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DRC-2022-013521

Rio Algom Mining LLC

May 31, 2022

Mr. Doug Hansen
Utah Division of Environmental Quality
Division of Waste Management and Radiation Control (DWMRC)
PO Box 144880
195 North, 1950 West
Salt Lake City, Utah
84114-4880

**RE: Draft Annotated Outline for Corrective Action Assessment Work Plan
Lisbon Facility, San Juan County, Utah, Radioactive Materials License UT 1900481**

Dear Mr. Hansen:

As requested by the Utah Division of Waste Management and Radiation Control (DWMRC) in its letter dated 31 March 2022, Rio Algom Mining LLC (RAML) is pleased to submit our proposed draft outline for the Corrective Action Assessment Work Plan (CAAWP) for the Lisbon Facility. The draft outline presents RAML's vision for the work plan that will guide the data collection needed to develop and evaluate potential corrective actions to address the sourcing and extent of mill-related constituents in groundwater.

RAML presented a conceptual outline for the CAAWP to DWMRC staff during a virtual meeting on 23 May 2022. The enclosed annotated outline has been updated to reflect input we heard from DWMRC staff, and for better explanation of how the CAAWP fits into the overall corrective action program at the Lisbon site. Updates include:

- Annotation to briefly explain the anticipated purpose and content of each main section of the CAAWP;
- Creation of a milestone step after completion of CAAWP fieldwork upon which DWMRC and RAML can enter a next-phase Stipulation and Consent Agreement; and
- Reordering of several sections of the CAAWP so that the document more clearly explains the purpose and focus of the proposed data collection (i.e., provide data needed to develop and evaluate potential corrective actions).

The CAAWP will include RAML's proposed schedule for the Lisbon groundwater corrective action program, from DWMRC review of the CAAWP through issuance of a Stipulation and Consent Order for the future Groundwater Corrective Action Plan. RAML's proposed sequencing of key project activities is summarized in the enclosed table. The CAAWP will present a more detailed

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schedule, including task durations and dates that will reflect the scope of work described in the CAAWP. The CAAWP will discuss uncertainties inherent in the proposed schedule, such as the time required to implement, execute, and evaluate treatability studies (if proposed).

RAML appreciates DWMRC staff's engagement in this planning step for the Lisbon CAAWP and we welcome staff's comments about this annotated draft outline. If you have any questions or need additional information, please do not hesitate to contact me at (916) 947-7637.

Sincerely,

Rio Algom Mining LLC



Sandra L. Ross
Manager US Legacy Assets

Enclosures: Draft Corrective Action Assessment Work Plan Annotated Outline
Table: Proposed Sequencing of Key Project Activities

cc: Phil Goble, DWMRC (electronic only)
Tom Rushing, DWMRC (electronic only)
Cindy Ardito, Intera (electronic only)
Mike Schierman, H3 Environmental (electronic only)

Draft Corrective Action Assessment Work Plan (CAAWP) Annotated Outline Lisbon Facility, San Juan County, Utah

1. **Introduction.** This section will present the rationale for a Corrective Action Program (CAP) at Lisbon and explain the need for a Corrective Action Assessment (CAA) as an input to the CAP. It will also provide an overview of the site setting, history, previous work, conceptual site model, and regulatory framework at a level of detail appropriate for a work plan.
2. **Corrective Action Assessment Approach.** This section will describe, at a conceptual level, the criteria and processes through which potential corrective actions will be evaluated in the CAA. Evaluation criteria are anticipated to include regulatory requirements such as the Utah Administrative Code and the Lisbon site Radioactive Materials License UT1900481, and BHP's corporate requirements for advancing a capital project. This section is anticipated to introduce the following areas for evaluation of corrective actions and identify the data needed in each area to evaluate potential corrective actions:
 - Source Area: the immediate vicinity of the Upper and Lower Tailing Impoundments.
 - Groundwater Study / Near-field Area: portions of the mill-related groundwater plume downgradient of the tailing impoundments and within the current proposed long-term surveillance and maintenance (LTSM) boundary.
 - Groundwater Study / Far-field Area: the area at and downgradient of the current proposed LTSM boundary.

This section will present data quality objectives (DQOs) to guide the collection and use of data for the CAA.

3. **Source Area Study.** The purpose of the source area study will be to gather data needed to evaluate potential corrective actions to mitigate potential migration of mill-related constituents from the source area (i.e., the tailing impoundments) into the groundwater system. To refine the conceptual model for the tailing impoundments, this section will describe:
 - Field data collection,
 - Engineering studies, and
 - Modeling.

The results of the source area study will be used in the CAA for the source area.

4. **Groundwater Study.** This section will describe the proposed data collection that is needed to develop and screen potential corrective actions to address mill-related constituents in the groundwater system. Groundwater study data collection is anticipated to include:
 - Hydrogeochemical Evaluations: guide the collection of surface water and groundwater data to resolve data gaps critical to completing the CAA (i.e., plume migration, solute retention in less conductive zones of the aquifer, and exposure pathways). Data to be



collected may include field parameters, general chemistry, metals, radionuclides, and stable isotopes and other hydrologic tracers.

- **Geological/Geophysical Evaluations:** guide the study of key stratigraphic and structural features that may affect the viability or performance of potential corrective actions, as well as identify flow pathways. Data collection activities may include field mapping, electrical resistivity surveys, seismic refraction surveys, drilling, and well installation and pumping tests.
- **Treatability Studies:** describe the preliminary design and steps to implement a treatability study to test the viability, efficiency, and effectiveness of one or more technologies at controlling the mill-related groundwater plume. Data from treatability studies will be used as an input to the CAA.
- **Modeling Updates:** describe the use of groundwater and/or geochemical modeling to refine the understanding of groundwater plume behavior. The updated model will be used as a tool to evaluate the future performance of potential groundwater corrective actions.

5. **Documentation and Reporting.** This section will describe how the data collection activities described in the CAAWP will be documented and reported. This section will provide an outline for an anticipated *Field Investigation Report and Corrective Action Assessment Plan* that will:

- Document the activities and data collected from the field sampling and treatability studies described in the CAAWP, and
- Provide a more informed and detailed explanation of how potential corrective actions will be evaluated (building on the conceptual base from Section 2 of the CAAWP).

The *Field Investigation Report and Corrective Action Assessment Plan* is intended to support a Stipulation and Consent Agreement to bridge RAML's work from the CAAWP implementation through development and preparation of a Groundwater CAP.

6. **Corrective Action Assessment Schedule.** This section will present the sequencing and milestones for implementing the CAAWP, and for the anticipated steps that will follow the CAAWP leading to approval of a Groundwater CAP and an associated Stipulation and Consent Order. The schedule will include proposed dates for key phases of the work, including proposed agreements/orders. This section will discuss uncertainties inherent in the schedule, such as the time required to implement, execute, and evaluate treatability studies (if proposed).

7. **References.** This section will list the references cited in the CAAWP.

