

PREDECISIONAL ENFORCEMENT CONFERENCE SUMMARY

Licensee: Cameco Resources
Facility: Power Resource Inc. – Smith Ranch Highland Site
License No: SUA-1548
Docket No: 040-08964

EA-16-262
EA-16-156

On May 4, 2017. Representative of Cameco Resources met with NRC personnel in the Region IV office located in Arlington, Texas, to discuss the apparent violations identified in Inspection Report 040-08964/2016-003. The conference was held at the request of the licensee.

The NRC presented an overview of the apparent violations the licensee presented a summary of the causes for the apparent violations and their corrective actions. While the licensee did not dispute any of the violations, the licensee did believe the violations could be combined into a smaller number of violations and that none of the violations constituted escalated enforcement.

The attendance list and the licensee's presentation are attached to the summary. It should be noted that discussions during the PEC clarified two points in the licensee's presentation on Slide 8. This clarification was related to the last two statements under the second bullet. These statements referred to the Confirmatory Action Letter response and not to the final analytical results. Reassessment of available residual sample material indicates it met LSA-II criteria (versus the LSA-I stated in the presentation) and the concentrations limits exceeded contract limits (contract between Energy Fuels and Cameco) but not regulatory requirements (This statement refers to regulatory requirements specific to the limits established by the State of Utah related to Energy Fuels license, e.g. Cameco Resources did not send a concentration above which Energy Fuels was allowed to receive under their radioactive material license). This statement **was not** referring to regulatory requirements of the U.S. Nuclear Regulatory Commission or the U.S. Department of Transportation.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this summary and its enclosures will be made available to the Public.

Attachments:

1. Attendance List
2. Licensee Submission

ATTENDANCE LIST

PREDECISIONAL ENFORCEMENT CONFERENCE

Cameco Resources/Power Resource Inc.
Smith Ranch Highland Site

May 4, 2017

Present at Meeting:

Bernadette Baca	FCDB Inspector, Region IV (RIV)
Ray Kellar	Branch Chief, Fuel Cycle & Decommissioning Branch, RIV
Mark Shaffer	Director, Nuclear Materials Safety Division, RIV
Scott Morris	Deputy Regional Administrator, RIV
Mike Thomas	Director, Safety, Health, Environment and Quality, Cameco Resources
Brent Berg	President, Cameco Resources
Tyson Smith	Outside Legal Counsel, (consultant to Cameco Resources)
Beth Frye	Health Physics Technician, Cameco Resources
Robert Evans	Senior Health Physicist, FCDB, RIV
Lee Brookhart	Former Branch Chief, FCDB, RIV
Linda Gersey	Health Physicist, FCDB, RIV
Marti Poston	FCDB Inspector, RIV
Judith Weaver	Allegations & Enforcement Specialist, RIV
Mike Hay	Team Leader, Allegations and Enforcement Staff, RIV

NRC Phone Participants:

Karla Fuller	Regional Counsel, RIV
Suzanne Woods	Office of Enforcement
Michelle Burgess	Regional Coordinator
David Brown	Sr. Health Physicist, Uranium Recovery and Licensing Branch (URLB)
Tony Huffert	Sr. Health Physicist, URLB
Bill Von Till	Branch Chief, URLB
Lloyd Desotell	Hydrologist, URLB
Doug Mandeville	Project Manager, URLB
Sophie Holiday	Nuclear Materials Safety and Safeguards (NMSS)

Public Phone Participants;

Jim Mimiaga	Cortez Journal
Pete ??	Associated Press
Ken Garoutte	Manager Safety, Health, Environment and Quality, Cameco Resources, Smith Ranch Highland
Benjamin Prier	Canadian Nuclear Safety Commission
Larry Reimann	Cameco
Phil Goble	State of Utah, Division of Waste Management & Radiation Control
Ryan Johnson	State of Utah, Division of Waste Management & Radiation Control
Scott Bakken	Sr. Director of Regulatory Affairs, Energy Fuel Resources
David Turk	Manager, Environmental Health and Safety/RSO, Energy Fuel Resources
Charles Patterson	Manager, Regulatory Affairs, Honeywell

May 4, 2017

Pre-Decisional Enforcement Conference

Cameco Resources

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Opening Remarks

- **PRI does not dispute the findings set out in the Inspection Report**
- **PRI has taken action to address the underlying issues**
 - Implemented interim corrective actions
 - Performed a comprehensive causal evaluation
 - Initiated a Class 7 transportation audit
- **PRI has completed comprehensive corrective actions to prevent recurrence**

August 2015 Incident

- **Smith Ranch-Highland (SRH) shipped barium sludge to White Mesa Mill in Utah**
 - During the delivery inspection, material observed on the outside of the container, the trailer, the entrance to the property, and on US Highway 191
 - PRI unable to inspect the package or container following delivery; no photos available
- **PRI assessment identified potential causal factors:**
 - Inadequate absorbent material or improper placement of absorbent material
 - Failure to physically inspect door seal on the container prior to use
 - Transport-induced vibration/movement increases with transport distance
- **Corrective Actions**
 - Increased dewatering time and replaced plug gel with bentonite chips
 - Revised procedure to require assessment of door seal integrity prior to loading containers
 - Investigated alternate containers/disposal facility

March 2016 Incident

- **Barium sludge shipment from SRH to White Mesa found to have leaked again**
- **PR1 completed assessment that identified potential causal factors:**
 - Inadequate shipment preparation
 - ◆ Further dewatering (e.g., add more bentonite chips during packaging)
 - ◆ Prevent additional water from entering container (e.g., cover with tarp during wash down)
 - Inappropriate container for transportation of sludge material
- **Immediate Corrective Actions**
 - Suspended further shipments
 - Initiated compliance audit of transportation program
 - Committed to further long-term and programmatic corrective actions
- **Memorialized in NRC Confirmatory Action Letter**

► **Confirmatory Action Letter**

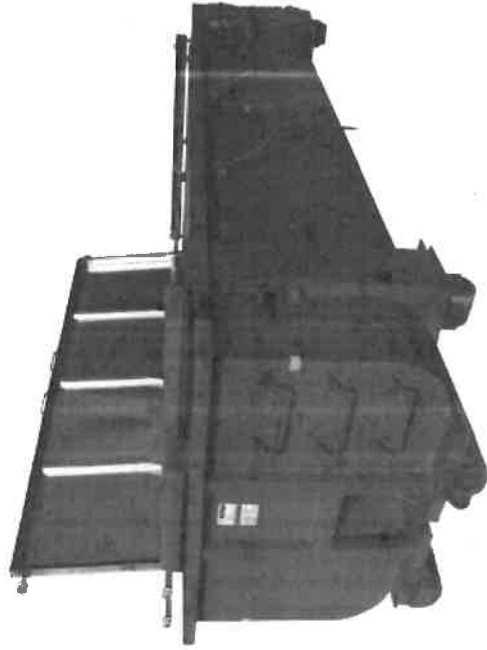
- **PRI suspended shipments of barium sulfate sludge material pending completion of:**
 - Causal analysis of inadequate packaging and transportation of barium sludge
 - Assessment of radioactive material in barium sludge shipments over past three years
 - Assessment of radioactivity concentrations and identification of any shipments that exceeded disposal facility acceptance criteria for LSA material
 - Development of a corrective action plan and schedule
 - Providing NRC a copy of independent expert's review of PRI's transportation program
- **PRI has completed last outstanding commitments in CAL**
 - Revised facility procedures and performed employee training
 - Obtained complete IP-2 certification package containing the testing specifications
- **NRC approval still needed to resume shipments**

CAL Actions (Shipping Container)

- Evaluation focused on two causes:
 - Shipment of barium sulfate sludge saturated with liquid
 - Use of a container and lid incompatible with transportation of saturated material
- Developed supplemental corrective actions:
 - WYO-SOP-097 revised to include the use of a super absorbent polymer
 - Bentonite chips or super absorbent polymer (not plug gel) used to line container door.
 - Secured ISO Intermodal Containers (IP1-rated) designed for shipping sludge material.
 - ◆ Sliding top door on rollers that slides out horizontally
 - ◆ Solid lip around the container exterior extends into the interior to prevent sloshing
 - Ordered IP2-rated Pactec containers that will be filled with barium sulfate sludge and then placed inside the IP1 container for transport

► Shipping Containers and Packaging

Aluminum Side-to-side Rolling Lid



Patented lid design

Construction

- Lid is formed of 0.080 gauge aluminum
- Fold down lid rolls and opens to either side of container

Opening and loading

- Spring-assisted 14 ft. lid for easy one-person operation
- Spring retainers hold lid open
- Vacuum pressure release eases lid opening
- Slight taper on lid surface prevents water collection



CAL Actions (Shipment Preparation)

- Reassessed radioactive material present in the barium sulfate sludge to identify any shipments in excess of acceptance criteria
- Laboratory Analysis
 - Ra concentration had been measured using EPA Method 903 or equivalent
 - Use of EPA Method 901.1 Modified (gamma spectroscopy) indicates higher Ra concentration
 - ◆ Ra predominantly in the sludge, not in free liquid
 - PRI will use gamma spectroscopy method going forward
- Compliance Assessment
 - PRI made ten barium sulfate sludge shipments during three year period
 - Reassessment of available residual sample material indicates it met LSA-I criteria
 - Exceeded *contract* concentration limits, but not *regulatory* requirements

CAL Actions (Shipping Paperwork)

- **Initiated third-party compliance audit of SRH's transportation program**
 - Audit identified two medium risk non-conformances, three areas of concern or low risk non-conformances, and one opportunity for improvement
 - Entered into corrective action program (CIRS)
- **Implemented corrective actions to address audit findings**
 - All shipping paperwork is now prepared and provided by a single point of contact
 - Sample all barium sulfate sludge using gamma spectroscopy to determine LSA-I or LSA-II
 - Ensure packages that are Class 7 and exceed 0.5 mR/hr are shipped as LSA-I or appropriate
- **Engaged independent expert to provide training to SRH HP Staff**

Corrective Actions – AVs #1-#5

- **Apparent Violations (Shipment Preparation)**
 - #1: Failure to accurately assess activity of pond sediment/barium sulfate sludge shipments
 - #2: Failure to adequately report total activity for waste/resin shipments on shipping documents
 - #3: Failure to accurately label waste shipment packages
 - #4: Failure to classify and ship the waste packages as LSA-II material
 - #5: Failure to ship LSA-II waste material in appropriate containers
- **Corrective Actions**
 - Work Instructions (WYO-RPP-008, Section 1.5) have been updated to reflect the proper method (EPA 901.1 modified) for independent lab analysis
 - Each shipment is sampled/analyzed independently (rather than using representative sample)
 - Shipping determination spreadsheet updated to ensure accurate formulas for total activity, classification of LSA-I or LSA-II, and exceedance of A2 and RQ values

Corrective Actions – AVs #6 and #7

- **Apparent Violations (Shipping Container)**
 - #6: Failure to ensure by examination or appropriate tests that packages were proper for the contents to be shipped and closure devices were properly secured
 - #7: Failure to perform evaluations or tests to ensure the package would be capable of withstanding the effects of acceleration and vibration normally incident to transportation
- **Corrective Actions**
 - Sludge materials shipped in IP-2 rated containers with polyacrylamide added to absorb liquid
 - Modified filter press drop chute to prevent wash down water from entering IP-2 packaging
 - IP-1 container, aluminum T-Lock lid with partial solid top, will serve as overpack for IP-2 bags
 - Dunnage will be placed within the IP-1 overpack to reduce the likelihood of contents shifting
 - Container Inspection Checklist, WYO-SOP-FORM-031, updated to include incoming/outgoing inspection signatures, absorbent material added, and IP-2 container inspection checklist

Corrective Actions – AVs #8 and #9

- **Apparent Violations (Shipping Paperwork)**
 - #8: Failure to provide the name of each radionuclide listed and an accurate chemical description of contents
 - #9: Failure to provide function specific training to a hazmat employee concerning the requirements that are specifically applicable to the functions the employee performed
- **Corrective Actions**
 - Shipping paperwork for 11e.(2) waste is prepared per container and will accurately reflect the physical and chemical form and the name of each radionuclide in accordance with 49 CFR
 - Employee training dates are tracked through Cameco's ULEARN database as well as through the radiation department training spreadsheet
 - The signed hard copy documenting the training is filed in employee personnel files that are maintained by the radiation/safety department

Perspectives on Apparent Violations

- **Shipment Preparation**
 - #1 -#5 are related to use of incorrect procedure for determining activity and should be combined into single violation
 - Characterized as SL-IV under Enforcement Policy Section 6.8.d
 - Consistent with prior examples (e.g., July 14, 2015 NOV to PRI)
- **Shipping Container**
 - #6 & #7 are related to selection of container and should be combined
 - Characterized as SL-IV under Enforcement Policy Section 6.8.d
 - Consistent with prior examples (e.g., Sept. 14, 2012 NOV to PRI)
- **Shipping Paperwork**
 - #8 & #9 are related and should be combined into a single SL-IV violation
 - Characterized as SL-IV under Enforcement Policy Section 6.8.d and 6.3.d.4

Perspectives on Overall Significance

- **Events promptly reported to NRC and other regulators**
 - Low safety significance
 - No exposures to members of the public
- **Enforcement Policy guidance indicates that each violation should be characterized as a SL-IV violation**
 - Recognize NRC has some discretion in this area, but on balance SL-IV violations are more suited for circumstances
- **Credit should be given for robust and comprehensive corrective actions**
 - Escalated enforcement not warranted
 - No civil penalty is necessary under Enforcement Policy



Closing Remarks

- **PRI recognizes the importance of transportation programs to safe and secure shipments of radiological material**
- **PRI acknowledges that our performance was inadequate**
 - Not satisfied with merely correcting the identified violations
 - Entire transportation program must improve
- **PRI will ensure other operations (SRH, NB, and CBR) and industry learn from our mistakes**

▶ Questions



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