

September 28, 2012

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
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Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
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SUBJECT: PUBLIC MEETING SUMMARY

On September 5, 2012, a public meeting was held with Cameco Resources, doing business as Power Resources, Inc., (PRI) at U.S. Nuclear Regulatory Commission Headquarters. The purpose of the meeting was to discuss three issues: (1) PRI's Alternate Concentration Limit (ACL) application for Mine Unit B; (2) PRI's license renewal application; and (3) compliance with the requirements of 10 CFR 40.42. A summary of the meeting is enclosed.

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

Enclosure: Meeting Summary

cc: Meeting Attendees (via email)

CONTACT: Douglas Mandeville, FSME/DWMEP
(301) 415-0724

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DISTRIBUTION:

KMcConnell BSpitzberg/RIV LGersey/RIV Meeting Attendees

ML12257A023

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DATE	9/21/2012	9/25/2012	9/28/2012

OFFICIAL RECORD COPY

MEETING REPORT

DATE: September 5, 2012

TIME: 10:00 a.m. to 12:25 p.m.

PLACE: U.S. Nuclear Regulatory Commission
Two White Flint North, Rockville, Maryland
Room T-8C5

PURPOSE: This meeting was held at the request of Cameco Resources, doing business as Power Resources, Inc., to discuss three issues: (1) PRI's Alternate Concentration Limit (ACL) application for Mine Unit B; (2) PRI's license renewal application; and (3) compliance with the requirements of 10 CFR 40.42.

AGENDA:

See Attachment 1.

ATTENDEES:

See Attendees List (Attachment 2).

BACKGROUND:

Power Resources, Inc. (PRI), doing business as Cameco Resources (Cameco), currently operates the Smith Ranch-Highland Uranium Project (SRHUP) under NRC License SUA-1548. This License authorizes Cameco to recover uranium from underground ore bodies using in-situ recovery (ISR) techniques.

Due to staff availability, the order of discussion during the meeting varied slightly from what was identified in the meeting notice. Cameco's Mine Unit B ACL application was discussed first, followed by the staff's comments on the license renewal and compliance with 10 CFR 40.42.

Mine Unit B ACL application

By letter dated June 26, 2009, Cameco submitted its Mine Unit B Groundwater Restoration Completion Report. Cameco submitted the report to meet the requirements of condition 10.1.9.b of License SUA-1548. This condition requires that Cameco submit a restoration completion report upon completion of ground water restoration activities in each mine unit. During the acceptance review, the staff identified several aspects of the restoration efforts that were not adequately described and did not accept the restoration report for detailed technical review. Since that time, Cameco has re-evaluated the ground water restoration data for Mine Unit B and has decided to pursue a request for alternate concentration limits (ACL) for Mine Unit B. This meeting was held to discuss Cameco's progress on the ACL application for Mine Unit B. Note that staff and Cameco previously held a public meeting on October 18, 2011 to discuss

Enclosure

Cameco's approach to an ACL application. A summary of the October 2011 meeting is available in ADAMS under Accession Number ML113080033.

License Renewal

By letter dated February 1, 2012, Cameco submitted a request to renew Source Material License SUA-1548 to the NRC. This license authorizes Cameco to perform uranium in-situ recovery (ISR) operations at SRHUP and its related remote satellite facilities at Gas Hills, Ruth, and North Butte. Cameco has requested that License SUA-1548 be renewed as a performance based license for an additional 10-year period. The renewal, if granted, would allow for continued operations and the recovery of uranium using ISR techniques as previously licensed by the NRC and modified as proposed by Cameco. The staff's acceptance of the license renewal request is documented in a letter dated July 5, 2012 (ADAMS Accession No. ML12159A511). The staff is proceeding with its detailed technical review of the document. This meeting included discussion of the staff's initial comments on the license renewal request.

10 CFR 40.42

By letter dated March 15, 2012, Cameco submitted a request for an exemption to the requirements of 10 CFR 40.42. The staff reviewed Cameco's request, but was not able to proceed with a detailed technical analysis as it did not fully address the requirements of 10 CFR 40.14(a). This meeting included a brief discussion of possible methods for compliance with the requirements of 10 CFR 40.42.

DISCUSSION:

NRC staff read the opening statement for the meeting and Cameco proceeded with a discussion of the Mine Unit B ACL application. Cameco's presentation is included as Attachment 3. Staff then provided initial comments on Cameco's license renewal application. The final topic discussed during the meeting was compliance with 10 CFR 40.42. One member of the public participated in the meeting; the attendance list is included in Attachment 2. Discussion topics from the meeting are presented below.

Mine Unit B ACL application

- Cameco may decide to pursue ACLs for Arsenic, Radium-226, and Uranium.
- Staff indicated that Cameco should describe the corrective actions taken to address previous excursions in Mine Unit B.
- Staff currently understands that the aquifer exemption boundary for Mine Unit B is the monitor well ring. Cameco should provide documentation that identifies the aquifer exemption boundary, if it believes the staff's understanding is incorrect.
- Staff stated it would be helpful if the ACL application included time series plots demonstrating that proposed ACL parameters are asymptotic with no identifiable increasing trends.

License Renewal

- Intent of the meeting is to provide Cameco with staff observations to date on the contents of the license renewal application.
- Staff observations discussed have not been through our review process.
- Staff observations may be formalized as a request for additional information (RAI) during the review process or they may be resolved by staff during the review.
- Staff is not expecting a response to the items identified.
- Staff is using guidance in NUREG-1569 to conduct its safety review. Appendix A of NUREG-1569 directs the staff to focus on changes proposed in the license renewal application.
- Staff is using guidance in NUREG-1748 to conduct its environmental review.
- Do look at historical aspects to verify health and safety has been protected and no unreviewed safety related concerns exist.
- The period of performance considered by the staff during the license renewal review is from the last renewal to date (i.e., essentially from 2000 on).
- Past performance is an important aspect of the review.

Groundwater Restoration Efforts

- Cameco's performance on groundwater restoration activities at SRHUP has been a concern for staff and will be a point of emphasis for the staff during the review.
- Staff's previous licensing decisions were made with the understanding that restoration could and would be performed.
- During inspections, staff has observed and documented several issues that impacted Cameco's ability to perform ground water restoration efforts at SRHUP: deep disposal well capacity; installation of replacement wells to provide adequate coverage in older mine units; and header house conditions in older mine units.
- During the August 2012 inspection, Cameco provided data showing progress in restoring alkalinity, chloride, conductivity, and uranium. Cameco's data indicated that significant progress can be made in restoring these parameters in a relatively short amount of time.

Proposed Activities

Staff understands that Cameco is requesting the following in its license renewal document:

- That the license be renewed for a 10 year period.
- That the license be performance based.
- That the ability to receive and process ion exchange (IX) resins and yellowcake slurry be approved for the Highland Central Processing Facility.
- That the flow rate at the Reynolds Ranch satellite be increased to 6,000 gallons per minute (gpm).
- That the flow rate at the Gas Hills remote satellite be increased to 18,000 gpm.
- That the Gas Hills remote satellite be approved for production to yellowcake slurry.
- That waste disposal options at the Gas Hills remote satellite include deep disposal wells and associated storage ponds.

- That the staff approve the operations plans included in the license renewal document for the Gas Hills and North Butte remote satellites.
- That the flow rate for the North Butte remote satellite be increased to 6,000 gpm.
- That waste disposal options for the North Butte remote satellite include deep disposal wells and associated storage ponds.
- That the North Butte remote satellite be approved for production through the IX stage.
- That the operations at North Butte will consist of 5 mine units.
- That Cameco does not propose any changes to the Ruth remote satellite facility.
- That the licensed yellowcake production capacity will remain at 5.5 million pounds a year.

Safety Review Items

- Staff observes that Cameco has provided additional information related to safety aspects of transportation activities in its license renewal application.
- Staff observes that Cameco has included a discussion of security of radioactive materials in restricted areas and during shipments in its license renewal application.
- Staff has not identified the portion of the license renewal application where Cameco identifies the restricted and controlled areas at the facility. Staff observes that clearly identifying these areas at the facility may provide clarity to radiation protection aspects of the operation.
- Staff observes that Cameco's operational footprint has changed significantly during the performance period and the environmental monitoring program may need to be reconsidered. Specifically, staff observes that the upwind monitoring location is relatively close to operations at the SR-2 satellite facility.
- Cameco has proposed a sampling program to address NRC issues identified during recent NRC reviews. It may be beneficial for Cameco to identify the NRC issue and how Cameco's proposed sampling plan addresses the issue.
- Staff observes that Cameco does not appear to have demonstrated a clear commitment to conduct alpha and beta contamination surveys in a manner consistent with existing NRC guidance.
- Cameco's discussion of radiation survey instrumentation does not appear to adequately address scan minimum detectable concentration (MDC) for instrument capability and sensitivity.
- Cameco has identified a combination of storage ponds and deep injection wells at the Gas Hills remote satellite. Staff observes that if a deep injection well permit cannot be obtained, Cameco may need to include additional ponds for liquid 11e.(2) byproduct material disposal.
- Staff observes that the UMETCO Gas Hills mill tailings site is in close proximity to Cameco's Gas Hills operations. The license renewal application does not appear to address incursions of contaminants from the UMETCO mill tailings A-9 repository plume into Cameco's site. Additionally, it is not clear how Cameco will address restoration of the mine units from any incursion of contaminants from the UMETCO site.
- Staff is aware of several existing and potential conventional uranium mills or heap leach facilities in the Gas Hills mining district. The location of these facilities in relation to Cameco's Gas Hills facility or discussion of potential impacts resulting from proximity does not appear to be clearly identified in the license renewal application.

- During its review to date, staff identified that Gas Hills mine unit 5 may be an unconfined aquifer. Staff is aware that recovering uranium from an unconfined aquifer can present operational challenges in: maintaining an inward gradient, capturing an excursion, maintaining oxygen in solution, prevention of dewatering the aquifer, two phase flow within the aquifer or piping and wells, calculating flare, and performing restoration.
- The most recent ground water data available in the application for the Gas Hills remote satellite is from September 2006 and October 2006. It is not clear to the staff if more recent data is available.
- Cameco has identified its baseline ground water monitoring program in Section 6.1.2 of the license renewal application. Staff observes that as it is currently structured, the program is not consistent with NRC's recommended practice of sampling all ore zone aquifer baseline wells (MP wells) and excursion monitoring wells to two samples of full suite of constituents (Table 2.7.3.1 in NUREG 1569) and the remaining two samples for all constituents (Table 2.7.3.1 in NUREG 1569) except non-detects in first two samples.
- Staff observes that using a mine unit average for baseline water quality may not result in realistic restoration target value (RTV).
- Staff observes that Cameco has several deep disposal wells completed in the Tekla/Teapot/Parkman formation at Smith Ranch and has an understanding of typically achievable disposal rates for that formation. It is not clear to the staff what the basis was for the deep disposal well injection capacity used in the North Butte remote satellite water balance.
- Staff observes that stability sampling for four consecutive quarters must show no statistically significant increasing trend to be acceptable for restoration. Available guidance on identifying statistically significant trends can be found in Chapter 17 of EPA-530-R-90-007, "Statistical Analysis of Monitoring Data at RCRA Facilities," March 2009.
- During its initial review of the water balance for Reynolds Ranch, staff observes that the dose calculations do not indicate reverse osmosis (RO) treatment of bleed.
- In Section 3.5.2.5 of the license renewal application, Cameco describes its well recompletion and well twinning techniques. As currently presented, the discussion is not clear to the staff. For example, it is not clear to the staff what the difference between well recompletion and well twinning is or how they are distinguished from each other. The discussion does not appear to address: measurement of baseline water quality; restoration for recompletion or twinning; or changes to the monitor well ring to be able to adequately detect excursions.
- Section 3.5.2.7 of the license renewal application discusses mechanical integrity tests (MIT). Staff observes that the discussion does not identify any actions that will be taken to evaluate: the nature of an MIT failure; whether any leakage has occurred to aquifers above the overlying aquifer; and if remediation is necessary.
- Staff has not been able to identify origin/nature of the wastes sent to purge storage reservoir 2 (PSR 2) during the performance period.

Environmental Review Items

- Staff observes that the environmental report is not consistent about the plans for the Ruth remote satellite. It would be helpful for Cameco to identify when operations at Ruth are planned to start.

- The license renewal application identifies various permitting reviews that are in progress with the Bureau of Land Management (BLM) and Wyoming Department of Environmental Quality (WDEQ). An update on the status of these reviews would be appreciated by the staff.
- Given the dynamic nature of ISR activities, the staff is having difficulty identifying current site conditions for the proposed action. Staff will need to have a relatively accurate understanding of current conditions at SRHUP and the remote satellite facilities to be able to evaluate continued operation of the facility.
- Staff observes that the SRHUP and North Butte MILDOS assessments both use meteorological data from distant sites. It is not clear to the staff if, or when, site specific meteorological data would be available for the staff to use in its analysis.
- The environmental report in the license renewal application does not appear to describe or demonstrate the effectiveness of various monitoring programs or changes made to the monitoring programs. One example that the staff is aware of would include changes to programs related to spills and leaks. Staff observes that support (e.g., photographs) for statements of time needed for surface reclamation and reseeding efforts (1 year assumed or 3 years based on experience) would also be helpful.
- Staff observes that Cameco has not been clear in identifying which mitigation actions will actually be performed or which are being considered. Cameco can “take credit” for those committed to as part of the proposed action and its associated impacts.
- Staff was not able to locate a cumulative ground water impact analysis for the Gas Hills remote satellite.
- Staff understands that the economic assessment of Cameco’s operations at SRHUP and associated remote satellites is based on a confidential report. While staff understands the sensitivity of certain information likely to be contained in that assessment, the staff needs to make an independent assessment of economic impacts of Cameco’s operations. It would be helpful to the staff to have a copy of the confidential report and as well, a copy of that report sufficiently redacted to be available to the general public.
- Staff observes that transportation impacts from remote satellites to the Smith Ranch CPP or Highland CPF should address three aspects: (1) impacts immediate to the remote satellite; (2) impacts to roads enroute from the satellite to the CPP/CPF; and (3) impacts immediate to the CPP / CPF. Ensure these three aspects are addressed for each satellite. The primary staff concern is to be able to quantify traffic increases resulting from construction and operations at each of the sites.
- Staff has not been able to identify a discussion of cumulative transportation impacts that also includes other potential energy development or local seasonal tourism. Cumulative transportation impacts should be as quantifiable as possible, and should address impacts associated with oil & gas exploration/production/service, CBM exploration/production/ service, local seasonal tourism as applicable.
- Staff observes that in some instances, project schedules should be reflective of actual experience (e.g., difficulties in restoration). Schedules should be updated as appropriate to give full extent of operations and related impacts over time. Schedules should be consistent throughout the application.
- Staff was able to identify and start its review of fugitive dust calculations for SRHUP and the remote satellites. It is not clear to the staff how these numbers were derived and the basis for such calculations. For example, the calculations indicate that significantly less

fugitive dust will be generated at SRHUP compared to the remote satellites. The staff assumes that this is due to the anticipated levels of construction at the remote satellites as compared to that for the SRHUP property.

10 CFR 40.42

- Staff and Cameco briefly discussed the requirements of 10 CFR 40.42.
- Cameco does not currently have an alternate schedule for ground water restoration that was approved under 10 CFR 40.42.
- It is not clear to Cameco if licensing actions related to 10 CFR 40.42 would meet the NRC's categorical exclusion criteria in 10 CFR 51.22 or if the staff would have to prepare an environmental assessment or environmental impact statement.

Action Items

One action item was identified. Based on the discussion related to 10 CFR 40.42, staff will discuss internally how licensing actions related to this regulation will be addressed in terms of an environmental review.

The meeting concluded at approximately 12:20 p.m. eastern time. There were no questions from the public.

Attachments:

1. Cameco Presentation on Mine Unit B ACL application
2. List of Attendees
3. Meeting Agenda

MEETING AGENDA
 Cameco Resources/Smith Ranch License Renewal
 September 5, 2012

MEETING PURPOSE: Meeting to Discuss Issues on Smith Ranch License Renewal

MEETING PROCESS:

<u>Time</u>	<u>Topic</u>	<u>Lead</u>
10:00 a.m.	Introductions	All
	Discussion of Safety Issues	NRC
	Summary of Environmental Issues	NRC
	Discussion of Mine Unit B ACL Application	Cameco
	Discussion of 10 CFR 40.42	All
	Public Comment/Questions	Moderator
12:00 Noon	Adjourn	

Meeting Attendees
Date: Wednesday September 5, 2012
Room T8C5
10:00 am to 12:15 pm

Topics: Mine Unit B ACL application, Smith Ranch License Renewal, 10 CFR 40.42

NAME	AFFILIATION
Doug Mandeville	U.S. NRC
Elise Striz	U.S. NRC
Bill VonTill	U.S. NRC
Jim Park	U.S. NRC
Tom Youngblood	U.S. NRC
Varughese Kurian	U.S. NRC
John Saxton	U.S. NRC
Pam Rothwell	Wyoming Department of Environmental Quality
Chris Pugsley	Thompson and Pugsley, PLLC
Josh Leftwich	Cameco
Larry Reimann	Cameco
Paul Hildenbrand	Lidstone and Associates
Dan Erskine	Intera, Inc.
Brian Partington	Pinyon Environmental