



State of Utah

GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

Department of  
Environmental Quality

L. Scott Baird  
Interim Executive Director

DIVISION OF WASTE MANAGEMENT  
AND RADIATION CONTROL  
Ty L. Howard  
Director

August 6, 2019

Sandra L. Ross, Site Manager  
Rio Algom Mining LLC  
P.O. Box 218  
Grants, NM 87020

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
7004 1160 0005 5671 3518

RE: Stipulation and Consent Agreement, Lisbon Valley Facility Supplemental Site Assessment  
Radioactive Materials License Number 1900481

Dear Ms. Ross:

A copy of the duly executed Stipulation and Consent Agreement (SCA) regarding the Lisbon Valley Facility Supplemental Site Assessment is enclosed. The SCA is dated and effective as of July 30, 2019.

If you have questions, please call Tom Rushing at (801) 536-0080.

Sincerely,

Ty L. Howard, Director  
Division of Waste Management and Radiation Control

Enclosure: Stipulation and Consent Agreement (DRC-2019-007665)

TLH/TR/kb

c: Kirk Benge, Health Officer/Environmental Health Director, San Juan County Health Dept.  
Rick Meyer, Environmental Health Director, San Juan County Health Dept.  
Scott Hacking, P.E., DEQ District Engineer

**UTAH DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL**

IN THE MATTER OF RIO ALGOM MINING LLC BHP BILLITON P.O. Box 218 1803 West Santa Fe Ave. Grants, NM 87020	STIPULATION AND CONSENT AGREEMENT
---	--------------------------------------

**STATUTORY AUTHORITY**

This STIPULATION AND CONSENT AGREEMENT (Agreement) is hereby made between Rio Algom Mining LLC (RAML) and the Director (Director) of the Utah Division of Waste Management and Radiation Control (Division) pursuant to the Utah Solid and Hazardous Waste Act, Utah Code Ann. (UCA) §§ 19-6-101 to 125, the Utah Radiation Control Act, UCA §§ 19-3-101 to 320 and the Utah Administrative Procedures Act, UCA §§ 63G-4-101 to 601.

**APPLICABLE STATUTORY AND REGULATORY PROVISIONS**

1. The Director is authorized to review and approve plans and issue administrative authorizations and orders in accordance with UCA §19-6-107.
2. RAML has been issued Radioactive Materials License UT 1900481 (License). Condition 53 of the License requires RAML to implement a groundwater compliance monitoring program containing elements outlined therein which include compliance with maximum groundwater concentrations for distinct parameters, listed as *Alternate Compliance Limits, Compliance Limits and Target Action Levels* for specific monitoring wells.

**FINDINGS OF FACT**

1. RAML owns the Lisbon Uranium Milling Facility (Facility) located in the Lisbon Valley, San Juan County in southeastern Utah, approximately two miles south of the town of La Sal.
2. Uranium mining operations began at the Facility in May 1972 and continued until October 1988, when the Lisbon Mine was closed. Milling operations continued until October 1988.
3. The Facility is comprised of two tailings impoundments and various drainage and reclaimed areas. The upper tailings impoundment covers approximately 46 acres and the lower impoundment covers approximately 48 acres. A seven-acre former mine water treatment pond called Bisco Lake was located east of the Facility. Underground mine water was discharged to Bisco Lake where it was treated with barium chloride to precipitate radium in solution.
4. The Facility's upper and lower tailings impoundments have undergone reclamation, including the placement of covers approved by the U.S. Nuclear Regulatory Agency (NRC). Dams were constructed between the impoundments and at the western end of the lower impoundment. Neither of the impoundments has constructed bottom liners. All former and

related constructed facilities were decommissioned and or demolished in 1996 and buried at the toe of the upper dam of the tailings ponds including approximately 70,000 cubic yards of coal ash, contaminated mill wastes, waste rock and 80 percent of the Bisco Lake sediment.

5. A RAML Corrective Action Plan (CAP) to address continuing tailings seepage and groundwater contamination was approved by the NRC in 1990. The CAP included pumping contaminated groundwater from remedial wells and discharging the pumped water to lined evaporation ponds located on top of the upper and lower covered impoundments.
6. Active groundwater pumping at the Facility continued until 2004 when the NRC approved a RAML 2001 application for Alternate Concentration Limits (ACLs) and a Long-Term Groundwater Monitoring Plan (LTGMP). ACLs were deemed appropriate at the time based on findings of an environmental assessment that was completed by RAML and approved by the NRC. The environmental assessment reflected no significant impacts at the Facility area and observations by RAML that although a significant mass of contaminants had been removed from the site groundwater, the groundwater quality at the Facility had not significantly improved.
7. Primary regulatory oversight of the Facility was transferred from the NRC to the Director in 2004, shortly after NRC approval of the ACLs.
8. The Director issued the License to RAML on February 8, 2005. The License was amended on March 6, 2006, January 2, 2010 and February 6, 2012 (Amendment 4).
9. RAML conducts groundwater monitoring at the Facility in accordance with License Condition 53 (Groundwater Compliance Monitoring Program) and the currently approved Groundwater Monitoring Plan (July 31, 2015), which includes the current LTGMP as an appendix.
10. License Condition 53.C defines “out-of-compliance” status regarding groundwater monitoring as “two consecutive exceedances of any contaminant concentration specified in tables 1, 2, or 3 of this license in any well” and specifies follow up conditions, including initiation of accelerated monitoring in the event that out-of-compliance status is detected at a monitoring well.
11. RAML exceeded contaminant concentration limits listed in the License Table 1, 2, or 3 two consecutive times at specific Facility groundwater monitoring wells as follows:
  - a. RAML exceeded the License Target Action Level (TAL) for uranium (42.1 mg/L) in monitoring well RL-1 during the April 2010 and August 2010 quarterly monitoring events (two consecutive exceedances).
  - b. RAML exceeded the License TAL for uranium (0.03 mg/L) in monitoring well EF-8 during the May 2011 and August 2011 quarterly monitoring events (two consecutive exceedances).

- c. RAML exceeded the License ACL for arsenic (2.63 mg/L) in monitoring well OW-UT-9 during the November 2012 and March 2013 quarterly monitoring events (two consecutive exceedances).
12. The DIRECTOR issued a Notice of Enforcement Discretion and Confirmatory Action Letter (CAL) to RAML, dated February 7, 2011, regarding the initial out-of-compliance status at monitoring well RL-1. In the CAL, the Director noted that concentration trends at monitoring well RL-1 were not in conformance with the ground water modeling predictions (analyzed conditions) which formed the basis for NRC approval of the current Licensed ACLs and TALs.
  13. In accordance with the February 7, 2011 CAL, the following actions were agreed to by RAML:
    - a. *“Rio Algom will hire an independent consultant, qualified to; 1. Review pertinent information and documents, including the existing ACL model, relevant laboratory data, LTGMP and associated technical information, and; 2. Provide potential additional ground water modeling (revised ACL model) as appropriate. Per the January 27, 2011 e-mail, Rio Algom expects that a qualified consultant can be under contract within 1 month of receipt of this Confirmatory Action Letter (CAL). Rio Algom will notify DRC once the contract has been finalized and provide information regarding the contractor name and individual qualifications;*
    - b. *On or before May 1, 2011 Rio Algom will provide the Executive Secretary a detailed written action plan and schedule for the investigation. The action plan is subject to review and approval by the Executive Secretary. The action plan and schedule will include a logic diagram identifying all actions, including dates that those actions will be initiated and completed, necessary to achieve outlined performance objectives. Performance objectives include but are not limited to:*
      - i. *Justify whether the current RL-1 data set is or is not sufficient to depict the U concentration trend;*
      - ii. *Conclude with definitive evidence whether the Lisbon Valley Facility is operating within or outside of the analyzed condition of the Nuclear Regulatory Commission (NRC) approved “Application for Alternate Concentration Limits” (Approved May 11, 2004), and LTGMP, and;*
      - iii. *Determine whether the ACL model should be revisited/revised to account for more recent data*
    - c. *On or before August 1, 2011 Rio Algom will provide the Executive Secretary a written final report. The report shall provide conclusions for all performance objectives listed in the approved action plan and schedule.”*

14. To date, two phases of the supplemental site assessment (hydrogeological investigations) have been completed at the Facility by RAML as approved by the Director. RAML submitted a Final Report for the Supplemental Site Assessment dated July 22, 2014, (SSA). The SSA included revised groundwater conceptual and numerical modeling and proposed revised ACLs and TALs.
15. While the RAML studies associated with the SSA have greatly improved the understanding of area geology and site specific groundwater and contaminant flow, according to the Director's comments regarding the SSA (Letter dated October 17, 2014), the studies to date have not adequately conceptualized site geology, groundwater flow, contaminant transport, and source impacts to support the approval of revised groundwater modeling and revised ACLs and TALs for the Facility in order to protect public health and the environment.
16. RAML responded to the Director's comments regarding the SSA review findings in a letter dated March 26, 2015, which included an appended list of responses to specific comments made by the Director. As well as addressing specific comments, the RAML response: 1) proposed additional modeling and field investigations as outlined in the letter, and, 2) agreed to provide a detailed work plan for the additional study after some additional communication with the Director regarding specific objectives and studies to be undertaken.
17. The Director and RAML met on May 13, 2015 to discuss the revised work plan to be submitted for additional study at the Facility. RAML submitted the revised work plan dated December 3, 2015 for review and approval by the Director. RAML also submitted two separate addendums to the work plan dated January 12, 2016 and March 4, 2016.
18. The December 3, 2015 RAML work plan and addendums were approved by the Director through a Stipulation and Consent Agreement dated May 9, 2016. The Stipulation and Consent Agreement required that a draft final report of the findings be submitted to the director on or before June 18, 2017.
19. RAML submitted a request to the Director for an extension of time to submit the draft final report, dated March 30, 2017. RAML requested a one year extension of time.
20. The Director approved extension of time to submit the draft final report by letter dated April 6, 2017. The letter approved an extension until August 31, 2018 to submit the draft final report.
21. RAML submitted the draft final report dated August 30, 2018 which included: 1. A Tailings Impoundments Water Balance Modeling Report; 2. A Hydrogeological Supplemental Site Assessment in 3 Volumes.
22. The Director sent an April 17, 2019 Request for Additional Information Regarding Review of the August 30, 2018 Tailing Impoundments Water Balance Modeling Report and Hydrogeological Supplemental Site Assessment to RAML. The Request for Additional Information was discussed between the Director and RAML during an April 30, 2019 conference call. The April 17, 2019 Request for Additional

Information included a requirement for a new RAML Work Plan to be submitted to the Director on or before June 21, 2019.

23. RAML submitted the Work Plan for the Hydrogeological Supplemental Site Assessment Phase 4 dated June 21, 2019.
24. Corrective action for the out-of-compliance wells/parameters shall be in accordance with the terms of this Agreement and based on outlined studies, objectives and schedules outlined in the June 21, 2019 RAML Phase 4 Work Plan as discussed in the section below.

### **AGREEMENT**

1. This Agreement supersedes and closes the May 9, 2016 Stipulated Consent Agreement entered into between RAML and the Director.
2. RAML shall complete all studies and activities according to the schedules listed in the June 21, 2019 Work Plan (Attached as part of this Agreement).
3. In accordance with the June 21, 2019 Work Plan, RAML shall complete the following studies for the Facility:
  - a. Tailings Water Balance.
    - i. Natural Recharge Field and Laboratory Evaluation.
    - ii. Impoundment Covers Field Evaluation.
    - iii. Calculation of Natural Recharge rate and HELP Modeling of Natural Soil Profile.
    - iv. Refined HELP Modeling of Design (Hypothetical) UTI and LTI Covers
    - v. Natural Recharge and Water Balance Modeling Report.
  - b. Surface Water – Groundwater Interactions.
    - i. Piezometer and Stream Gage Installation.
    - ii. Stream Discharge Measurements.
    - iii. Seep and Spring Geochemistry
    - iv. West Coyote Wash Area Well Installation and Coring
  - c. Evaluation of Fault Influence on Groundwater Flow.
    - i. Groundwater Flow near the Lisbon Valley Fault.
    - ii. Characterization of Subsidiary Faults.

- d. Water Quality in Groundwater Monitoring Well MW-124.
  - i. Leaching of MW-124 Drill Cuttings.
  - ii. Coring Near MW-124.
- e. Stock Well Pumping Impacts.
  - i. Coordinate with the stock well owner.
  - ii. Proposed installation of a water level logger and flow meter at the stock well.
  - iii. Installation of a monitoring well near the stock well at the same depth as the stock well for aquifer characterization.
- f. Groundwater Treatment Options.
  - i. Update and expand on previously evaluated treatment options utilizing updated site conditions.
  - ii. Consider site conditions, design and installation practicality, and cost-benefit analysis.
- g. Background Concentrations and COC Evaluation.
  - i. Statistical Analysis of Upgradient and Fault-Impacted Wells.
  - ii. Update list of Constituents of Concern.
  - iii. Prepare a Background Evaluation Report.
- h. Additional Aquifer Characterization and Plume Monitoring Wells.
  - i. Install monitoring wells to refine the northern hydrogeological boundary conditions and define the geochemistry and extent of uranium concentrations.
  - ii. Log core for rock type, fracturing and mineralization, and geochemical analysis.
- i. Estimates of COC Attenuation
  - i. Investigate and compare constituent of concern adsorption (partition coefficients) using in-situ approach and a mechanistic approach.
- j. Update Conceptual Site Model and Flow and Transport Model.

- i. Provide flow and transport modeling
  - ii. Prepare a Revised Site Water Balance Report, a Background Evaluation Report and a Revised Hydrogeological Supplemental Site Assessment Report.
- k. New Alternate Concentration Limits and Target Action Levels
  - i. Based on flow and transport model propose predicted ACL's and TAL's based on predicted COC concentrations and additional actions (e.g. tailings cap configuration, LTSM boundary expansion, and additional groundwater remediation) needed to achieve the proposed concentrations.
4. RAML shall provide notification of field activities to be undertaken at the Facility at least 14 days prior to commencement of the activities.
5. RAML shall dispose of all wastes generated at the Facility at facilities or locations approved to accept the generated wastes.
6. RAML shall submit a revised Site Water Balance report, a Background Evaluation Report and an addendum to the Hydrogeological Supplemental Site Assessment Report as described in Part 2.12 the June 21, 2019 Work Plan on or before October 29, 2021, unless an extended schedule has been previously approved in writing by the Director, in which case RAML shall follow that modified schedule. Documentation of all studies and tasks performed by RAML shall be provided in submitted documents as outlined in the June 21, 2019 Work Plan.

#### **STIPULATED PENALTIES**

RAML shall pay a stipulated penalty of \$500 per calendar day per violation upon written determination by the Director that RAML has violated any provision of this Agreement. The penalty amount stipulated is consistent with penalties for groundwater permit violations administered by the Division under the Utah Water Quality Act, Utah Code Ann. (UCA) §§ 19-5-101 to 124.

1. If the Director determines that any of the information required by this Agreement to be submitted to the Director has omissions, is deficient in content or fails to provide any of the study elements required by this Agreement, the Director shall notify RAML in writing and RAML shall remedy such omissions or failures on or before a due date as determined appropriate by the Director, provided that such due date shall allow RAML a reasonable time frame within which to remedy such omissions or failures. If RAML fails to remedy such omissions or failures on or before the due date, RAML agrees to pay stipulated penalties of \$500 per calendar day per violation.
2. RAML agrees to pay any stipulated penalties within 30 calendar days of written notice from the Director, in the form of a check, made payable to the State of Utah, and delivered or mailed to:



Ty L. Howard, Director  
Division of Waste Management and Radiation Control  
Utah Department of Environmental Quality  
195 North 1950 West  
P.O. Box 144880  
Salt Lake City Utah, 84114-4880

**FORCE MAJEURE**

RAML agrees to perform all requirements of this Agreement within the time limits established under this Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Agreement, a *force majeure* is defined as any event arising from causes beyond the control of RAML or of any entity controlled by RAML including, but not limited, to contractors and subcontractors that delay or prevent performance of any obligation under this Agreement despite RAML's best efforts to fulfill the obligation.

RAML shall provide written notice to the Director of the occurrence of a *force majeure* that will cause or has caused a delay. The notice will include a description of the events leading to the *force majeure* and an estimate of the new timeline to perform the requirements.


**NOTICE**


RAML shall comply with each of the provisions of this Agreement. Providing false information shall subject RAML to additional civil penalties or criminal fines in excess of those stated in this document, up to the maximum allowable by law.

AGREED to this 30<sup>th</sup> day of July, 2019.

RIO ALGOM MINING LLC

UTAH DIVISION OF WASTE MANAGEMENT  
AND RADIATION CONTROL

By   
Marny Reakes  
Vice President

By   
Ty L. Howard  
Director

**Attachment 1:  
RAML Work Plan for the Lisbon Facility Hydrogeological Supplemental Site  
Assessment July 21, 2019**

SENDER: COMPLETE THIS SECTION

- Complete Items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Sandra L. Ross, Site Manager  
 Rio Algom Mining LLC  
 P.O. Box 218  
 Grants, NM 87020

2. Article Number

(Transfer from service label)

7004 1160 0005 5671 3518

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

*Michaela Gorsse*  
 Agent  
 Addressee

B. Received by (Printed Name)

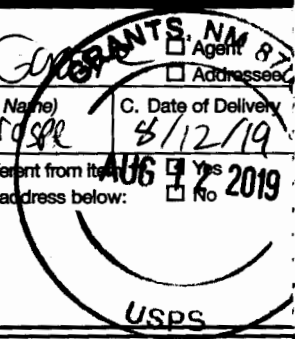
Michaela Gorsse

C. Date of Delivery

8/12/19

D. Is delivery address different from item 1? If YES, enter delivery address below:

AUG 9 2019  
 Yes  
 No



3. Service Type

- Certified Mail
- Express Mail
- Registered
- Return Receipt for Merchandise
- Insured Mail
- C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes

UNITED STATES POSTAL SERVICE



STATE MAIL 08/15/2019

First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Department of Environmental Quality  
Division of Waste Management  
and Radiation Control  
P.O. Box 144880  
Salt Lake City, UT 84114-4880

**RETURN SERVICE REQUESTED** TR-Kb

DRC 2019-007663 WT 481

