

Rio Algom Mining LLC

November 08, 2017

ADDRESSEE ONLY

Mr. Varughese Kurian, Project Manager
Materials Decommissioning Branch
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North, Mailstop T8F5
11545 Rockville Pike
Rockville, MD 20852

CERTIFIED MAIL

40-8905

Re: **Revision of Soil Decommissioning Plan, Request for a License Amendment, and Unconditional Release of Section 4 Ponds from Radioactive Materials License SUA-1473**

Dear Mr. Kurian,

Rio Algom Mining LLC (RAML) requests that the U.S. Nuclear Regulatory Commission (NRC) release the Section 4 Ponds of the Ambrosia Lake facility, located in McKinley County, New Mexico for unconditional use and amend radioactive materials license SUA-1473, amendment 61 (the license) accordingly based on the information presented in the enclosed report titled "Final Radiological Condition and Dose Assessment for the Section 4 Ponds" (report). In addition to the report, we have included red-line and clean versions of a revised Soil Decommissioning Plan (SDP), proposed revised license language, and a completed NRC Form 313.

Section 4 Dose Assessment and ALARA

For the reasons set forth below, the current radiological condition of the Section 4 Ponds is consistent with the concept of ALARA and should be released based on meeting the radium benchmark dose criteria.

The enclosed "Final Radiological Condition and Dose Assessment for the Section 4 Ponds" demonstrates, using the alternate approach specified in Section 5 of the SDP (ML061320449) (also referred to therein as the indirect approach), that the current radiological conditions of the Section 4 Ponds meet the requirements of the radium-226 benchmark dose of Criterion 6 (6) of 10 CFR 40, Appendix A [Criterion 6(6)]. This approach is an alternative to the direct method used to generate the soil cleanup levels in Table 5-1 of the SDP and is consistent with NRC guidance in Section H2.2.1 of NUREG -1620, Rev 1 "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under

NM5501

Title II of the Uranium Mill Tailings Radiation Control Act of 1978" (NRC, 2003) which states:

"Alternatively, the licensee can derive the estimated dose from the uranium or thorium contamination (as discussed in Section 2.1.3) and compare this to the radium benchmark dose."

The level of effort and cost associated with the current cleanup efforts are consistent with the principle and concepts of "as low as is reasonably achievable" (ALARA). The concept of ALARA includes consideration of the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to public health and safety, and other societal and socioeconomic considerations (10 CFR 20.1003). From 2004 to 2014, RAML removed over 3.5 million cubic yards of contaminated sediment and soil from the Section 4 Ponds for placement in Tailings Impoundment #2. RAML also constructed a bridge over New Mexico Highway 509 to limit impacts to public safety resulting from this work. The cost for this work, including construction and removal of the overpass bridge, was over \$18 million. As a result of this work, the radium benchmark dose requirement has been met for the residential rancher scenario at Section 4.

The cost of further remediation to meet the soil cleanup levels in Table 5-1 of the SDP would be disproportionate to the purported health benefit. The soil cleanup levels for total uranium and thorium-230 in Table 5-1, which were determined by the direct method, are lower than the concentrations required to meet the radium benchmark dose. In addition, assuming a ranch family of four resided on the area and including the contribution of radium-226 to the dose, the collective maximum dose above the benchmark dose rate would be 5.6 mrem per year, a level where the increased risk of health effects is either too small to be observed or nonexistent. The undiscounted (and therefore conservative) value of the reduced peak dose to meet the radium benchmark is \$11,200, using the NRC recommended value of \$2,000 per person-rem averted contained in NUREG/BR-0058, Revision 4 (NRC, 2004). Heavy equipment used to implement additional remediation activities cannot be mobilized to the site for a cost less than this. Thus, the cost of any additional cleanup to lower the peak dose to levels below the radium benchmark would be unreasonable and far exceed the questionable value to public health and safety.

Soil Decommissioning Plan Revision

In order to reflect the proposed revised status of the Section 4 Ponds, RAML has updated the 2006 SDP. As shown in the enclosed red-line version of the 2006 SDP, we have removed references to Section 4 Ponds that are outdated, expanded Section 2.5.6 to provide an up-to-date history of Section 4 Pond closure and status, and added Appendix E to include dose assessment for Ponds 9 and 10. Although not specifically related to the request for unrestricted release of Section 4 Ponds, the dose assessment for Ponds 9 and

November 8, 2017

Page 3 of 3

10 has been included in the SDP at the request of NRC staff to provide a more comprehensive document.

License Amendment Request

RAML requests that NRC amend radioactive materials license SUA-1473 license condition number thirty-two (LC-32) as follows:

*The licensee is authorized to dispose of and bury contaminated waste materials resulting from past milling operations into the disposal areas in accordance with the submittal dated July 20, 1995. The licensee may also dispose of and bury within these areas, byproduct materials as authorized by license conditions 30, 36, and 41. In addition, the licensee shall adhere to the following requirements. The licensee shall maintain detailed disposal records indicating quantities and locations of all waste material disposed in the disposal areas and prior to the disposal of any wastes, the licensee shall establish a detailed procedure to describe the handling, preparation, placement and covering of wastes in the specified disposal areas. The final design of the disposal areas, including drawings, calculations, analyses, and a list of materials included in the disposal areas, will be submitted to the NRC for approval prior to placement of the final cover. The licensee shall follow the approved soil decommissioning plan dated **November 2017**.*

In addition, final disposal of remaining byproduct material and construction debris shall be performed in accordance with the Alternate Disposal Cell plan submitted by letter dated April 26, 2010. The licensee shall follow the quality assurance program outlined in the Reclamation Plan for the Tailings Cell 2 Expansion when placing materials and constructing the final cover in the alternate disposal cell.

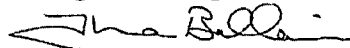
[Applicable Amendments: 6, 33, 37, 57, 61, 62]

Conclusion

We look forward to the NRC's prompt review and approval of the revised SDP and license amendment request that will result in the subsequent unconditional release of the Section 4 Ponds. Please contact me at (209)736-4803 with any questions.

Best Regards,

Rio Algom Mining LLC



Theresa Ballaine
Manager

cc: NRC Document Management
Bernadette Tsosie, Department of Energy
Kurt Vollbrecht, New Mexico Environment Department
Kevin Shade, EPA R6

NRC FORM 313

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3160-0120

EXPIRES: 06/30/2019

(08-2016)
10 CFR 30, 32, 33, 34
35, 38, 37, 39, and 40APPLICATION FOR MATERIALS
LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the FOIA, Privacy, and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE CURRENT VOLUMES OF THE NUREG-1556 TECHNICAL REPORT SERIES ("CONSOLIDATED GUIDANCE ABOUT MATERIALS LICENSES") FOR DETAILED INSTRUCTIONS FOR COMPLETING THIS FORM: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/>. SEND TWO COPIES OF THE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

MATERIALS SAFETY LICENSING BRANCH
DIVISION OF MATERIAL SAFETY, STATE, TRIBAL AND RULEMAKING PROGRAMS
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA,
KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY,
NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH
CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,

SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND
APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,
LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH
DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS,
UTAH, WASHINGTON, OR WYOMING,

SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
1600 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS
AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

☐

A. NEW LICENSE

☒

B. AMENDMENT TO LICENSE NUMBER

SUA-1473

☐

C. RENEWAL OF LICENSE NUMBER

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

Rio Algom Mining LLC
P.O. Box 218
Grants, New Mexico
87020

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

The Licensee's Ambrosia Lake facility located in McKinley,
County, New Mexico

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Theresa Ballaine

BUSINESS TELEPHONE NUMBER

(209) 736-4803

BUSINESS CELLULAR TELEPHONE NUMBER

(209) 753-7005

BUSINESS EMAIL ADDRESS

Theresa.Ballaine@bhpbilliton.com

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount
which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR
TRAINING AND EXPERIENCE.

10. RADIATION SAFETY PROGRAM.

9. FACILITIES AND EQUIPMENT.

11. WASTE MANAGEMENT.

12. LICENSE FEES (Fees required only for new applications, with few exceptions*)

(See 10 CFR 170 and Section 170.31)

*Amendments/Renewals that increase the scope of the existing license to a new or higher fee category will require a fee.

FEE
CATEGORY

2.A. (a)

AMOUNT
ENCLOSED \$13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING
UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN
CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 37, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND
CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO
ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

Theresa Ballaine, Manager

SIGNATURE

DATE

11/8/17

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
APPROVED BY				DATE	