

**TECHNICAL EVALUATION REPORT FOR RIO ALGOM MINING LLC  
2018 FINANCIAL ASSURANCE SURETY UPDATE FOR THEIR AMBROSIA LAKE  
FACILITY, MCKINLEY COUNTY, NEW MEXICO**

**DOCKET NO.:** 040-08905

**LICENSE NO.:** SUA-1473

**DATE:** October 4, 2018

**FACILITY:** Rio Algom Mining LLC – Ambrosia Lake Facility, McKinley County, New Mexico

**TECHNICAL REVIEWERS:** Reginald Augustus, James Webb

**PROJECT MANAGER:** James Webb

### **SUMMARY AND CONCLUSIONS**

By letter dated June 26, 2018 (Agencywide Documents Access and Management System (ADAMS) ML18193A454), Rio Algom Mining LLC (Rio Algom) submitted the annual surety for its Ambrosia Lake Facility to the U.S. Nuclear Regulatory Commission (NRC). The Ambrosia Lake Facility is a uranium recovery facility that is currently undergoing reclamation and decommissioning. Under license condition 22 of the Source Material License SUA-1473, the licensee is required to submit annual updates to the surety amount by June 30th. The reclamation surety update provided by Rio Algom is estimated to be \$4,732,103, which is \$769,391 less than the 2017 surety estimate of \$5,501,494, based on the consumer price index and revised anticipated completion costs. According to the 2018 surety update, Rio Algom retains a financial surety instrument in the amount of \$16,000,000.

The NRC staff reviewed the submission against Title 10 *Code of Federal Regulations* (CFR) 40, Appendix A, Criterion 9 and 10, and determined that, although the surety update estimate appears reasonable, staff cannot verify the work completed as provided in the 2018 surety update by the licensee until the Closure Completion Report is finalized. In Rio Algom's 2018 surety update submittal, it requested approval from the NRC staff to retain the current financial surety instrument in the amount of \$16,000,000. This amount is significantly greater than the 2018 annual surety estimate from Rio Algom. Accordingly, the NRC staff approves Rio Algom's request to maintain the financial surety instrument in the amount of \$16,000,000, until the completed work may be verified and an updated surety estimate from Rio Algom is approved by NRC.

### **BACKGROUND**

This is a uranium mill tailings site in the Ambrosia Lake uranium district of New Mexico. It is located approximately 25 miles north of Grants, New Mexico. The tailings impoundment contains 33 million tons of uranium ore and covers an area of approximately 370 acres.

The site status changed from standby to reclamation in August 2003 to reflect the licensee's intent to begin full demolition and reclamation of the site leading to termination of the specific license. The mill was demolished and disposed of in the tailings impoundment in late 2003. The demolition was completed in accordance with a mill demolition plan approved by NRC in October 2003. The staff issued a license amendment for alternate concentration limits (ACLs) at the site in February 2006. Consequently, all groundwater corrective actions have been discontinued, and Rio Algom is finalizing the site tailings reclamation. A portion of the tailings impoundment is still open for disposal of Atomic Energy Act, Section 11e.(2) byproduct material. A final soil DP entitled, Closure Plan - Lined

Evaporation Ponds (Relocation Plan) was submitted to the NRC in November of 2004, and partially approved. A portion of the report, pertinent to the "Section 4" and Pond 9 evaporation pond sediment material has been reviewed and approved. The final licensing action will be the approval of a redesigned channel.

## **TECHNICAL EVALUATION**

The NRC staff evaluated the surety update against 10 CFR 40, Appendix A, Criterion 9 and 10, License Condition (LC) 22, and the guidance in NUREG-1620, Appendix C. Criteria 9 and 10 of 10 CFR 40, Appendix A, require the licensee to supply sufficient information to the NRC to verify that the amount of coverage provided by the financial assurance will permit the completion of all decontamination and reclamation of the site, including the costs for contingencies and long-term surveillance. LC 22, among other things, requires that Rio Algom submit the annual surety update by June 30th of each year. Additionally, the cost estimates must be calculated on the basis of completion of all activities by a third party and must be updated annually.

In determining whether an adjustment to the surety amount based on Consumer Price Index (CPI) and for revised anticipated completion costs would be adequate, the NRC staff looked at several factors that included:

- Spills, leakage or migration of radioactive material leading to additional contamination;
- Waste inventory increase above previous estimate;
- Facility modifications;
- Any changes to authorized possession limits
- Actual remediation costs above previous cost estimates; and
- Any other conditions that affected the costs

Rio Algom's Ambrosia Lake Facility continues to undergo reclamation and decommissioning with no recorded events of spills or leaks. In addition, there has no change to the amount of waste inventory, changes to facility, or changes in its authorized possession limits. The 2018 surety submittal included a decrease of \$769,391 based on costs adjusted for CPI and for revised anticipated completion costs. Specifically, the revised completion costs pertain to the consolidation and covering of remaining windblown materials and cover areas with deep seated contamination (alternative release criteria areas) in 2019. The revised estimate was prepared by a third-party consultant with knowledge of the site and the work that needs to be completed. No other cost adjustments were identified to the remediation costs of the site nor any other known conditions affecting the cost estimate.

While the surety update estimate appears reasonable, the NRC staff cannot verify the completed work as provided in the 2018 surety update by Rio Algom until the Completion Report is finalized. Rio Algom has informed NRC staff that the Completion Report is expected to be finalized in 2019. Rio Algom requested, in its 2018 surety update submission, to continue to maintain its current financial surety instrument in the amount of \$16,000,000. Accordingly, NRC staff finds Rio Algom's request to maintain its current financial surety instrument at \$16,000,000 acceptable, until the completed work may be verified and an updated surety estimate from Rio Algom is approved by NRC.

The June 26, 2018 submission did not identify costs for contractor profit as a separate line item or as part of the unit costs hourly rate. By email dated September 18, 2018, staff requested that Rio Algom

provide additional information in order for NRC staff to determine costs associated with contractor profit. Rio Algom responded to the email on October 3, 2018 (ADAMS Package ML18277A120), by providing an updated financial assurance cost allocation summary that included the contractor profits percentage for the Rio Algom site's decommissioning activities.

NRC staff determined that the submittal met the license requirement for a surety update to be submitted by June 30<sup>th</sup> annually, as specified in Rio Algom's license. The costs are estimated based upon third party costs to reclaim, remediate, and decommission facilities and lands affected by past project operations. All unit costs, labor and equipment overhead, as well as contractor profit, were included. Site management costs were derived using RS Means Cost Data. Other standardized rates used in development of the cost estimate include the New Mexico Environment Department Ground Water Quality Bureau, Monitoring Well Construction and Abandonment Guidelines (NMED). Also, the licensee added 15 percent for contingencies and long-term surveillance fees as required.

#### (1) Facility Decommissioning

Mill facility decommissioning, including contaminated soil consolidation and removal, clean backfill and regrading, radon barrier placement, and rock placement have been previously completed. Building demolition, to include asbestos disposal, hazard waste disposal, building demolition, and substation fencing, has also been previously completed. All major equipment, structures, and concrete support, have been dismantled and disposed of in the tailings impoundment. The listing of major equipment, structures, and concrete structures that have been demolished are identified under the "Mill Decommissioning" table. Work involving revegetation of this area has also been completed. A Closure Completion Report is expected to be completed by 2019.

#### (2) Cleanup of Contaminated Soils

Contaminated soil consolidation and removal was previously completed in the mill area and hot spots. Additional soils cleanup remains in the wind blown tailings and alternative release criteria areas.

#### (3) Groundwater Remediation

Groundwater remediation work related to monitoring well replacement were previously completed. Work remains for activities related to monitoring well closure, stability monitoring reporting program, and groundwater monitoring within long-term surveillance monitoring. The estimated costs for these remaining activities were calculated by a third-party consultant and adjusted for inflation for a total of \$869,015.78. The well plugging and abandonment activities were completed in accordance with NMED. A breakdown of these costs can be found under the "Groundwater" and "Monitor Well Closure" tables.

#### (4) Lined Pond Closure

Remaining activities for lined pond closure include Section 4 Final Contour reseeding. The total costs for this activity is estimated at \$322,946. All other work related to the lined pond closure has been previously completed. A Closure Completion Report is expected to be completed by 2019.

#### (5) Radiological Surveys, Monitoring, and Cleanup

Major cost areas for radiological surveys and monitoring activities that remain include gamma

scanning and verification gamma surveys, additional soils cleanup of windblown tailings and alternative release criteria areas, and additional material for Pond 3 design. Also, costs for quality assurance and quality control reporting to include preparation of the Quality Assurance Project Plan, final status survey report, and to respond to NRC RAIs. The total costs for these activities is estimated at \$1,114,955.36.

#### (6) Project Management and Mobilization/Demobilization

Site management was assumed to be 3.9 percent of the subtotal of reclamation costs and was based on RSMMeans. Overhead was estimated at 25 percent of the subtotal of reclamation and site management costs. The total costs for this activity is estimated at \$732,831.

#### (7) Contingency and Long-Term Surveillance Fee

A contingency fee of 15 percent of the subtotal was included in the overall total cost of the decommissioning and reclamation project. The long-term maintenance and surveillance fee was determined from the Bureau of Labor Statistics Consumer Price Index (CPI). The total costs for this activity is estimated at \$929,055.

The instrument to be used by the licensee for the financial assurance update is an irrevocable Letter of Credit (LOC). A signed original of the LOC is currently held by NRC who is the named beneficiary on the financial instrument. The LOC amount is \$16,000,000. This figure remains unchanged from the prior year's surety amount as the facility's revised cost estimate has not exceeded the prior year's approved LOC amount. The NRC staff finds that the LOC reasonably includes sufficient funds available to carry out all decommissioning and decontamination activities for the mill and site and any tailings or waste disposal areas.

Additionally, a Standby Trust Agreement (STA) is in place, pursuant to criteria in 10 CFR Part 40, Appendix A, Criterion 9 which states "[I]f a trust is not used, then a standby trust fund must be set up to receive funds in the event the Commission or State regulatory agency exercises its right to collect the surety."

#### **Conclusion:**

The NRC staff determined that, although the surety update estimate appears reasonable, staff cannot verify the work completed as provided in the 2018 surety update by the licensee until the Closure Completion Report is finalized. In Rio Algom's 2018 surety update submittal, it requested approval from the NRC staff to retain the current financial surety instrument in the amount of \$16,000,000. This amount is significantly greater than the 2018 annual surety estimate from Rio Algom. Accordingly, the NRC staff approves Rio Algom's request to maintain the financial surety instrument in the amount of \$16,000,000, until the completed work may be verified and an updated surety estimate from Rio Algom is approved by NRC.