



March 8, 2013

Mr. Willard Hagen, Chair  
Mackenzie Valley Land and Water Board  
Box 2130, 7th Floor, 4922 - 48th Street  
Yellowknife, NT X1A 2P6

Dear Mr. Hagen:

**Responses to Review Comments – Water Licence Application MV2012L8-0010**  
**Roaster Complex Deconstruction and Underground Stabilization**

Please find enclosed our response package addressing the draft water licence conditions put forward by staff of the Mackenzie Valley Land and Water Board (the Board) and review comments provided by the Department of Fisheries and Oceans, Environment Canada, the Yellowknives Dene First Nation and Alternatives North. The response package consists of five components as identified below:

1. ***Cover letter*** – Addresses major topics including the use of Section 119 of the Mackenzie Valley Resource Management Act to address emergencies on site.
2. ***Section 119 Comment Summary Table***
3. ***Water Licence Comment Summary Table***
4. ***Attachment A*** – Contains our responses that exceed the space provided in the Water Licence Comment Summary Table.
5. ***Draft WL Conditions – Suggested Changes*** – Our suggested revisions to the draft water licence conditions put forward by Board staff are shown in blue text. Rationales for our recommendations are embedded within the document.

The Giant Mine Remediation Project Team (Project Team) remains committed to addressing emergency conditions at the Giant Mine this summer. These emergency conditions were identified through sound risk assessment and advice by independent engineers. Procurement processes are advanced, with the award of the roaster contract expected to occur by the end of March 2013 and the underground stabilization contract expected to be awarded in June 2013.

The application materials and supplemental information in this response package demonstrate that current site conditions meet the “emergency” requirements of Section 119(b) of the *Mackenzie Valley Resource Management Act (MVRMA)*, and that it would be ill-advised to allow those risks to continue any longer. Additionally, the evidence shows that our planned approach to roaster deconstruction and underground stabilization is well engineered, environmentally sound, and above all is protective of fresh water.



While we are aware that some Parties continue to have questions, we believe that we have provided appropriate responses to every technical question or concern that falls within the mandate of the Board. We have agreed with the majority of the recommendations made by the Parties and the draft conditions put forward by Board staff. Going forward we will continue working with Parties within the Board's process and outside of the Board's process. Plan approval processes will provide further opportunity for discussion.

Further details on major topics are provided below.

### **Emergency Evidence and Request to Use Section 119 of the MVRMA**

The Project Team's water licence application package included stamped letters from independent engineering firms, AECOM and Golder Associates, dated December 17, 2012. These letters detail the environmental and human health and safety risks associated with the roaster and underground workings at the Giant Mine site and support the urgency of dealing with these risks as soon as possible.

The environmental assessment of the Giant Mine Remediation Project is in an advanced stage. However it is clear that the process will not be completed with sufficient lead time to permit site stabilization to occur in summer 2013. Warmer temperatures are required for proper functioning of safety gear used in deconstruction and for successful delivery of tailings paste to the underground workings. The *MVRMA* contemplates that in emergency situations, developments may proceed in advance of, or without, the completion of an environmental assessment. Given the urgency of addressing the risks at site, and the need to conduct the work in the summer, it is both appropriate and crucial that the Board process this application in time to allow mobilization to site to occur in mid-May 2013.

### ***Roaster Complex Deconstruction***

The report from AECOM makes it clear that the decaying structural integrity of the roaster complex poses a serious and immediate risk to the environment and the health and safety of both workers on the Giant Mine site and the residents of Yellowknife. The following provides a description of the current state and ongoing risks related to the roaster complex:

#### **Buildings**

- Exterior asbestos paneling on walls of roaster building are not securely fastened as a result of fastener corrosion.
- Roof panels are corroded or missing.
- Interior catwalks are not structurally sound.

#### **Flues**

- Continued corrosion of the flues will result in a release of arsenic dust.
- Continued movement of flue footings and columns will trigger a collapse.
- Asbestos-containing pipe insulation is falling off the flues.



### Stack

- Erosion is visible in the exterior and interior masonry of the stack.
- Steel cap at the top of the stack is being separated from the mounting bolts.
- A portion of the steel cap is missing from the stack.

AECOM concludes that:

“The current base care and maintenance program is designed to keep the Giant Mine site “as is” until such time that the Type A licence is in place. The roaster complex, which is highly contaminated with arsenic and asbestos dust, is a high risk element that is considered to be in a state of emergency. It is in very poor condition and needs to come down in order to prevent a sudden collapse of any part of the complex.”

AECOM goes on to make it clear that the result of such a collapse “would be the release of arsenic dust and asbestos fibres into the air and into the surface drainage system” and strongly recommends that “demolition work needs to start in spring 2013”.

### ***Underground Stabilization***

The deteriorating stability of a number of the underground workings poses exactly the same type of emergency as the roaster complex does. Stabilization measures need to be undertaken immediately in order to prevent an event which could release arsenic dust into the mine, the mine water pool and, potentially, the environment. The Golder Associates letter, dated December 17, 2012, makes it clear that the survey measurements conducted in the vicinity of two of the arsenic stopes “indicate ongoing subsidence” and that “surface cracking in the vicinity of several of the arsenic stopes has been observed over the last several years”. “This may be a pre-cursor to the complete collapse of one or both of these stopes”. The Golder Associates report continues to point out that “surveys of the B1 pit access road over arsenic stope B2-12/13/14... indicate that the ground over this stope has subsided, again potentially indicating progressive deterioration of the stopes below that could lead to a complete collapse or failure of the crown pillar”.

The Golder Associates report concludes “that the probability of failure of the crown, sill, and rib pillars bounding some of the arsenic stopes and chambers and the near surface non-arsenic stopes is high” and that “work should be initiated as soon as practically possible so that these priorities can be addressed during the summer of 2013.”

The consequences of a failure of an underground working are severe and include:

- Potentially jeopardizing the Frozen Block Method due to the release of arsenic contaminated material deeper into the mine workings.
- Development of subsidence features such as sinkholes resulting in a significant safety hazard to members of the public and the project workers who access the area.
- Potential release of arsenic dust to the environment.



- Depending on which stopes fail, Baker Creek could enter the mine through a collapsed crown pillar resulting in flooding of the mine.

### ***Conclusion***

The realistic possibility of such a failure occurring at this time, together with the potentially catastrophic consequences of a collapse of any portion of the roaster complex or the underground workings of the mine, makes both of these situations emergencies by definition. Ultimately, these are unacceptable risks that must not be allowed to persist. To do so would be to irresponsibly endanger the environment and health and safety of both the workers on the Giant Mine site and the residents of the City of Yellowknife, N'Dilo and Dettah.

### **Licensing Process and Timing**

For safety and performance optimization reasons, roaster deconstruction and underground stabilization need to occur in the warmer months. The safety equipment required during the deconstruction of highly contaminated buildings such as the roaster complex requires warmer temperatures for proper functioning. The delivery of backfill materials, especially tailings paste, will be more efficient and effective when temperatures are above freezing.

Due to the seasonal nature of the work, mobilization and site preparation have to begin in the spring 2013. We believe that sufficient information is included in the application materials and in this response package for issuance of a license in late March / early April, the current timing indicated by Board staff. The majority of the Parties' recommendations are reasonable and we support their inclusion in the license (e.g., water containment design and transport plan; MSDS sheets for wetting agents; dust mitigation and monitoring; spill reports that describe clean up actions and any preventative actions that will be incorporated into daily operations). We believe that these additions to the licence, and the Board approval processes to which they will be subject following license issuance, will address any concerns remaining related to the use of water and disposal of waste during the proposed work.

### **Engagement**

Going forward, we are committed to fulfilling the engagement and communications activities set out in the Site Stabilization Communications Plan provided in the application package. These communication and engagement efforts will build upon previous engagement with the Parties on a number of fronts. Roaster deconstruction and underground stabilization continue to be subject to the ongoing environmental assessment for the Giant Mine Remediation Project and were part of the discussions with the Environmental Management System Working Group. The Giant Mine Community Alliance was established to facilitate communications with the public regarding all activities at the Giant Mine site.

Specific engagement efforts on the proposed work were initiated in October 2012. As a means of initiating discussion, a draft water license application package was prepared and circulated with a request for comments. This review period of the written documentation was followed by a site tour, a technical workshop, and public forums in Yellowknife and N'Dilo. These events provided the Project



Team with a significant amount of useful and thoughtful feedback along with recommendations that led to the development of a second draft of the application package. The second draft application package was also circulated for review and comment prior to the application package being finalized and submitted to the Board. Complementing the preparation and review of draft documents were ad hoc meetings and correspondence with individual groups that were a mechanism for discussing specific questions and the bi-lateral sharing of specific information.

The Project Team will continue, as any responsible developer would, to assess and monitor the site as a whole and specifically the deconstruction of the roaster complex and underground stabilization. Technical information related to the assessment, monitoring, progress and status of the site stabilization work will be provided to Parties throughout its duration in accordance with the SSP Communications Plan and the reporting requirements set out in the licence. We have requested that reporting be increased from an annual cycle to a six month cycle in the water licence so that Parties can be informed more regularly.

Requiring an additional Engagement Plan is duplicative and unnecessary as the SSP Communications Plan includes providing monthly summaries of the outcome of air quality monitoring to a wide target audience.

#### **Public Hearing Request – Air Quality**

A public hearing was suggested as a means to address concerns related to dust management and air quality monitoring. A public hearing is unnecessary because the concerns have been or are being addressed through other mechanisms, including the following:

- i. ***Application Materials*** - The application materials describe the dust control mechanisms and air quality monitoring requirements as follows:
  - Roaster Deconstruction - Proactive dust control will occur through the creation of a negative air pressure seal around the active work area (Section 2.4.2, Item b in the Roaster Deconstruction Detailed Project Description) and the use of recycled water to wet down materials (Section 2.3.5 in the Roaster Deconstruction Detailed Project Description).
  - Underground Stabilization – Proactive dust control will occur through the use of an exhaust air management system. The purpose of the exhaust air system is to maintain the arsenic filled stopes and chambers under negative air pressure capture, and to capture and treat air exhausted during backfilling through a filtering system in order to achieve ambient air criteria at both the worker spaces as well as at the property boundaries (Section 2.3.2, Item c in the Underground Stabilization Detailed Project Description).
  - Air quality monitoring requirements, action levels and responses to action level exceedances are outlined in the air quality plans provided under Tab 7 in the application package.



- ii. ***Draft Water License*** – The draft water licence put forward by Board staff includes a requirement to submit for approval dust mitigation and monitoring plans for roaster deconstruction.
- iii. ***Involvement of GNWT Air Quality Specialists*** – Air quality specialists from the Government of the Northwest Territories have been involved in reviewing the air quality monitoring program development for roaster deconstruction and underground stabilization.
- iv. ***Mines Inspector Oversight*** – The industrial hygiene aspects of air quality monitoring are overseen by the Workers' Safety and Compensation Commission Inspector of Mines under the Mine Health and Safety Act and Regulations.

### **Closing**

We appreciate the opportunity to review draft conditions along with review comments and recommendations. If you have any questions about our response package, please contact the undersigned by telephone at 780-497-3865 or by email at [Mark.Palmer@pwgsc-tpsgc.gc.ca](mailto:Mark.Palmer@pwgsc-tpsgc.gc.ca).

Sincerely yours,

Mark Palmer  
Senior Advisor  
Giant Mine Remediation Project

Copied to: Mackenzie Valley Environmental Impact Review Board

### **Attachments:**

- Section 119 Comment Summary Table
- Water Licence Comment Summary Table
- Attachment A to the Water Licence Comment Summary Table
- Draft WL Conditions – Suggested Changes