

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE**

Pursuant to Utah Code Annotated, Title 19, Chapter 3 and the Utah Radiation Control Rules, Utah Administrative Code R313, 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.

	LICENSEE)	3. License Number UT 1900481
)	Amendment 6 (Renewal) ⁵
1. Name	Rio Algom Mining, Limited Liability Company)	*****
)	4. Expiration Date
)	January February 1, 2013 — <u>2022</u>
)	(under timely renewal)
2. Address	Rio Algom Mining LLC)	*****
)	*
	PO Box 218)	5. License Category 2-b
	Grants, NM 87020)	

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 <u>and Uranium</u> <u>Byproduct Material</u>	<u>Any Uranium</u> <u>Byproduct Material</u> <u>defined by Nuclear</u> <u>Regulatory</u> <u>Commission (NRC)</u> <u>Regulations, Code</u> <u>of Federal</u> <u>Regulations (CFR),</u> <u>Title 10, Part 40,</u> <u>Section 40.4</u>	Unlimited

ADMINISTRATION AND RADIATION SAFETY

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9. Authorized place of use: The ~~L~~icensee'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.

~~10. The licensee is hereby authorized to possess 11e.(2) byproduct material in the form of uranium waste tailings and other byproduct materials generated by the licensee's milling operations, as defined by Nuclear Regulatory Commission (NRC) Regulations, Code of Federal Regulations (CFR), Title 10, Part 20, Section 20.103 and the Utah Administrative Code (UAC) Section R313-12-3.~~

~~11. The licensee shall conduct activities in accordance with statements, representations, and conditions contained in the Licensee's NRC renewal application dated December 1982, as modified by July 2, 1992, and December 16, 1992 submittals to the NRC, except where superseded by modifying license conditions herein.~~

~~The Licensee shall comply with Section 6.0 of the license renewal application containing the emergency procedures to be followed in the event of an accident [as modified in the supplement submitted to the NRC by letter dated May 31, 1985]. Updating specific names and telephone numbers shall not require this Utah issued license to be amended.
[Applicable NRC Amendments: 3, 9, 15, 16, 40, 42, 57]~~

~~12. DELETED by NRC Amendment No. 40.~~

~~13. DELETED by NRC Amendment No. 40.~~

~~14~~10. The Licensee shall comply with the posting requirements specified within 10 CFR § 20.1902, as incorporated by reference, UAC 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

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<u>Quarter</u>	<u>Period</u>	<u>Due Date</u>
<u>First</u>	<u>January - March</u>	<u>June 1</u>
<u>Second</u>	<u>April - June</u>	<u>September 1</u>
<u>Third</u>	<u>July - September</u>	<u>December 1</u>
<u>Fourth</u>	<u>October - December</u>	<u>March 1</u>

[Applicable UDMRC Amendment 6]

[Applicable UDRC Amendment: 1]

[Applicable NRC Amendment: No. 57]

~~1511.~~ The Licensee shall document the results of sampling, analyses, surveys and monitoring; the results of calibration of equipment; ~~reports on~~ audits and inspections; all meetings and training courses required by this license; and any subsequent reviews, investigations, and corrective actions, ~~shall be documented.~~

A. Unless otherwise specified in writing by the Executive Secretary/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 (5) years.

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

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.

~~16. DELETED by NRC Amendment No. 40.~~

~~17. DELETED by NRC Amendment No. 40.~~

~~18. DELETED by UDRC Amendment: 1~~

~~19. DELETED by NRC Amendment No. 57.~~

2012. In order to ensure ~~that no disturbance of~~ cultural resources ~~occurs are not disturbed~~ in the future, prior to disturbing the soil onsite, the Licensee shall have conduct an archaeological

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and historical artifact survey of areas of its property, not previously surveyed, ~~performed prior to their disturbance,~~ including borrow areas to be used for reclamation cover. These surveys ~~must~~ shall be submitted to the ~~Executive Secretary~~ Director for approval. ~~The Licensee shall not disturb any property included in the survey and no such disturbance shall occur~~ until the Licensee has received authorization from the ~~Executive Secretary~~ 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 ~~Executive Secretary~~ Director.

~~24.13.~~ 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 ~~and submit a report of this survey to the Executive Secretary.~~ The A report of the land use survey shall be submitted to the Director on or before December 31 to the Director annually of each year. This report shall ~~indicate any differences in land use from that described in the last report including~~ include the following: 1) ~~providing 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; ~~and 3) including information on~~ an updated land use map to be included with the report; ~~and 4) identify a description of all land uses changes from the preceding year's report.~~

[Applicable UDMRC Amendment 6]

[Applicable UDRC Amendment: 1]

~~22.—The results of all environmental monitoring required by this license shall be reported in accordance with UAC R313-24 (10 CFR 40, Section 40.65 incorporated by reference) using the NRC Form 484 “Sample Format for Detection Monitoring Data Report”. All groundwater monitoring will be reported in accordance with License Condition 53. The reports shall be transmitted to the Executive Secretary.~~

~~[Applicable UDRC Amendment: 1]~~

~~[Applicable NRC Amendment: 57, 66]~~

~~23.—DELETED by NRC Amendment No. 40.~~

~~24.14.~~ The Licensee shall comply with notification requirements of UAC R313-15 (10 CFR 20 as incorporated by reference). Incident and event notifications that require telephone notification shall be made to the ~~Executive Secretary~~ Director at (801) 536-4250-0200 during normal business hours or after hours to the DEQ Duty Officer at (801) 536-4123.

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[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. For activities conducted within the tailings impoundment, Licensee and shall include Radiation Work Permits (RWPs) that discuss shall describe radiological monitoring, bioassay analyses, exposure calculations, instrument calibrations, and emergency response. All 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

~~25. Pursuant to UAC R313-24-3, before any license renewal, major amendment, or prior to engaging in any activity not previously assessed in the license application, subsequent approvals, amendments, or as modified by this license, the Licensee shall prepare and record an environmental analysis of such activity(s), describing the proposed action, a statement of its purposes and the environment affected. The environmental report shall present a discussion of the following: (a) an assessment of the radiological and nonradiological impacts to the public health from the activities to be conducted pursuant to~~

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~~the license or amendment; (b) an assessment of any impact on waterways and groundwater resulting from the activities conducted pursuant to the license or amendment; (c) consideration of alternatives, including alternative sites and engineering methods, to the activities to be conducted pursuant to the license or amendment; and (d) consideration of the long term impacts including decommissioning, decontamination, and reclamation impacts, associated with activities to be conducted. The licensee shall obtain Executive Secretary approval in the form of a license amendment.~~

~~[Applicable UDRC Amendment: 1]~~

~~26. DELETED by NRC Amendment No. 40.~~

ENGINEERING AND SURETY

~~2720.~~ 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), ~~shall be submitted~~ to the ~~Executive Secretary~~Director by June 30 of each year. Along with each proposed revision or annual update, the Hlicensee 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 ~~15~~25 percent contingency fee, changes in engineering plans, activities performed, and any other conditions affecting estimated costs for site closure. The ~~basis for the cost estimate is~~shall be based on the ~~Executive Secretary~~Director approved reclamation/decommissioning plan or ~~Executive Secretary~~Director approved revisions to the plan.

~~The licensee's approved surety, Irrevocable Letter of Credit issued by the Imperial Bank of Commerce, New York Branch, in favor of the Executive Secretary, shall be continuously maintained in an amount no less than \$2,214,366 for the purpose of complying with UAC R313-24, until a replacement is authorized by the Executive Secretary.~~

~~[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]~~

~~2821.~~ Prior to termination of this license, the Hlicensee 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.

~~29. DELETED by NRC Amendment No. 61.~~

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- ~~30. DELETED by NRC Amendment No. 57.~~
- ~~31. DELETED by NRC Amendment No. 40.~~
- ~~32. DELETED by NRC Amendment No. 40.~~
- ~~33. Written operating procedures shall be established for activities involving radioactive materials and will include monitoring, bioassay analyses, instrument calibrations, and emergency response. All written procedures required by this Condition shall be reviewed and approved in writing by the Radiation Safety Officer (RSO) before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RSO shall perform a documented review of all existing operating procedures at least annually.
[Applicable UDRC Amendment: 1]
[Applicable NRC Amendments: 40]~~
- ~~34. DELETED by NRC Amendment No. 40.~~
- ~~35. DELETED by NRC Amendment No. 40.~~
- ~~36. DELETED by NRC Amendment No. 40.~~
- ~~37. DELETED by NRC Amendment No. 40.~~
- ~~38. The licensee shall be required to use a Radiation Work Permit (RWP) issued by the RSO or designee for work or nonroutine maintenance jobs where the potential for exposure to radioactive material exists and for which no written procedures exist. The RWP shall at least describe the following:~~
- ~~A. The scope of the work to be performed.~~
- ~~B. Any precautions necessary to reduce exposure to uranium and its daughters.~~
- ~~C. The supplemental radiological monitoring and sampling necessary before, during, and following completion of the work.~~
- ~~39. To ensure continued good radiation safety practices, the RSO or designee shall conduct monthly documented inspections of all active work areas in accordance with the program elements specified in Section 5.1.3 of the renewal application.
[Applicable NRC Amendments: 9, 15, 40]~~

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- ~~40. The licensee shall submit a copy of the report documenting an annual ALARA audit committed to in Section 5.1.4 of the renewal application as modified by letter dated November 20, 1987. Submittals required by this condition shall be submitted to the Executive Secretary within one month of completion of the report.
[Applicable NRC Amendments: 15, 40]~~
- ~~41. All workers shall be provided on the job training on the radiation safety aspects of the job to be performed prior to beginning work activities and annually thereafter. The on the job training, as well as all other training committed to in Section 5.3 of the renewal application, shall be documented.
[Applicable NRC Amendments: 40]~~
- ~~42. DELETED by NRC Amendment No. 57.~~
- ~~43. The licensee shall perform and document function checks of the alpha survey meters prior to their use.~~
- ~~44. DELETED by UDRC Amendment: 1~~
- ~~45. The licensee shall comply with the following:~~
- ~~A. DELETED by NRC Amendment No. 24.~~
- ~~B. A spillway channel shall be constructed in the left abutment of the lower tailings dam, as located in the licensee's April 10, 1992, submittal. The spillway shall have a 30-foot bottom width, 2H:1V side slopes and a crest elevation of 6645 feet.~~
- ~~C. DELETED by NRC Amendment No. 37.~~
- ~~D. DELETED by NRC Amendment No. 30.~~
- ~~E. DELETED by NRC Amendment No. 24.~~
- ~~F. DELETED by NRC Amendment No. 57.~~
- ~~G. Runoff from the upper tailings shall be diverted into the diversion ditch according to the methods described in the licensee's October 11, 1991, submittal. COMPLETE
[Applicable UDRC Amendment: 1]~~

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~~H. The evaporation pond on the upper impoundment shall be operated with a minimum freeboard of 2 feet in accordance with the licensee's August 15, 1990, submittal. COMPLETE~~

~~[Applicable UDRC Amendment: 1]~~

~~I. The evaporation pond on the lower tailings pond shall be constructed in accordance with the licensee's February 3, and April 16, 1992, and February 24, 1993, submittals. The lower evaporation pond shall be operated with a minimum freeboard of 2 feet in accordance with the licensee's February 3, 1992, submittal. COMPLETE~~

~~[Applicable UDRC Amendment: 1]~~

~~J. DELETED by NRC Amendment No. 53.~~

~~A construction report for the lower evaporation pond and as built drawings of the upper and lower evaporation ponds shall be submitted to NRC within 3 months of completion of construction of the lower evaporation pond. COMPLETE~~

~~[Applicable UDRC Amendment: 1]~~

~~[Applicable NRC Amendments: 13, 14, 17, 21, 24, 25, 28, 30, 37, 43, 46, 50, 53, 57]~~

~~46. DELETED by NRC Amendment No. 40.~~

~~47. DELETED by NRC Amendment No. 40.~~

~~48. DELETED by NRC Amendment No. 40.~~

~~49. DELETED by NRC Amendment No. 40.~~

~~50. DELETED by UDRC Amendment: 1~~

~~51. DELETED by NRC Amendment No. 57.~~

~~5222.~~ 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 NRC review and approval, the settlement data that demonstrate that 90 percent of the expected settlement is complete. COMPLETE~~

~~[Applicable UDRC Amendment: 1]~~

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- ~~AB.~~ The Hlicensee shall submit for ~~Executive Secretary~~ 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.
- ~~C.~~ ~~The licensee shall submit to the NRC by January 1, 1994, a plan to verify that the in place cover has not experienced excessive erosion or defects after it has been demonstrated that settlement is complete and before the radon barrier is considered final. The proposed plan must include a field testing program which contains a method to ensure that the appropriate minimum depths of clay and silt are in place over the disposal area. COMPLETE~~
~~[Applicable UDRC Amendment: 1]~~
- ~~BD.~~ The Hlicensee shall provide an analysis of the results of the testing program that was required in Section C a letter from the NRC dated December 19, 1997 a letter from the NRC dated December 19, 1997 above to verify the design conditions with respect to radon attenuation. The analysis shall be provided for ~~Executive Secretary~~ Director review and approval.
- ~~E.~~ ~~DELETED by NRC Amendment No. 57.~~
- CF. The Hlicensee 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) DELETED by NRC Amendment No. 67.~~
 - ~~(2) DELETED by NRC Amendment No. 67.~~
 - ~~(3) DELETED by NRC Amendment No. 67.~~
 - ~~(4) DELETED by NRC Amendment No. 67.~~
 - ~~(5) DELETED by NRC Amendment No. 67.~~
 - ~~(6) DELETED by NRC Amendment No. 67.~~
 - ~~(7) DELETED by NRC Amendment No. 67.~~
 - ~~(8) DELETED by NRC Amendment No. 67.~~
 - ~~(9) DELETED by NRC Amendment No. 67.~~
 - (10) The Hlicensee 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

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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.

- (~~211~~) 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.~~demonstrating the refusal of a power augur drilling vertically, using a carbide steel bit. Tests will be performed on a maximum of 20-foot centers. Alternatively, if the L~~icensee can document that the bedrock is massive and relatively uniform, testing on 50-foot centers shall be acceptable.
- (~~312~~) 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.
- ~~G. All of the reclamation plan requirements shall be incorporated into a single document and provided to the Executive Secretary no later than 3 months after Executive Secretary approval of the erosion protection design. This document shall contain only the plans and specifications that will be used to construct the reclamation plan.~~
- HD. 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 6 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. 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]

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23. The Licensee shall complete site reclamation in accordance with ~~an approved~~ a reclamation plan reviewed and approved by the Director. The ground-water compliance monitoring plan shall be conducted as authorized by License Condition No. ~~53-30~~ 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 ~~complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule: verify (13) — 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. Target completion date was December 31, 1996.~~

~~(2) — for Reclamation of areas not covered by outside of the evaporation ponds. Target completion date was December 31, 1996.~~

~~(3) — and by December 31, 2014 for Reclamation of the area beneath under the evaporation ponds. Target completion date was December 31, 2014 for~~

~~—[Applicable UDRC Amendment: 1]~~

~~[Applicable to UDWMRC Amendment 6]~~

B. Reclamation, to ensure required longevity of the covered tailings and ground-water 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). ~~Target completion date is December 31, 2015. (Currently under review by DWMRC.)~~

(2) ~~The Licensee has submitted and the Director has approved a hydrogeological work plan to develop Projected completion of ground-water corrective actions to meet performance objectives. The Stipulation and Consent Agreement (May 9, 2016) and any subsequent agreements establish the target dates related to ground-water corrective actions. specified in the ground-water corrective action plan, as amended by subsequent submittals. Target completion date is December 31, 2015 June 18, 2017 within one year of Licensee receiving. COMPLETE~~

[Applicable UDRC Amendment: 1]

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- 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 Hlicensee).
- 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 Hlicensee. 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 Hlicensee 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

5329. _____ The Hlicensee shall implement a ground water compliance monitoring program ~~containing the following as specified below and in accordance with the currently approved Licensee Groundwater Monitoring Plan; as specified below and as per the currently approved licensee Groundwater Monitoring Plan version 2.0~~

- 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, sulfate, and bicarbonate, and measure water levels (depth to groundwater and

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groundwater elevation). ~~Monitoring will occur~~ in accordance with the monitoring schedule in 5330.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.

~~(1)~~

~~2. The south aquifer background concentrations (in mg/L) for MW-13 are: arsenic = 0.066, molybdenum = 0.05, selenium = 0.01, 0.01 and uranium = 0.02.~~

[Applicable NRC Amendments: 59, 66]

B. The Licensee shall Pprotect ground water 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

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EF-8	0.30 ³
ML-1	0.26 ³
RL-1	42.1 ⁴
RL-3	37.3 ⁴
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.

B.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 HLicensee shall:

- (1) Notify the ~~Executive Secretary~~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, ~~unless the Executive Secretary determines that other periodic sampling is appropriate,~~ for two consecutive quarters or until the compliance status of the facility can be determined.

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~~C.D.~~ C. 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 Hlicensee shall:

- (1) ~~————(1) Verbally notify the Executive SecretaryDirector~~ within 24 hours of discovery of the event; followed by a written notice within 5 days of verbal notification;
- (2) ~~————(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 ~~unless the Executive Secretary determines that other periodic sampling is appropriate,~~ until the event is resolved to the ~~Executive SecretaryDirector~~'s satisfaction;
- (3) ~~————(3)Within 30 days of discovery of the exceedance, p~~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 ~~5330~~.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 ~~Executive SecretaryDirector~~.

~~E. D. — DELETED by NRC Amendment No. 66.~~

~~E. — DELETED by NRC Amendment No. 66.~~

~~F.~~ The Licensee shall comply with all applicable requirements ~~found 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).

~~FG.~~ ~~————The Licensee shall annually Ssubmit, to the Executive SecretaryDirector for for~~ approval, Ground Water Monitoring Reports in accordance with the following sampling and reporting schedule:

Table 4: Semi-Annual Ground Water Monitoring Reporting Schedule		
<i>To Be Followed Until the Year 2012</i>		
Semi-Annual Sample Period	Period	Report Due Date
First	January—June	September 1
Second	July—December	March 1

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Table 54 : Annual Ground Water Monitoring Reporting Schedule <i>To Be Followed Thereafter</i>		
Annual Sample 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. ~~Said~~ The annual ground water monitoring reports shall include, but are not limited to, the following ~~minimum information~~:

- (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.
- (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

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

~~54. In accordance with submittals dated February 21, March 31, May 19, September 28, 1989, and January 10, 1990, the licensee is authorized to dispose of a maximum of 70,000 cubic yards of coal ash, contaminated mill wastes, soil, waste rock, and Bisco Lake sediment within the location shown in the licensee's March 31, 1989, submittal. Materials will be disposed of according to procedures described in the March 31, 1989, submittal. The disposal shall be completed by March 31, 1991, and shall be documented. COMPLETE~~

~~{Applicable UDRC Amendment: 1}~~

~~{Applicable NRC Amendments: 2, 5, 11, 16, 23, 24, 25, 31, 57}~~

~~55. The licensee shall complete site reclamation in accordance with an approved reclamation plan. The ground water compliance monitoring plan shall be conducted as authorized by License Condition No. 53 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~~

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- ~~55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:~~
- ~~(1) Windblown tailings retrieval and placement on the pile—September 30, 1993.
COMPLETE~~
 - ~~(2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion—December 31, 1992. COMPLETE~~
 - ~~(3) Placement of final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m² see above background—December 31, 1996, for areas not covered by the evaporation ponds and by December 31, 2014 for the area under the evaporation ponds.
[Applicable UDRC Amendment: 1]~~
- ~~B. Reclamation, to ensure required longevity of the covered tailings and ground-water 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). Target completion date is December 31, 2015.~~
 - ~~(2) Projected completion of ground-water corrective actions to meet performance objectives specified in the ground-water corrective action plan, as amended by subsequent submittals. Target completion date is December 31, 2015.
COMPLETE
[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.~~

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~~{Applicable NRC Amendments: 41, 44, 57}~~

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.

UTAH DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL

~~—Rusty Lundberg~~Scott T. Anderson, Director

Date