



40-8964

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Director  
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U. S. Nuclear Regulatory Commission  
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**Source Material License SUA-1548, Smith Ranch – Highland Uranium Project  
Mine Unit 1 Alternate Concentration Limit (ACL) License Amendment**

Dear Director:

Cameco Resources (Cameco) is submitting an Alternative Concentration Limit (ACL) license amendment for the completion of restoration of Mine Unit 1 at the Smith Ranch-Highland Uranium Project, Source Material License SUA-1548. The proposed site-specific ACLs for uranium and arsenic are as low as reasonably achievable, after considering practicable corrective actions, and neither uranium nor arsenic will pose a substantial present or potential hazard to human health or the environment as long as the ACL is not exceeded.

The Nuclear Regulatory Commission (NRC) in RIS 2009-05 (ML083510622) stated that the applicable standards for groundwater restoration at an in-situ uranium recovery facility is 10 CFR Part 40, Appendix A, Criterion 5B. The applicable standards outlined for groundwater restoration in Criterion 5B(5) are background concentrations of each groundwater constituent, the values given in the table in paragraph 5C, or an alternative concentration (ACL) approved by the Commission.

Cameco has assembled this ACL amendment to comply with 10 CFR Part 40 Appendix A, Criterion 5B requirements that are applicable to an in-situ recovery (ISR) mining project in the conventional ACL format.

Cameco has also included an ACL for selenium. The reason for the inclusion of the ACL for selenium is because Table 5C in 10 CFR Part 40 Appendix A: Maximum Values for Ground Water Protection, has a maximum selenium concentration of .01 ppm. Cameco requests clarification from NRC on the concentration differences for arsenic and selenium found in table 5C from EPA MCLs found in the National Primary Drinking Water Regulations.

Cameco used a conservative transport modeling approach incorporating down gradient formation samples that demonstrates protection of down gradient groundwater. Additionally, Cameco incorporated the results from peer review research conducted at the Smith Ranch-Highland Mine into the analysis used to prepare the ACL amendment to assure a large margin of safety for the protection of the public and the environment.

The amendment also demonstrates that best practicable technology (BPT) has been applied to the restoration of Mine Unit 1 and that the restoration effort is consistent with the "as low as reasonably achievable (ALARA)" principal.

With this amendment Cameco is asking to secure from NRC the final Mine Unit 1 restoration acceptance. Please contact Larry Reimann at (307) 358-6541 or email [Lawrence\\_Reimann@cameco.com](mailto:Lawrence_Reimann@cameco.com) if you have any questions or need additional clarification.

Respectfully,



Larry Reimann  
Manager, Compliance and Licensing

LR/vg

Attachment: Jumpdrive - Mine Unit One ACL License Amendment, Attachments and Appendices

cc: File SR 4.6.4.1  
Doug Mandeville, NRC Project Manager – Cover Letter Only via email  
Document Control Desk, Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear  
Regulatory Commission, Washington, DC 20555-0001 – CERTIFIED MAIL # 7015-1520-0000-2613-3864—  
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cc: Cameco Distribution