UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE

Pursuant to Utah Code Annotated, Title 19, Chapters 3 and 6 and R313 of the Utah Administrative Code (Radiation Control Rules) and in reliance on statements and representations heretofore made by the Licensee designated below, a license is hereby issued authorizing such Licensee to transfer, receive, possess and use the radioactive material designated below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This Licensee is subject to all applicable rules, and orders now or hereafter in effect and to any conditions specified below.

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LICENSEE

1. Name Rio Algom Mining, Limited Liability Company

2. Address Rio Algom Mining LLC

PO Box 218
Grants, NM 87020

3. License Number UT 1900481
Amendment 6 (Renewal)

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4. Expiration Date
March 3, 2022

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5. License Category 2-b

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6. Radioactive material (element and mass number)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
Natural Uranium and Uranium Byproduct Material	Uranium Byproduct Material defined by Nuclear Regulatory Commission (NRC) Regulations, Code of Federal Regulations (CFR), Title 10, Part 40, Section 40.4	Unlimited

ADMINISTRATION AND RADIATION SAFETY

9. Authorized place of use: The Licensee's former uranium milling facility located in San Juan County, Utah. Sections 16, 21, 22 and 28 in Township 29 South, Range 24 East, Salt Lake Meridian in San Juan County, Utah.

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10. The Licensee shall comply with the posting requirements specified within 10 CFR § 20.1902, as incorporated by reference, R313-15-902(5) until the final institutional controls and permanent markers have been erected as required by the September 2004, Draft Office of Legacy Management Long-Term Surveillance Plan for the Lisbon Valley, Utah (UMTRCA Title II) Disposal Site, (DOE-LM/G-J696-2004).

    A. The Licensee shall conduct quarterly inspection of fencing and postings and make any necessary repairs.

    B. The Licensee shall submit a report documenting the fencing and posting inspections to the Utah Division of Waste Management and Radiation Control (DWMRC) on a quarterly basis. Reports shall be submitted according to the following schedule:

    Table 1. Fencing and Posting Inspection Reporting Schedule

	Period	**Due Date**
First	January - March	June 1
Second	April - June	September 1
Third	July - September	December 1
Fourth	October - December	March 1

    [Applicable UDMRC Amendment 6]
    [Applicable UDRC Amendment: 1]
    [Applicable NRC Amendment: No. 57]

11. The Licensee shall document the results of sampling, analyses, surveys and monitoring; the results of calibration of equipment; audits and inspections; all meetings and training courses required by this license; and any subsequent reviews, investigations and corrective actions.

    A. Unless otherwise specified in writing by the Director of the Utah Division of Waste Management and Radiation Control (Director), all such documentation records shall be maintained for a period of at least five years.

    B. The results of all environmental monitoring required by this License shall be reported in accordance with R313-24 (10 CFR § 40.65 incorporated by reference) using the NRC Form 484 "Sample Format for Detection Monitoring Data Report."

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C. All groundwater monitoring shall be reported in accordance with License Condition 30.

D. The environmental monitoring and groundwater monitoring reports required under this license shall be submitted to the Director for review and approval.

12. In order to ensure cultural resources are not disturbed in the future, prior to disturbing the soil onsite, the Licensee shall conduct an archaeological and historical artifact survey of areas of its property, not previously surveyed, including borrow areas to be used for reclamation cover. These surveys shall be submitted to the Director for approval. The Licensee shall not disturb any property included in the survey until the Licensee has received authorization from the Director to proceed.

    In addition, all work in the immediate vicinity of any buried cultural deposits unearthed during the disturbance of land shall cease until approval to proceed has been granted by the Director.

13. The Licensee shall conduct an annual survey of land use (e.g., private residences, grazing areas, private and public potable water and agricultural wells, and non-residential structures and uses) in the area within five kilometers (3.1 miles) of the site property boundary. A report of the land use survey shall be submitted to the Director on or before December 31 of each year. This report shall include the following: 1) all references and/or a description of methods utilized to obtain information included in the report; 2) listing all water wells, owners, approved use, and contact information within the specified search radius; 3) an updated land use map to be included with the report; and 4) a description of all land uses changes from the preceding year's report.
    [Applicable UDMRC Amendment 6]
    [Applicable UDRC Amendment: 1]

14. The Licensee shall comply with notification requirements of R313-15 (10 CFR 20 as incorporated by reference). Incident and event notifications that require telephone notification shall be made to the Director at (801) 536-0200 during normal business hours or after hours to the DEQ Duty Officer at (801) 536-4123.
    [Applicable UDRC Amendment: 1]
    [Applicable NRC Amendment: 57]

15. The Licensee shall prepare written site assessment work plans and develop Radiation Work Permits (RWPs) for activities conducted at the site that have the potential for worker exposure to licensed material. RWPs shall describe radiological monitoring, bioassay analyses, exposure calculations, instrument calibrations and emergency response. All

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written work plans and any modifications required by this condition shall be reviewed and approved in writing by the Director before implementation to ensure that proper radiation protection principles are being applied, when required. The Licensee shall perform and document function checks of the alpha survey meters prior to their use. The alpha survey meter function check records shall be retained in accordance with Condition 11.A.

16. All of Licensee's workers, including contractors, shall be provided on-the-job training on the radiation safety aspects of the job to be performed prior to beginning work activities that involve potential worker exposure to licensed material. The Licensee shall document each employee's radiation training and retain the records in accordance with Condition 11.A.
[Applicable DWMRC 6]

17. Reserved

18. Reserved

19. Reserved

ENGINEERING AND SURETY

20. The Licensee shall submit annual updates to the surety amount, required by UAC R313-24 (10 CFR 40, Appendix A, Criteria 9 and 10, as incorporated by reference) to the Director by June 30 of each year. Along with each proposed revision or annual update, the Licensee shall submit supporting documentation showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 25 percent contingency fee, changes in engineering plans, activities performed and any other conditions affecting estimated costs for site closure. The cost estimate shall be based on the Director approved reclamation/decommissioning plan or Director approved revisions to the plan.
[Applicable UDWMRC Amendment 6]
[Applicable UDRC Amendment: 1]
[Applicable NRC Amendments: 18, 22, 26, 33, 38, 45, 49, 51, 52, 54, 56, 58, 60, 62, 63, 64, 66]

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21. Prior to termination of this license, the Licensee shall provide for transfer of title to the byproduct material and land, including any interests therein (other than land owned by the United States or the State of Utah), which is used for the disposal of such byproduct material or is essential to ensure the long term stability of such disposal site to the United States or the State of Utah.

22. The Licensee shall reclaim the tailings disposal area in accordance with the June 16, 1989, and March 4, 1992, submittals as revised by submittals dated August 16, 1989, March 13, 1992, August 14, 1992, November 17, 1992, November 18, 1992, November 20, 1992, April 1, 1993 and April 2, 1993, with the following exceptions:

    A. The Licensee shall submit for Director review and approval, data that confirm that the average depth of the stabilization layer below the evaporation ponds is equal to or greater than the average stabilization depth used in the modeling before constructing the remaining barrier.

    B. The Licensee shall provide an analysis of the results of the testing program that was required in a letter from the NRC dated December 19, 1997 to verify the design conditions with respect to radon attenuation. The analysis shall be provided for Director review and approval.

    C. The Licensee shall implement the erosion protection design submitted to the NRC on September 3, 2002, supplements dated March 1, 2004, and in accordance with the following conditions:

        (1) The Licensee shall perform rock durability and gradation testing at the frequency recommended in the NRC issued guidance NUREG-1623, Design of Erosion Protection for Long-Term Stabilization, as amended, with the exception that if rock quantities for any size riprap are 5000 cubic yards or less, two gradation tests at the 1/3 and 2/3 points of placement are acceptable.

        (2) The Licensee shall perform tests to verify that the bedrock formation in the lower dam spillway and diversion channels is sufficiently competent to resist erosion. Erosion resistant bedrock shall be determined by a methodology that has been reviewed and approved by the Director.

        (3) The Licensee shall provide a program for inspecting the filter and riprap layers to assure proper sizing and gradation. The program shall include a procedure for measuring the thicknesses of the in-place rock on a minimum 50-foot grid system and at any and all locations that do not appear to meet the specifications.

    D. A completion report including as-built drawings, verifying that reclamation of the site has been performed according to the approved plan, must be provided within six

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months of the completion of construction. The report must also include summaries of results of the quality assurance and control testing to demonstrate that the approved specifications were met. The completion report and drawings shall be certified by a Utah-licensed Professional Engineer.
[Applicable UDRC Amendment: 1]
[Applicable NRC Amendments: 4, 6, 7, 8, 44, 47, 53, 55, and 67]

E. The Licensee shall submit a revised Final Construction Completion Report by the date established by the Director. The Director shall establish the report submittal date after the Licensee has completed the field work necessary to address the information request specified in the letter dated November 26, 2014, "RML# UT1900481: Request for Information, Review of Final Construction Completion Report, Lisbon Mine Utah, report dated November 25, 2013."
[Applicable UDWMRC Amendment 6]

23. The Licensee shall complete site reclamation in accordance with a reclamation plan reviewed and approved by the Director. The groundwater compliance monitoring plan shall be conducted as authorized by License Condition No. 30 in accordance with the following schedule.

A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the Licensee shall verify that the placement of final radon barrier was designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m² sec above background prior to final closure of the mill site.
[Applicable UDRC Amendment: 1]
[Applicable to UDWMRC Amendment 6]

B. Reclamation to ensure required longevity of the covered tailings and groundwater protection shall be completed as expeditiously as is reasonably achievable, in accordance with the following target dates for completion:

(1) Placement of erosion protection as part of reclamation to comply with UAC R313-24 (10 CFR Part 40 Criterion 6 of Appendix A, incorporated by reference). (Currently under review by DWMRC.)

(2) The Licensee has submitted and the Director has approved a hydrogeological work plan to develop ground-water corrective actions to meet performance objectives. The Stipulation and Consent Agreement (May 9, 2016) and any

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subsequent agreements establish the target dates related to ground-water corrective actions.

[Applicable UDRC Amendment: 1]

C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically feasible (including inclement weather, litigation which compels delay to reclamation, or other factors beyond the control of the Licensee).

D. Any license amendment request to change the target dates in Section B above must address added risk to the public health and safety and the environment, with due consideration to the economic costs involved and other factors justifying the request such as delays caused by inclement weather, regulatory delays, litigation and other factors beyond the control of the Licensee. A delay in placing erosion protection due to inadequate settlement of the tailings is not an acceptable reason for revising Section B(1) above unless the Licensee provides analyses which demonstrate that available practical methods will not significantly accelerate settlement.
[Applicable NRC Amendments: 41, 44, 57]

24. Reserved

25. Reserved

26. Reserved

27. Reserved

28. Reserved

GROUNDWATER PROTECTION

29. The Licensee shall implement a groundwater compliance monitoring program as specified below and in accordance with the currently approved Licensee Groundwater Monitoring Plan.

A. The Licensee shall sample and analyze background wells MW-5 and MW-13; trend wells EF-6, RL-1, RL-3, EF-8, ML-1, H-63, and LW-1; point of compliance (POC) wells EF-3A and OW-UT-9; and point of exposure (POE) wells RL-4, RL-5, and RL-6 for uranium, molybdenum, selenium, arsenic, pH, total dissolved solids, chloride,

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sulfate, and bicarbonate, and measure water levels (depth to groundwater and groundwater elevation) in accordance with the monitoring schedule in 30.G.

(1) The north aquifer background concentrations (in mg/L) for MW-5 are: arsenic = 0.05, molybdenum = 0.07, selenium = 0.01 and uranium = 0.01.

(2) The south aquifer background concentrations (in mg/L) for MW-13 are: arsenic = 0.066, molybdenum = 0.05, selenium = 0.01 and uranium = 0.02.
[Applicable NRC Amendments: 59, 66]

B. The Licensee shall protect groundwater quality at the facility for at least 200 years (thru year 2205) by maintaining contaminant concentrations in each well equal to or below the maximum concentrations specified in the tables below and the Groundwater Monitoring Plan.

TABLE 1: POINT OF COMPLIANCE (POC) WELLS[5]

Well	Other ACLs (mg/L)[1]	Uranium ACL (mg/L)[1]
EF-3A	Molybdenum = 23.34 Selenium = 0.93 Arsenic = 3.06	96.87
OW-UT-9	Molybdenum = 58.43 Selenium = 0.10 Arsenic = 2.63	101.58

TABLE 2: POINT OF EXPOSURE (POE) WELLS[6]

Well	Uranium Compliance Limit (mg/L)
RL-4	0.32[2]
RL-5	0.32[2]
RL-6	0.32[2]

TABLE 3: TREND WELLS[6]

Well	Uranium Target Action Level (mg/L)
EF-6	3.9[3]
EF-8	0.30[3]
ML-1	0.26[3]
RL-1	42.1[4]
RL-3	37.3[4]

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H-63	0.06[4]
LW-1	0.028[7]

1 ACLs represent the 95-percent upper confidence limit of historical sampling data from 1990 through 2003, with the exception of selenium in OW-UT-9, which is based on the Health Risk Concentration Limit (see page 60 of Response to Request for Additional Information (RAI) (Komex, October 13, 2003)). These values only apply to wells located in the area of greatest impact (EF-3A and OW-UT-9).

2 Compliance Limits are based on contaminant transport model predictions, as found in the February 2004 dose assessment used to support the ACL Application (Application for Alternate Concentration Limits Source Materials License SUA-1119, RAMC Lisbon Facility, La Sal, Utah, Lewis Water Consultants, Inc., March 1, 2001). These levels apply to POE wells that are projected to become impacted in the future (RL-4, RL-5, and RL-6).

3 Target Action Levels are based on the contaminant transport model predictions, as found in the Best Estimate Concentration Curve in 200 years as presented on Figures 2-10 in the Long-Term Groundwater Monitoring Plan (Komex, February 19, 2004) for wells with increasing predicted uranium concentration trends in 200 years (EF-6, EF-8, and ML-1).

4 Target Action Levels are based on contaminant transport model predictions as represented by the Best Estimate Concentration Curve as presented on Figures 2-10 in the Long-Term Groundwater Monitoring Plan (Komex, February 19, 2004) for wells with decreasing predicted uranium concentration trends in 200 years (RL-1, RL-3, and H-63).

5 Wells predicted by Licensee to have a decreasing contaminant concentration trend with time.

6 Wells predicted by Licensee to have an increasing contaminant concentration trend time; with the exception of well H-63 which was predicted to have an increasing trend, followed by a decreasing concentration.

7 Target Action Level for ground water well LW-1 is based on the Proposed Action Limit Letter from Rio Algom to DRC dated February 12, 2009 and received by DRC on March 16, 2009. The letter includes an attachment from Worley Parsons which provides the statistical analysis of 9 background monitoring results (Shapiro-Wilk Normality Test and development of the target action level by calculation of mean + 2 standard deviations.

C. Probable out of compliance status (POOC) is defined as any one sample analysis result in excess of any contaminant concentration specified in Tables 1, 2, or 3 of this license. If a POOC event occurs the Licensee shall:

(1) Notify the Director of the POOC status within 30 days of the initial detection (receipt of data);

(2) Unless the Director notifies the Licensee that a different sampling frequency is appropriate, initiate quarterly ground water sampling for the exceeded parameters in the well indicating the exceedence, for two consecutive quarters or until the compliance status of the facility can be determined.

D. Out of compliance status (OOC) is defined as two consecutive exceedances of any contaminant concentration specified in Tables 1, 2 or 3 of this license in any well. If an out of compliance event occurs, the Licensee shall:

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(1) Verbally notify the Director within 24 hours of discovery of the event followed by a written notice within five days of verbal notification;
(2) Unless the Director notifies the Licensee that a different sampling frequency is appropriate, initiate monthly groundwater sampling for the exceeded parameter in the well indicating the exceedance until the event is resolved to the Director's satisfaction;
(3) Within 30 days of discovery of the exceedance, prepare and submit to the Director for approval a plan and schedule to evaluate and assess the source of the exceedance and possible actions needed to restore and maintain compliance with License Condition 30.B. Such actions may include, but are not limited to:

a. Re-evaluation of the ground water flow and contaminant transport models used to set the compliance limits and target action levels;

b. Additional site investigation and characterization, and investigation of potential contamination sources; and

c. Active ground water remediation as deemed necessary by the Director.

E. The Licensee shall comply with all applicable requirements specified in the Utah Water Quality Act (Utah Code Ann. Title 19, Chapter 5) and in the Utah Ground Water Quality Protection Rules (UAC R317-6).

F. The Licensee shall annually submit, to the Director for approval, Ground Water Monitoring Reports in accordance with the following sampling and reporting schedule:

Table 4: Annual Ground Water Monitoring Reporting Schedule

ıple Period	Period	Report Due Date
Annual	January – December	March 1

Failure to submit the reports by the due date shall be deemed as noncompliance with this license. The annual ground water monitoring reports shall include, but are not limited to, the following:

(1) Sampling Methodology
(2) Field Parameter Measurements
(3) Laboratory Information, the lower limit of detection shall be lower than the ACL
(4) Data Evaluation
(5) Figures - Groundwater Contour Map, Uranium Concentration versus the Predicted Concentration for compliance wells, Isoconcentration Map for each of the following constituents: arsenic, molybdenum, selenium and uranium.

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(6) Data Tables summarizing recent and historic monitoring data
(7) Concentration vs. Time Plots for compliance wells
(8) Appendices –copies of field measurements, laboratory analytical reports and chain-of-custody documentation shall be included

G. The Licensee shall provide written notification to the Director a minimum of 30 days before installation of borings or wells that could potentially intercept the shallow groundwater contaminant plume.

30. The Licensee shall perform continued groundwater investigation in accordance with the Stipulated Consent Agreement (SCA) dated May 9, 2016, which approves Licensee's Hydrogeological Work Plan, dated December 3, 2015 and Addendums, dated January 12, 2016 and March 4, 2016. The Licensee shall submit a draft final report to the Director for approval by the date specified in the currently approved SCA. The draft final report shall include:

1. Site characterization activities (i.e., drilling logs, aquifer testing, well installation details, well sampling details, groundwater sample analyses and interpretation, calculations of hydrogeologic parameters, etc.);
2. An updated site conceptual model, including interpretation and results of all field testing performed;
3. A detailed description of the flow and solute transport model including summary tables for all inputs used in the modeling and electronic access to all input/output files: and
4. Presentation of all results, conclusions and recommendations, including the development of preliminary Alternate Concentration Limits and Target Action Levels based on modeling results.

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Scott T. Anderson, Director

3 March 2017
Date