

Technical Evaluation Report
Staff Verification of 2018 Surety Estimate
Lost Creek ISR, LLC
Source Material License SUA-1598

DATE: March 29, 2018
DOCKET: 040-09068
LICENSEE NO.: SUA-1598
LICENSEE: LOST CREEK ISR, LLC
SITE: Lost Creek ISR Facility
PROJECT MANAGER: John Saxton
TECHNICAL REVIEWERS: Reginald Augustus, John Saxton

Background

By letter dated October 20, 2017, Lost Creek ISR LLC (Lost Creek) submitted its Lost Creek 2018 annual surety update to the U.S. Nuclear Regulatory Commission (NRC) (Lost Creek, 2017). The NRC staff reviewed the surety and issued an RAI on January 10, 2018 (NRC, 2018). By letter dated February 23, 2018, Lost Creek submitted responses to the staff's request for additional information on the surety update (Lost Creek, 2018).

Staff Review and Analysis

This report documents results of the NRC staff's review of Lost Creek's 2018 annual surety update. The NRC staff reviewed Lost Creek's surety estimate in accordance with requirements in Title 10 of the *Code of Federal Regulations* (CFR) Part 40, Appendix A, Criterion 9, "Financial Criteria" and in License Condition 9.5 of Materials License SUA-1598. Additionally, the staff used NUREG-1569, "Standard Review Plan for *In Situ* Leach Uranium Extraction License Applications" (SRP) (NRC, 2003) as guidance in determining elements to be included in a surety review. Specifically, the staff used the review procedures and acceptance criteria guidance in Section 6.5 and in Appendix C of the SRP. The staff also used Wyoming Department of Environmental Quality (WDEQ) Land Quality Division Guideline No. 12 "Standardized Reclamation Performance Bond Format and Cost Calculation Methods" (Guideline No. 12) (WDEQ, 2017) when applicable, to verify that reasonable unit costs were included in the surety calculations.

Sufficiency of the Cost Estimate

In the surety calculations, the licensee includes costs for decommissioning and decontamination (D&D) of the central processing plant and ancillary equipment, deep disposal wells, and ponds. The unit costs for D&D are consistent with WDEQ Guideline No. 12.

Lost Creek estimated the cost to decommission and decontaminate the Lost Creek facility by an independent party at \$18,140,876. This figure represents an increase of \$2,555,576 over the surety established for the prior year of \$15,585,300. The increase is mainly attributed to increased labor costs related to groundwater restoration, building demolition and disposal, and soil removal due to unplanned releases (spills). The cost estimate is based on costs of a third party contractor, does not take credit for any salvage value and includes a 29 percent contingency factor.

Based on staff's review of Lost Creek's 2018 surety estimate, the NRC staff issued an RAI to Lost Creek on January 10, 2018, (NRC, 2018). The RAI requested an update to the surety estimate to provide estimated costs for remediation of radioactive contamination in onsite subsurface material. Specifically, the RAI requested that Lost Creek provide, at a minimum: the area of impacted soils; the soil sampling results; estimated background soil levels for specific spill areas; the depth of the impacted soils; and unit and the total cost for any cleanup related to historical spills. Lost Creek responded to the above-referenced RAI in a letter dated February 23, 2018, addressing the soil cleanup costs (Lost Creek, 2018). In its response, Lost Creek stated that it conducted an initial evaluation of areas potentially impacted by unplanned releases which determined concentrations of radionuclides, natural uranium, and radium-226 through soil sampling and laboratory analysis. These concentrations were then compared to the "initial ALARA target cleanup criterion" for members of the public. Lost Creek determined that several areas potentially impacted by spills would require cleanup during decommissioning according to an "ultra-conservative" approach.

The staff found the costs for the unplanned releases cleanup to be reasonably sufficient. Additionally, the staff observes that the methodology to determine the amount of radioactive contamination by actual concentrations of constituents in the soil was a more conservative estimate to determine cleanup costs than the regulations in 10 CFR Part 40, Appendix A, Criterion 6(6). However, for subsequent surety submittals, Lost Creek should provide adequate soil sampling results of various spill areas including final status surveys, soil measurements between 0-15 centimeters and re-characterization, if necessary, to more accurately account for background of various spill areas at the site.

The staff completed its review of the surety update estimate for the Lost Creek facility and finds that the licensee has included in the update all activities: (1) listed in the reclamation plan or in Sections 6.1-6.4 of the standard review plan in NUREG-1569 (NRC, 2003); and (2) to be conducted during the period covered by the surety update. Staff finds the licensee has based the assumptions for the financial surety analysis on site conditions, including experiences with generally accepted industry practices, research and development at the site, and previous operating experience.

The staff finds the values used in the financial surety update are based on current dollars and reasonable costs for the required reclamation activities are defined. Therefore, staff finds that the licensee has established an acceptable financial assurance cost estimate based on the requirements in 10 CFR Part 40, Appendix A, Criterion 9.

CONCLUSION

Based on the staff's review, as discussed above, the staff concludes that the current surety estimate reasonably includes funds sufficient to cover the estimated current costs of the facility and is acceptable during the current surety period. The staff determined that the surety

estimate meets the requirements of 10 CFR Part 40, Appendix A, Criterion 9, and is therefore acceptable.

REFERENCES

10 CFR Part 40. *Code of Federal Regulations*, Title 10, Energy, Part 40, “Domestic Licensing of Source Material.”

Lost Creek, 2017. 2018 Annual Surety Update, Lost Creek ISR, LLC, Source Materials License SUA-1598, October 20, 2017, ADAMS Accession No. ML17310A236.

Lost Creek, 2018. Letter from M. Gaither, Ur-Energy USA, Inc., to J. Saxton, US NRC, Response to RAI on 2017-2018 Surety Lost Creek ISR, February 23, 2018, ADAMS Accession No. ML18075A035.

NRC, 2018. Email from J. Saxton, US NRC, to J. Cash, Ur-Energy, Inc., Request for Additional Information, Financial Surety Update, Lost Creek ISR, LLC, January 10, 2018, ADAMS Accession No. ML18012A427.

NRC, 2003. NUREG–1569, “Standard Review Plan for In Situ Leach Uranium Extraction License Applications—Final Report.” June 2003.

WDEQ, 2017. Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 12, Accessed December 15, 2017, [http://deq.wyoming.gov/media/attachments/Land%20Quality/Guidelines/Guideline_12_Bond_Calculations_\(2_2017\).pdf](http://deq.wyoming.gov/media/attachments/Land%20Quality/Guidelines/Guideline_12_Bond_Calculations_(2_2017).pdf)