return the groundwater quality within the affected zone to the standards identified in 10 CFR 40, Appendix A, Criterion 5B(5), which is consistent with pre-operational baseline water quality conditions. Specifically, the groundwater is to be restored to the values provided in the table in 10 CFR Part 40, Appendix A, Criterion 5C. However, if after employing BPT in an effort to achieve pre-operational baseline, the restoration efforts do not achieve baseline conditions, Cameco may propose ACLs in accordance with 10 CFR Part 40, Appendix A, Criterion 5B(6)....*".

NRC Comment No. 2: Compliance with NRC's Timely Decommissioning Requirements – On July 7, 2008, the NRC staff issued a letter related to compliance with the timely decommissioning requirements in 10 CFR 40.42 (ADAMS Accession Number ML081480293). In the LRA, PRI incorporated its production, restoration, and decommissioning schedule from the 2004 Reynolds Ranch submittal (ADAMS Accession Number ML050390095) by reference. This schedule does not appear to be current as it indicates that activities at Mine Units C and D were scheduled to be complete by 2009; however, restoration activities appear to be in progress at these mine units. Additionally, the

schedule incorporated by reference does not appear to include adequate justification for an alternate decommissioning schedule under 10 CFR 40.42. The staff requests that PRI supplement its LRA to address the timely decommissioning requirements.

Cameco Response: Section 6.1 of the TR presents a strong commitment to performing timely decommissioning, including ground water restoration, at SUA-1548 in accordance with 10 CFR 40.42. The schedule previously incorporated from the 2004 Reynolds Ranch submittal has been replaced with updated schedules for Smith Ranch and the remote satellite facilities. Section 6.1.3 of the TR focuses on restoration schedules developed in consideration of geologic, hydrologic and technical constraints. As such, Cameco is requesting approval of the schedules provided in Section 6.1.3 as an alternate restoration schedule for SUA-1548.

NRC Comment No. 3: SERP Approvals – The staff notes that the LRA does provide a summary of the SERP approvals that have occurred during the renewal period. However, when changes have been made through the SERP, it is not always clear if or where the text in the application has been changed (if a change is necessary) to reflect the SERP decision.

Cameco Response: Please refer to Section 1.10.9 of the TR, which indicates that any SERP resulting in a revision to the application text has been incorporated into this LRA. Additionally, Table 1-2 of the TR reflects when changes approved by SERP also resulted in a change to the approved license application document.

NRC Comment No. 4: Effectiveness of Production and Restoration Methods – In reviewing Figure 3-13 from the 2004 Reynolds Ranch submittal, which has been incorporated by reference, the staff observes that in many cases the actual production and restoration timeframes are longer than initial assumptions. For example, Figure 3-13 indicates that production activities in Mine Unit 2 would be complete in 2008; however, production activities continue in this mine unit. A similar example is Mine Unit 1, which has been in groundwater restoration since 2006 (approximately 4 years), but Figure 3-13 indicates that restoration activities would take approximately 2 years. The staff recognizes that geologic conditions present at ISR facilities may result in some variation from the expected timeframes. In addition, the staff recognizes that changing economic conditions may allow for profitable recovery of uranium at lower concentrations. However, the staff was not able to locate any discussion related to enhancements or improvements to production and restoration. Given PRI's performance and experience related to ground water restoration at SR-HUP, further discussion of restoration activities is warranted in the LRA. Items that could be addressed include: the number of pore volumes required to achieve the restoration target values; changes to restoration techniques, such as elimination of ground water sweep or use of reductants; a defensible estimate of the amount of time required to restore ground water in a mine unit based on positive experiences at SR-HUP; limiting factors to progress on ground water restoration (i.e., disposal capacity, availability of reverse osmosis units; or presence of previously unknown geologic conditions. The staff is concerned that the pace of ground water restoration activities at the facility has not progressed at the same rate as production.

Cameco Response: Updated project schedules and water balances are presented in Section 3.9 of the TR which includes a commitment for concurrent restoration. Additionally,

Sections 6.1.1 through 6.1.9 of the TR encompass the restoration items addressed in this RAI. Sections 6.1.1 through 6.1.8 discuss restoration criteria and RTVs, restoration schedules, methodology, monitoring, a review of the restoration status and history of wellfields. Section 6.1.9 presents a proposed restoration program to enhance restoration efficiency going forward utilizing “lessons learned” from the last 10 years of restoration at SUA-1548.

NRC Comment No. 5: Financial Assurance – The LRA does not appear to contain a discussion of how the financial assurance requirements in License Condition 9.5 are met.

Cameco Response: Section 6.5 of the TR provides a detailed discussion of financial surety requirements and instruments in accordance with the requirements of 10 CFR 40, Appendix A, Criterion 9 and License Condition 9.5 of SUA-1548.

NRC Comment No. 6: Advances to Leak Detection Monitoring – Table A-8.1-1 of the LRA provides an acceptable summary of spills and leaks that have occurred at the main SR-HUP facility since the last renewal application was approved. The LRA also briefly describes a series of 13 corrective actions that have been taken at the facility to improve PRI’s ability to detect spills and leaks. The staff recognizes that these corrective actions represent significant improvements and modifications for PRI. However, the LRA provides little discussion related to the effectiveness of these corrective actions. Given the history of spills and leaks at the facility, a more thorough discussion on the effectiveness of the corrective actions is warranted. The LRA also reports the percentage of spills and leaks that were attributed to mechanical or human errors. It is not clear to the staff how that percentage was derived.

Cameco Response: Section 3.10.1 of the TR provides an impact evaluation of historical spills and releases during the last renewal period. Table 3-16 of the TR provides a summary of these spills and releases. Based on the total number of spills that occurred during the renewal period, the percentage of spills and leaks attributed to mechanical or human error was calculated as described in Section 3.10.1.1. The overall reduction in the number and magnitude of spills/releases during the renewal period has been attributed to the effectiveness of the best management practices and corrective actions put in place during the period, as discussed in Section 3.10.1.3. Best management practices and an active Spill Committee review of spills having occurred at Smith Ranch have resulted in engineered leak detection upgrades to existing systems. These upgrades, in conjunction with revised or new operational procedures including detection and response to leaks and spills (e.g., soil cleanup, monitoring of treated waste water, and surveys of potentially impacted soils) help limit the magnitude of overall impacts from these spills.

NRC Comment No. 7: Purge Storage Reservoir 2 and Land Application System – The use of purge storage reservoir 2 (PSR2) was authorized by the NRC in a license amendment dated June 10, 1994 (see ADAMS Accession Number ML100130032). The staff’s technical evaluation report for this license amendment considered use of these features until 2002. The staff understands that these features are still in use; however, the LRA does not appear to discuss safety or environmental issues related to continued operation of these features. Specifically, the staff is concerned about the observed increasing uranium concentrations in shallow soils within the land application area.

Cameco Response: Cameco has evaluated the increases in uranium concentrations within soils under irrigation at PSR/Irrigator 2. A summary of the study results are provided in Section 5.10.4.1 of the TR. The full report is provided in Appendix J, of the TR.

NRC Comment No. 8: Updates to Conceptual Understanding of Site Geology and Hydrogeology – The staff observes that since the last renewal application was approved in 2001, the licensee has performed additional regional scale hydrogeology tests in the southwest area, developed new mine units within the SR-HUP footprint, and performed testing on cores obtained within the ore zone to support the use of increased bicarbonate levels in the lixiviant. The staff does not intend to review geology of the site as that has been previously reviewed and found to be acceptable. However, the staff notes that the data acquired from those activities were not clearly integrated into the conceptual model of the geology. For example, information obtained from drilling of boreholes in new mine units could be used to update PRI's understanding of the presence of aquitards between the surface and the uppermost aquifer.

Cameco Response: An analysis of borehole logs and geologic data obtained during the past 10 years at Smith Ranch has been evaluated and is discussed in Section 3.3.2.1.3 of the ER. This data has provided a better understanding of the continuity and thickness of the ore sands and confining units on a local mine unit by mine unit basis. The analysis did not identify any information that would change any of the geological conclusions made during past NRC reviews.

NRC Comment No. 9: Baseline Data from New Mine Units – The LRA does not appear to provide a summary of baseline data or upper control limits (UCLs) for new mine units that have been opened since the last renewal. The staff recognizes that these values have already been approved through the SERP process; however, including this data in the LRA provides a complete and accurate record that can be used for reference in future licensing actions. Situations where a UCL was modified should also be identified.

Cameco Response: Based on a request from NRC Staff at the pre-submittal audit, Cameco has provided an electronic copy of all hydrologic data packages for mine units put into production during the last renewal period under separate cover to be used by NRC Staff as background information. Sections 3.4 and 5.10.5.3 of the TR state that future data packages will be provided to NRC for review as they are developed.

NRC Comment No. 10: Water Balance – The staff observes that the number of operating mine units has increased significantly since the last renewal and that PRI has expanded its liquid byproduct material disposal capacity by adding deep disposal wells. However, the LRA does not appear to provide a discussion of the water balance of the current facility that would allow the staff to evaluate the liquid byproduct material disposal needs.

Cameco Response: The production schedules and related water balances and project schedules for Smith Ranch and the remote satellites have been revised based on actual disposal capacity (when available) and production/restoration schedules and are provided in section 3.9 of the TR.

NRC Comment No.11: Mine Units – The LRA did not include maps or drawings for all

mine units. Detailed maps were included for mine units which had one or more excursion (MU-B, MU-C, MUD, MU-D extension, MU-H, MU-I, MU-4 and MU-4a). However, detailed maps were not included for mine units MU-E, MU-F, MU-J, MU-K, MU-1, MU-2, MU-3, MU-8 MU-15 and MU-15a.

Cameco Response: Figures 1.3 through 1.9 of the TR show the location of all mine units at Smith Ranch.

NRC Comment No. 12: Mine Unit B Restoration Report – The LRA application indicates that the Mine Unit B ground water restoration completion report is currently undergoing the approval process with the NRC. As described in a letter dated September 29, 2009, the staff identified several issues during its acceptance review and did not accept the document for detailed technical review (ADAMS Accession Number ML092680122). As a result, there is no current action related to Mine Unit B before the staff.

Cameco Response: Section 6.1.8.2 of the TR describes the restoration activities at Mine Unit B. The section discusses that NRC rejected the initial request for restoration approval of Mine Unit B. This section also states that Cameco intends to submit an ACL application in accordance with 10 CFR Part 40, Appendix A, Criterion 5 (C) to NRC Staff during the first quarter of 2012 for their review and approval.

NRC Comment No. 13: February 27, 2010 SERP – The LRA makes several references to a SERP decision approved on February 27, 2010. However, this SERP is not identified in Table A-2.2-1 of the LRA. If the SERP is relevant to the LRA, it should be included in the submittal.

Cameco Response: All SERPS completed during the last renewal period have been discussed in Section 1.10.9 and Table 1-2 of the TR .

NRC Comment No. 14: Reports Related to Reduction of Worker Exposures – The staff notes that PRI has referenced several reports that contain information about how spills were addressed and steps that have been taken to reduce worker exposures. Examples of these reports include: 2007 ALARA Audit, 2008 ALARA Audit, Worley Parsons Komex report on the assessment of the 2007 spill. These reports also do not appear to be available in PRI's docket file in ADAMS (docket 40-8964). Therefore, these should either be included in the supplemented LRA, or provided to the staff under separate cover.

Cameco Response: ALARA improvements to reduce worker exposures to radioactive materials established during the last renewal period are discussed in Section 5.3.2.1 of the TR. The ALARA reports are available on site and made available to NRC Staff during routine inspections. Section 3.9.1 and Table 3-16 of the TR provide a history of spills and releases during the last renewal period, corrective actions implemented as a result of the incidents and an evaluation of potential impacts from the spills and releases.

NRC Comment No. 15: Environmental Monitoring Program – In Appendix A-8.4 of the

LRA, PRI states that, “[t]he monitoring program at the SR-HUP is effective in monitoring potential airborne effluent releases and gamma exposure rates resulting from site activities and is consistent with the recommendations contained in NRC Regulatory Guide 4.14, Revision 1, ‘Radiological Effluent and Environmental Monitoring at Uranium Mills.’” The staff notes that PRI does collect environmental monitoring data from five sampling locations around SR-HUP and one near Reynolds Ranch, which is consistent with the recommendation of collecting data from at least three locations. However, it does not appear that PRI has evaluated the current number and location of the environmental monitoring stations for consistency with Regulatory Guide 4.14. For example, it is not clear that environmental monitoring location AS-1 remains a valid upwind location given its proximity to satellite SR-2. Additionally, the staff is not aware of monitoring of effluents from the dryer system at SR-HUP.

Cameco Response: Smith Ranch air particulate sampling locations are described in Section 5.10.1.1 of the TR. The section contains a description of the relevance of each sampling location to the site. The intent of re-activating two of the air sampling locations pending operations at the CPF is also described. The location of AS-1 as a background location given its proximity to satellite SR-2 remains valid as the location is also upwind of the satellite. Furthermore, the location of AS-1 has been evaluated and as described in Section 5.10.1.1 of the TR, it will be replaced by the additional air monitoring station to be installed at the Reynolds Ranch satellite. Air particulate sampling is conducted monthly in the dryer area as discussed in Section 4.1.2 of the TR.

NRC Comment No.15: Presence of Radium-226 at SR-HUP – The staff observes that radiological characterization of the process facilities may not be adequate and does not preclude a contamination issue for radium-226 which may be a contaminant of concern based on process knowledge. The 1999 renewal application clearly indicated that radium-226 removal circuits were planned. PRI apparently has not made radiological characterization measurements to demonstrate radium-226 contamination control is adequate and does not address radium-226 in contamination surveys, air sampling results (DAC) or in contamination limits.

Cameco Response: Cameco acknowledges the concerns of the NRC staff and has therefore developed a sampling plan to address radiological characterization issues, which is presented in Section 5.8 of the TR.

NRC Comment No. 16: Worker Dose Calculations from Internal Exposures – The staff observes that the 1999 renewal application does not provide adequate details on worker dose calculations from internal exposures.

Cameco Response: Section 5.8.3 of the TR provides a discussion of internal and external exposure calculations and the historical results of these programs during the last renewal period.

Environmental Review

The staff understands that since the last renewal was completed in 2001, the previously separate Highland and Smith Ranch licenses have been combined into one license and the Ruth, North Butte, Gas Hills, and Reynolds Ranch satellites have been added as license amendments. PRI has adequately outlined the history of the Smith Ranch license in Figure 2

of the LRA. The staff observes that this submittal is the first LRA for the combined Smith Ranch facility that includes all of these facilities in one license. In performing its environmental review for the renewal, the staff follows the guidance presented in NUREG-1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs." This document outlines several resource areas that should be addressed in submittals to the staff, including a LRA. The staff notes that several resource areas do not appear to be addressed. Note that in some instances, the original environmental review may have addressed the resource area, but the LRA did not appear to provide updated information that would allow the staff to perform a review. In other instances, the previous environmental review may not have addressed a specific resource area. It is possible that these were present in the LRA, but the staff was unable to locate the specific sections of the text that address these items. The list below summarizes the results of the staff's environmental acceptance review.

NRC Comment No. 17: Historic and Cultural Resources – The staff notes that the LRA does not appear to discuss historic and cultural resources in the vicinity of the licensed operations. The staff recognizes that PRI has performed Cultural Resource Surveys for various portions of the site and that these surveys were considered in previous NRC licensing reviews. However, the North Butte satellite facility is near the Pumpkin Buttes, which have been designated a Traditional Cultural Property. The LRA should address this issue.

Cameco Response: As part of this LRA submittal, Cameco has developed an ER following the guidance provided in NUREG-1748. Section 3.8 of the ER describes historical and cultural resources of Smith Ranch and the North Butte, Gas Hills and Ruth remote satellites. Section 2.3.4 of the TR and Section 5.8 of the ER describe Cameco's proposed Section 106 investigation plan for the North Butte Remote Satellite. Section 5.8 of the ER also describes the programmatic agreement that is in place at the Gas Hills Remote Satellite. Section 4.8 of the ER describes potential impacts to historic and cultural resources from past, current and future SUA-1548 ISR operations and the considered alternatives.

NRC Comment No. 18: Cumulative Drawdown – The LRA does not appear to provide an estimate of cumulative drawdown of groundwater resulting from operation and restoration of the facility. The staff observes that the operational footprint (i.e., number of mine units in operation) has increased since the 1999 license renewal application and that the cumulative drawdown resulting from site operations may be different. The staff would review this information to assess the impacts to water resources.

Cameco Response: Cameco has, through a contract with Aqui-Ver Inc., assessed potential cumulative hydrologic impacts for Smith Ranch and the remote satellites which are summarized in Sections 4.4.1.2.1 (Smith Ranch) and 4.4.1.2.2 (remote satellites) of the ER. The cumulative hydrologic impact analysis (CHIA) reports for Smith Ranch and the North Butte Remote Satellite are included in Appendix E of the ER. The Gas Hills Remote Satellite CHIA report is not yet available from the contractor and will be submitted under separate cover as supplemental information to this LRA when it becomes available.

NRC Comment No. 19: Groundwater Consumptive Use – The LRA does not appear to discuss groundwater consumptive use at the facility. As discussed above, the staff observes that the operational footprint (i.e., number of mine units in operation) has increased since the 1999 license renewal application and that the groundwater consumptive use from

site operations may be different. The staff would review this information to assess the impacts to water resources.

Cameco Response: Section 4.4 of the ER describes potential impacts on water resources from past, present and future SUA-1548 ISR operations and the considered alternatives. Specifically, Section 4.4.1.2 addresses groundwater consumptive use at Smith Ranch and the remote satellites.

NRC Comment No. 20: Environmental Justice – The LRA does not appear to address Environmental Justice.

Cameco Response: Information related to minority or low-income populations is contained in Section 3.10 of the ER. Potential Environmental Justice impacts due to the past, current and future SUA-1548 ISR operations as well as the considered alternatives are addressed in Section 4.11 of the ER.

NRC Comment No. 21: Land Use –The staff is aware of changes to land use near the licensed operations. Examples include: on-going construction of a wind farm near the SR-2 satellite; potential oil and natural gas development in the Niobrara Shale; possible future uranium ISR facilities near SR-HUP and coal bed methane (CBM) operations further north in the Powder River Basin near the North Butte and Ruth satellites. These changes may have been mentioned in a sentence or two within the renewal application; however, the full size or scope of these activities and how they may impact the licensed operation does not appear to be discussed in the application.

Cameco Response: Section 2.0 of the TR, specifically sections 2.2.2, 2.3.2, 2.4.2, and 2.5.2 provides a summary of the land uses by license area. Sections 2.2.1.5 and 2.2.2.4 of the ER discusses alternative land uses within the Powder River and Wind River basins where the SUA-1548 sites are located. Section 3.1 of the ER provides a comprehensive analysis of land use including local and regional land use, managed lands, and regional energy development. Additional sections within the ER describe land use by license area in consideration of other energy development. Section 4.1 of the ER discusses potential land use impacts of past, current and future SUA-1548 ISR operations and the considered alternatives.

NRC Comment No. 22: Air Quality – The LRA does not appear to provide an analysis of air quality impacts from operations. The LRA should provide a discussion or an estimate of the air quality impacts from both drilling operations and vehicle traffic around the site. This information will allow the staff to be able to evaluate direct impacts from SR-HUP as well as cumulative impacts in the region.

Cameco Response: Several sections within the LRA discuss air quality. In the TR, effects of construction and operations are discussed in Sections 7.1.1 and 7.2.1 respectively. Section 3.6.6 of the ER addresses air quality in relation to standards and systems. Section 4.6 of the ER discusses the potential impacts to air quality including cumulative effects of past, present and future SUA-1548 ISR operations and the considered alternatives.

NRC Comment No. 23: Cumulative Impacts – The LRA appears to discuss cumulative impacts on each portion of the site (often stating that nothing has changed), but the staff was not able to identify a discussion of cumulative impacts that examines the entire

licensed operation or other activities in the region. The changes in land use discussed above represent examples of possible cumulative impacts that should be addressed. For example, the LRA should provide some discussion of possible drilling activities in the Niobrara shale so that the staff can evaluate the cumulative impacts to air quality from the proposed action (renewal of the license) with an understanding of other reasonably foreseeable activities in the region.

Cameco Response: Section 7.0 of the TR and Section 4.0 of the ER provide a complete evaluation of potential impacts from past, present and future SUA-1548 ISR operations and the considered alternatives. The section is divided into specific topics (e.g. land use, air quality, historical and cultural, etc.) and includes a discussion of the cumulative effects pertaining to each topic, including CBM, Niobrara Shale drilling and other ISR operations that may be operating within close proximity to SUA-1548 facilities.

CAMECO RESOURCES

AFFIDAVIT TO WITHHOLD CULTURAL RESOURCE INFORMATION FROM PUBLIC DISCLOSURE

1. Cameco Resources (Cameco) is requesting by this affidavit that the cultural resource information submitted with the NRC License SUA-1548 Renewal Application be considered confidential information under 10 CFR 2.390 and withheld from public disclosure under the National Historic Preservation Act of 1966, as amended (NHPA), Section 304 (16 U.S.C. 470w-3(a)).
2. The specific information to be withheld from public disclosure is contained in the following documents:
 - a. Smith Ranch-Highland WDEQ Permit No.633 Update, Appendix D3 and D3 addendums;
 - b. North Butte ISR WDEQ Permit No.632 Update. Appendix D3 and D3 addendums;
 - c. Gas Hills ISR WDEQ Permit No. 687 Update, Appendix D3 and D3 addendums;
 - d. Ruth ISL Project, Volume I, Section 7, Appendix D3.
3. Each page of the applicable cultural resource information described above, including cover page, has been marked as follows:

Confidential information submitted under 10 CFR 2.390; Public disclosure limited under the National Historic Preservation Act of 1966, as amended, Section 304 (16 U.S.C. 470w-3(a))

4. Name and official position of the person making the Affidavit:

Josh Leftwich, Director of SHEQ, Cameco Resources

5. Basis for proposing that the information be withheld:

In accordance with the NHPA Section 304 (16 U.S.C. 470w-3(a)), information on the nature or location of archaeological and historical sites shall not be made available to the public. Accordingly, disclosure is specifically exempted by statute as specified in 10 CFR 2.390(a)(3). The information contained in the above referenced volumes and the TR and ER have been held in confidence by Cameco. Cameco does not provide such information to public or private entities nor is it available in any public sources.

6. Statement of harm that would result if the information sought to be withheld is disclosed to the public:

Federal agency policies hold that public disclosure of information on the nature and location of archaeological and historic sites will increase the potential for trespassing, vandalism and theft resulting in the loss or destruction of potentially significant cultural and historic artifacts and illegal traffic in antiquities.

7. Cameco understands that withholding the designated cultural and historical information does not deprive any independent party from inspecting the confidential information under the terms of an appropriate protective order in the context of an NRC licensing hearing or other administrative proceeding.



Josh Leftwich
Director, SHEQ

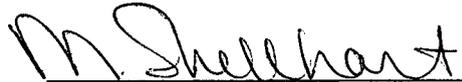
State of Wyoming)

)

County of Laramie)

The foregoing Affidavit was affirmed and acknowledged before me on this 26 day of January, 2012, by Mr. Josh Leftwich as Director of SHEQ of Cameco Resources.

Witness my hand and official seal



Notary Public

My commission expires: May 5, 2015

