# LUPIN MINES INCORPORATED
## (a wholly-owned indirect subsidiary of Mandalay Resources Corp.)

July 9, 2020

Richard Dwyer
Manager of Licensing
Nunavut Water Board
Box 119, Gjoa Haven, Nunavut
X0B 1J0
Via Email: Richard.dwyer@nwb-oen.ca, and licensing@nwb-oen.ca

**RE: Response to Kitikmeot Inuit Association (KIA) Comments on Lupin Mine Incorporated Water Licence 2AM-LUP2032 commitments dated June 10, 2020, as requested by Nunavut Water Board on June 25, 2020**

Dear Mr. Dwyer,

Lupin Mines Incorporated (LMI) is writing to respond to the comments submitted by the Kitikmeot Inuit Association (KIA) on June 24, 2020.

## 1.0 INTRODUCTION

Following a lengthy public hearing review processes, the Nunavut Water Board (NWB) confirmed on issuance of the Type A Water Licence 2AM-LUP2032 (Licence), the terms and conditions necessary to protect the environment, conserve the water resources, and provide appropriate safeguards in respect of the remaining reclamation and closure activities as well as Long-Term Post Closure Monitoring to be undertaken by LMI at the Lupin Mine site (NWB decision dated February 28, 2020).

The Licence requires under conditions applying to waste disposal and management:

> Item 25. The Licensee shall, within sixty (60) days following the approval of the Licence, submit to the Board for review, a Technical Memorandum that provides design details on the Waste Rock Dome, including but not limited to the following:
>
> a. Cardinal direction cross sections and slopes;
>
> b. Details on drainage systems and conceptual water features; and
>
> c. Erosion control measures and cover stabilization of the dome.

Item 26. The Licensee shall, within sixty (60) days following the approval of the Licence, submit to the Board for review, a Technical Memorandum that provides additional geotechnical details on TCA Dam K and Dam M cross sections, including but not limited to the following:

a. Magnified image that clearly identifies the materials used for the re-sloping, the distance that the re-sloping materials will extend from the crest of these Dams (including a break line with minimums and maximums noted), and the distances to the closure water mark;

b. Perpendicular/longitudinal cross section of the outflow structures for Cell 5 and Cell 3, with invert elevations from the cover to the ponds, and a note to clarify the storm return period that will be used for designing the features.

Item 27. The Licensee shall, within sixty (60) days following the approval of the Licence, submit to the Board for review, a Technical Memorandum that provides rationale and detailed designs of cover construction for tailings that becomes exposed, including but not limited to the following:

a. Further rationale supporting in-situ cover as a contingency measure;

b. Preliminary detail designs;

c. Typical cross sections; and

d. Long-term erosion control measures.

These updates related to specific commitments made by LMI to parties (primarily, Crown Indigenous Relations Canada (CIRNAC)) during the recent renewal process of 2AM-LUP2032. Kitikmeot Inuit Association did not participate in the public hearings for 2AM-LUP2032. The NWB reviewed and facilitated the review process for the Renewal and Amendment Application including a completeness check, a technical review period, an in-person technical meeting and pre-hearing conference held in Kugluktuk on June 6 and 7, 2019, and an in-person Public Hearing held in Kugluktuk on January 15 and 16, 2020. Throughout the NWB's licensing process for the Application, several written and oral commenting opportunities were provided to interested persons and interveners, including community members, and members of the public. The Licence reflects that the Lupin Mine Project (Project) is entering the final closure and reclamation stage and will not be returning to active mining during the term of the Licence.

The current licence confirms approval of Final Closure and Reclamation Plan (July 2018) which outlines the measures proposed by LMI to complete final remediation of the Lupin Mine Site and previous approval granted by the Board related to the Closure Plan for Tailing Containment Area (January 2005). Refer to Part B, Item 13 of Licence 2AM-LUP2032.

## 2.0 RESPONSES TO KIA SUMMARY OF COMMENTS

### 2.1 Part E, Item 25 Design for Waste Rock Dome

**KIA Comment**

Use of a 1.0m thick esker material cover over all the waste rock storage facilities (landfill, open crown pillars, shafts, waste rock dome) may be optimistic to ensure ML/ARD does not occur. This is based on the proposed cover not being saturated, without a compaction specification and will likely not remain frozen throughout the year for this facility as it will be impounding waste rock above the surrounding ground level. The best means of avoiding any issues is to bury the highest potential ML/ARD material as deep as possible and have the lowest potential risk material nearest the top (or near the outside perimeter of the stacked facility). This will require a good understanding and inventory of the quality of the waste rock across the site. The alternative of using a more complex cover or a thicker esker material cover would be more difficult.

**LMI Response**

The cover strategy was agreed upon with approval of the FCRP as stated previously. During the regulatory review process parties asked questions regarding the 1 m cover and prior to issuance all parties came consensus on commitment as per Part E, Item 25 and all other previous concerns were addressed by LMI in the following submissions available on the NWB registry:

- Response to March 4th Letter from CIRNAC RE: 2AM-LUP1520 – Review of Lupin Mines Incorporated (LMI) Water Licence Renewal and Amendment Application and Final Closure and Reclamation Plan
  - Section 4.3.2.7 Waste Rock
- Technical Comment Responses
  - CIRNAC Technical Comment 21 and 22
  - ECCC Technical Comment 6
- Technical Meeting / Pre-Hearing Conference Commitments
  - Response to Commitment 5
- 2018 Application for Water Licence Renewal/Amendment, and Final Closure and Reclamation Plan – Final Submission for Public Hearing
  - Response to CIRNAC Review of Documentation comment 6
  - Response to CIRNAC Final Submission 4
- The design basis for the waste rock dome is described in detail in the 4 references cited in the technical memorandum (i.e. the FCRP and Golder (2019a, 2019b and 2019c)), all of which were presented to the NWB prior to the public hearing.
- Human Health and Ecological Risk Assessment (Golder, 2019)

Of note under the previous water licence(s), LMI completed comprehensive Environmental Site Assessments that included consideration for PAG and ARD/ML materials on the site with the most recent update completed by YEAR as per Licence 2AM-LUP1520 (Part I, Item 9 &10), in support of reclamation and closure planning. The ESA estimates and remediation measure approved in the FCRP were based on in field data collection and will be confirmed on the ground during active remediation works with data confirmation submitted as required by the NWB as part of the Annual Reporting requirements of the current Licence (Part B, Item 2 and Schedule B).

## 2.2 Part E, Item 26 Technical Memorandum on Additional Geotechnical Details on TCA Dam K and Dam M Cross Sections

**KIA Comment**

The items required by the NWB in the Water License appear valid and it is interesting these points were not included in the initial submission by LMI.

It is unclear why none of the 15 engineering drawings provided in the Stantec Technical Memorandum are stamped by a Professional Engineer, nor is the Technical Memorandum itself. And the drawings do not have the usual "Not for Construction" stamp on them, possibly suggesting they could be used for construction.

A number of items have been left for resolution by the field engineer at the time of TCA remedial work being undertaken. This includes identifying the additional areas requiring cover, and with lowering of the water levels in a number of cells and ponds there may be additional areas of tailings requiring removal or covering and grading work. Additionally, the field engineer will need to develop a method to be employed to place geo-textile and cover materials over tailings that will remain underwater, as the methodology is not described in the FCRP or in these drawings.

**LMI Response**

The Professional Engineer who developed the 15 referenced drawings confirms that these were issued for-construction and he has signed and dated the drawings; please see attached. In accordance with Covid 19 related public health recommendations, the Stantec office was previously closed and the Professional Engineer is currently isolating at home in preparation to attend a mine site, therefore does not have ready access to his stamp. LMI has received permission from the NWB and its legal counsel to attend to stamping at an appropriate time in the future.

The designs for tailings cover at Cell 3 and Cell 5 (drawings Nos. 002-009), the grading plans for Dam M and Dam K (drawings Nos. 010-015) and the related construction specifications (drawing No.001) were developed in accordance with the concepts presented in the Final Closure and Reclamation Plan (FCRP), dated June 2018.

Figure 5-TCA in the FCRP outlines which cells will be lowered to closure elevation and which will be covered in esker. Designs for Cell 3 and Cell 5 include placing esker cover over known tailings areas in designated tailings cells. In relations to the above statement "*This includes identifying the additional areas requiring cover, and with lowering of the water levels in a number of cells and ponds there may be*

*additional areas of tailings requiring removal or covering and grading work*" Stantec notes that tailings will not removed from Cell 3 and Cell 5 and will be covered place as per the drawings (Nos. 002 -009) design details and drawing No.001 specifications. The water elevations in Cell 4, Pond 1 and Pond 2 will be lowered to closure elevations. We interpret that the statement "*Additionally, the field engineer will need to develop a method to be employed to place geo-textile and cover materials over tailings that will remain underwater, as the methodology is not described in the FCRP or in these drawings*" is applicable to Item 27 below. We have addressed this comment in our Section 2.3 Stantec Response below.

## 2.3 Part E, Item 27 Technical Memorandum on Exposed Tailings Preliminary Cover Design

**KIA Comment**

The Stantec Technical Memorandum (June 8, 2020) addresses the conditions stated in Part E, Item 27 in the new Water License, but focuses on what to do with exposed tailings in one corner of Cell 4. A section towards the end of the STM provides general criteria to be used when covering exposed tailings.

Several areas within the TCA still have exposed tailings and/or will have exposed tailings when the water levels in the ponds or cells are lowered to facilitate passive water flows across the TCA as is the goal of the approved TCA closure plan. Cells 3, 4 and 5 (and possibly others) will have additional tailings beaches exposed. Details of proposed excavated channels to drain surface water currently over areas of tailings in Cells 3 and 5 which will then become exposed, are provided in drawings (Nos. 002 -009) provided by Stantec in response to the NWB WL Condition Part E, Item 26.

The Stantec Technical Memorandum was not stamped by the Engineer who prepared it.

**LMI Response**

The Stantec June 8th 2020 Technical Memorandum titled: 2 AM-LUP2032 Technical Memorandum on Exposed Tailings Preliminary Cover Design, submitted in response to Item 27 in the Licence, outlines how the exposed tailings are in the northwest corner of Cell 4 (area shown in Figure 1: Cell 4 Exposed Tailings Location of the Technical Memorandum) is planned to be covered. This is the only known area of tailings at the TCA that will be exposed once Cell 4, Pond 1 and Pond 2 are lowered to their designated closure elevations.

As noted above in Section 2.2 Stantec Response, Cell 3 and Cell 5 will not have "*exposed tailings when the water levels in the ponds or cells are lowered to facilitate passive water flows across the TCA*" since the tailings in these two cells are being covered in place. This statement does apply to the known tailings in the corner of Cell 4.

In regards to the interpreted to be related to Section 2.3 KIA comment that was included above: "*Additionally, the field engineer will need to develop a method to be employed to place geo-textile and cover materials over tailings that will remain underwater, as the methodology is not described in the FCRP or in these drawings*" Stantec notes that the methodology for placement of the geotextile and cover materials over the known tailings in Cell 4 is described, however agrees that the field engineer will have to develop geotextile installation details based on observed field conditions when the water is lowered to closure conditions.

Lastly, the Stantec June 8th, 2020 *2 AM-LUP2032 Technical Memorandum on Exposed Tailings Preliminary Cover Design* document was signed by the Professional Engineer however was not stamped since it does not contain for-construction drawings.

## 3.0 CLOSURE

LMI is as required under Part I, Item 2 of the current licence is presently working on "an update to the Final Closure and Reclamation Plan, to address relevant comments and recommendations provided by intervening parties and the Board during the review process for the Application" which will address many of the comments raised by KIA in their submission of June 10 that were previously addressed during the licence renewal process.

In addition, LMI looks forward to working with the KIA on the development of a Post Closure Monitoring Plan (PCMP) in accordance with Schedule J of the Licence wherein LMI is required to in the development of the PCMP to consult with community members and organizations in Kugluktuk (i.e. KIA). LMI envisions this plan would address for example: monitoring of surface water in Boot Lake and East Lake.

We trust our comments address KIA comments, if you require any further information, please contact me at K.Lewis@mandalayresources.com or by telephone at (778)-386-7340.

Regards,

*"Karyn Lewis"*

Karyn Lewis
*LMI Project Manager*