



Water Resources Division
Resource Management Directorate
Nunavut Regional Office
P.O. Box 100
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Your file - Votre référence
2AM-LUP2032
Our file - Notre référence
GCdocs#94892642

June 1, 2021

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via e-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's review of Lupin Mines Incorporated's Post Closure Monitoring Plan for Type A Water Licence 2AM-LUP2032 for the Lupin Mine Project

Dear Mr. Dwyer,

Thank you for your April 21, 2021 invitation to review the above referenced plan. Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum.

If there are any questions or concerns, please contact Vincent Onkonkwo at vincent.okonkwo@canada.ca or myself at sarah.forte@canada.ca.

Sincerely,

Sarah Forté
Water management specialist



Technical Review Memorandum

Date: June 1, 2021

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Sarah Forté, Water management specialist, CIRNAC

Re: Crown-Indigenous Relations and Northern Affairs Canada's review of Lupin Mines Incorporated's Post Closure Monitoring Plan for Type A Water Licence 2AM-LUP2032 for the Lupin Mine Project

Region: ☒ Kitikmeot ☐ Kivalliq ☐ Qikiqtani

A. BACKGROUND

On April 19, 2021, the Nunavut Water Board provided notification of Lupin Mines Incorporated's (LMI) submission of a Post Closure Monitoring Plan (PCMP) (April 2021) for the Lupin Mine Project. The mine site is situated on Contwoyto Lake approximately 285 km southeast of Kugluktuk in the Kitikmeot region of Nunavut.

Lupin mine is currently going through progressive reclamation activities intended for closure of the former mine site under Water Licence 2AM-LUP2032, approved on April 9, 2020. In accordance with Part J, Item 13 of the type A Water Licence 2AM-LUP2032, the licensee submitted a PCMP to ensure adequate monitoring for site stability is put in place.

LMI circulated a draft PCMP in February 2021, which CIRNAC reviewed. We provided comments to LMI on March 25, 2021 and note that several of our comments have been addressed in the version that was sent to the Nunavut Water Board.

A summary of CIRNAC's recommendations can be found in Table 1. Detailed technical review comments can be found in Section B.

Table 1: Summary of Recommendations

Recommendation Number	Subject
1	Water quality in TCA
2	Geotechnical monitoring
3	Community consultation
4	Visual inspections of TCA pond perimeters



Recommendation Number	Subject
5	Schedule J items missing
6	Duration of passive monitoring
7	Demolition landfill monitoring wells
8	Activity schedule unclear
9	Inadequate figures
10	Changes to general monitoring
11	Thermistor repair

B. RESULTS OF REVIEW

CIRNAC has found the submitted PCMP to lack the level of detail necessary for a plan to be implemented presently and next year. On behalf of CIRNAC, the following comments and recommendations are provided for the Board's consideration:

1. Water quality in TCA

In section 6.2.2, LMI proposes a pH trigger to help determine when desired water quality conditions are achieved in the Tailings Containment Area (TCA) (Cell 4, Pond 1, Pond 2) that would allow for the transition from active to passive discharge and reduced TCA monitoring. It is questionable to use a pH trigger (5.5) which is lower than the acceptable Metal and Diamond Mining Effluent Regulations (MDMER) range (6.0-9.5) as a reference point. It is also not clear why the trigger is based on pH only and not any total metals that have been a concern associated with the tailings.

Recommendation:

(R-01) CIRNAC recommends that, prior to transitioning from active to passive TCA discharge, the licensee justify why the trigger for the transition does not include criteria for concentrations of metals of concern.

2. Geotechnical monitoring

Geotechnical monitoring is essential to check that structures are performing as planned and are physically stable. The executive summary speaks to "*Inspections include seepage from the dams, water levels in ponds/cells, and general surface erosion, tension cracks,*



and/or anomalies on dams”, however section 6.1.1 does not specify dams other than the TCA. During phase 1, structures still classified as dams should be inspected, including:

- Verifying slope stabilization and erosion control at the former “interior dams” (K,M,N) and L Dam Spillway;
- Monitoring potential exposed and covered tailings after water level is drawn down; and
- Monitoring of thermistors in the M and N dams.

Section 6.1.4 states “*Some perimeters dams can be declassified as dam structure in Phase 2, as they will no longer contain water when the ponds are passively managed at a much lower post closure water levels*”, without specifying which dams are being referred to.

Additionally, section 6.2.1 states: “*Any evidence of surficial settlement or erosion or settlement above the crown pillar or shafts will be documented with photographs and reported.*” The absence of settlement and erosion is also noteworthy. Photographic records of inspections over the years should be kept and reported to allow monitoring of any evolution.

Recommendation:

(R-02) CIRNAC recommends that licensee include in the PCMP:

- the list of structures to be inspected in phase 1;
- specific dams which they intend to declassify for phase 2; and
- instructions to report on phase 2 site inspections regardless of the findings.

3. Community consultation

Schedule J Item 1 requires the licensee to consult with the community of Kugluktuk during both development of PCMP and post closure monitoring, and the requirement remains outstanding.

In the executive summary, LMI states that consultation occurred via online calls and presentations on March 9 & 25, 2021. On March 9 and 25 2021, LMI held technical review sessions with government representatives, the Kitikmeot Inuit Association (KIA), and various hired consultants/technical representatives. The goal was to review the comments LMI received from these organizations about the PCMP. The nature of the calls were technical. It is recommended that LMI undertake additional measures to consult with the community of Kugluktuk.



In the executive summary, LMI references consultation that occurred with community members and organizations in the community of Kugluktuk in April 8, 2021. LMI stated during a call with CIRNAC on May 26, 2021 that the consultation was not well attended. CIRNAC would like to know details about how the community was notified of the event, engagement content, and a summary of dates, times, locations, attendees, concerns brought forward.

Schedule B, Item 11 describes information on public consultation to be included in annual reports. This should be reproduced in the PCMP to ensure required information is collected during consultation.

CIRNAC notes the submitted PCMP does not include a translated executive summary in Inuktitut or Inuinnaqtun. Translated material is essential so that consultations can include all potentially interested community members. Given the limited success of first consultation attempts, a more thorough plan must be developed and described in section 8 of the PCMP.

Recommendation:

(R-03) CIRNAC recommends section 8 of the PCMP include a detailed plan for proposed community consultations including how the community will be notified, how materials understandable by the general public will be prepared, what times of year will be prioritized for maximum participation, as well as information contained in Schedule B, Item 11.

4. Visual inspections of TCA pond perimeters

Visual inspections along TCA pond perimeters looking for signs of active oxidation or seepage are currently included for phase 1, but not explicitly for phase 2. Absence of signs of active oxidation or seepage will be necessary to demonstrate long term chemical and physical stability, so these inspections should continue throughout phase 2.

Recommendation:

(R-04) CIRNAC recommends that visual inspections for signs of active oxidation or seepage be included in the phase 2 monitoring.

5. Schedule J items missing

Schedule J, Item 2 of water licence 2AM-LUP2032 lists items that need to be included in PCMP. Certain items were not found in the plan submitted in April 2021, including:

- b. A review of historical data and estimate of waste rock quantities use across the site for construction of dams and other permanent structures;



- g. thresholds for tailings cover performance that would trigger moving to reduced monitoring frequency or intensity;

CIRNAC notes that Item 2g, also includes the requirement for thresholds for water quality at the TCA, and these have been provided.

Recommendation:

(R-05) CIRNAC recommends the PCMP include all items prescribed in Schedule J, Item 2 of the water licence, including an estimate of waste rock quantities used across the site from historical data and thresholds for tailings cover performance.

6. Duration of passive monitoring

Section 6.0 states that “*The Passive Closure Period (Phase 2) refers to the 5-year period following the completion of active reclamation work (i.e. 2022 to 2026). Environmental monitoring will be conducted through Phase 2 to determine the success of the reclamation measures and confirm that the closure objectives have been achieved. Phase 2 monitoring programs will be carried out during site visits under the supervision and direction of DMS [Discovery Mining Services].*”

The Federal Contaminated Sites Action Plan Long-Term Monitoring Planning Guidance recommends 25 years of monitoring to verify equilibrium conditions at landfills in northern regions. This matches the post closure monitoring period used to generate the reclamation estimate used for site is 25 years.

Recommendation:

(R-06) CIRNAC recommends the PCMP support the proposed shorter passive monitoring period with evidence that permanent physical and chemical stability of the site could be determined in this timeframe.

7. Demolition landfill monitoring wells

Schedule J, Table 1 of the water licence prescribes three monitoring wells at the demolition landfill facility; one up gradient (LUP-36) and two down gradient (LUP-37a & LUP-37b).

The licensee’s comments on these stations in Table 9 are: “*Demolition landfill is not planned for construction*”.

CIRNAC agrees that there no longer is a demolition landfill planned. The material that was originally planned to placed in this landfill will instead be buried in the Waste Rock Dome.



In order to monitor possible leachate, wells originally planned for the demolition landfill should be moved to up gradient and down gradient of the Dome.

Recommendation:

(R-07) CIRNAC recommends the licensee install monitoring wells upstream and downstream of the waste rock dome and include their monitoring in Table 9 of the PCMP.

8. Activity schedule unclear

Much of the content of the document is dated, and in some instances, unclear. The document contains references made to events/activities to be done in future that have already been undertaken. In various cases, the document provides detailed descriptions of what has occurred in the past, without inclusion in discussions of what has happened to the end of 2020, and what if anything remains to be done. For example section 4.7.8 Fuel Storage, refers to 14 diesel tanks, 1 jet A tank and 9 individual tank, without mentioning that some have been removed and others are still standing.

The PCMP covers 2021, during which time it is important to have a clear schedule that illustrates the activities proposed to be carried out during the “active period” and the expected completion date for these activities. The schedule should include when the J and 1A dams will be breached and when final pond water elevations of 480 m for Pond 2 and 481 m for Pond 1 will be established.

Recommendation:

(R-08) CIRNAC recommends the PCMP be modified to include a schedule of activities with expected completion dates.

9. Inadequate figures

Figures presented in Appendix A do not illustrate the site as it is in 2021, or as it will be once closure activities are completed. As such, it is difficult to evaluate the location of sampling sites or to put the proposed monitoring in context. For example, Figure 4 shows the TCA pre-2020, but there is no illustration for after closure and no indication of where the spillway will be built and what the water levels will be.

Figure 8 shows 13 seepage surface water sampling locations, but it is not clear if these are LUP-SP-01 to LUP-SP-XX referred to in Table 9. There is also no figure for seeps from the TCA, identified as LUP-TCA-01 to LUP-TCA-XX in Table 9.

Recommendation:

(R-09) CIRNAC recommends the PCMP include figures that show site conditions after planned closure works are completed, and include all the sampling stations.



10. Changes to general monitoring

Section 1.4 of the PCMP states “*General monitoring is subject to change, as directed by an Inspector or by the Licensee, and is also subject to approval by the NWB[Nunavut Water Board].*”

CIRNAC would like to clarify that an Inspector has the authority to request additional monitoring or changes to monitoring without approval by the Board. Should the licensee want to change general monitoring conditions, approval from the Nunavut Water Board would have to be sought beforehand.

Recommendation:

(R-09) CIRNAC recommends the licensee clarify the text regarding changes to general monitoring in the next revision of the PCMP.

11. Thermistor repair

Table 13 reports one thermistor in Dam 1A and one thermistor in Dam 4 were damaged in 2020 and there will be an attempt to repair them. No plans or information on what the attempts will entail are provided.

Recommendation:

(R-09) CIRNAC recommends the licensee replace damaged thermistors at Station D1A-00-01S at location Dam 1A, D4-3 at Dam 4 in 2021, if repairs are not possible.

C. REFERENCES

Federal Contaminated Sites Action Plan Long-Term Monitoring Guidance, Fisheries and Oceans Canada and Environment Canada, March 2013.

Water Licence 2AM-LUP2032, Nunavut Water Board, February 28, 2020.



Water Resources Division
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Your file - Votre référence
2AM-LUP2032
Our file - Notre référence
GCdocs # 95731145

June 23, 2021

Mr. Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via e-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's reply to Lupin Mines Incorporated's response to our comments on the Post Closure Monitoring Plan for water licence No. 2AM-LUP2032 – Lupin Mine Project

Dear Mr. Dwyer,

Thank you for your June 16, 2021 invitation for reply to Lupin Mines Incorporated's (LMI) June 15, 2021 response to Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC) June 1, 2020 comments on the Post Closure Monitoring Plan (PCMP) (version 1, April 2021).

Six of LMI's responses address CIRNAC's concerns; three (3) through clarifications and explanations, and three (3) through commitments to provide addendums to Final Closure and Reclamation Plan (FCRP) and Post Closure Monitoring Plan (PCMP) in the next year annual report. Five (5) outstanding concerns have not been addressed by the licensee.

The water quality trigger to transition from active to passive Tailings Containment Area (TCA) discharge is CIRNAC's most significant concern which CIRNAC recommends the Nunavut Water Board (NWB) consider prior to plan approval.

Below are CIRNAC's reply to LMI's response to CIRNAC comments:

- 1. Water Quality in Tailings Containment Area (TCA)** – In comment R-01, CIRNAC recommended that prior to transitioning from active to passive TCA discharge, the licensee justify why the trigger for the transition does not include criteria for concentration of metals of concern.



In its response, the licensee stated that:

The trigger for the transition from active to passive closure does not include criteria for metals concentrations as the Lupin Mine site does not currently exceed metals criteria stipulated in the Water Licence. Further, discharge from Pond 2 has not previously required treatment for metals and has complied with MDMER limits for deleterious substances, including those established for arsenic, copper, lead, nickel, and zinc per Part 1 and Schedule 4 of the MDMER. There are no new sources for these metals in closure, and therefore no residual risk for metals contamination in the passive closure phase.

The licensee's response does not address CIRNAC's concern. The MDMER limits are for effluents from a mine, and according to the PCMP, the licensee hopes to achieve closed mine status in 2021. CCME protection of aquatic life water quality guidelines or site specific water quality objectives are more relevant for reclaimed sites that have reduced monitoring because there are no longer activities on site. CIRNAC continues to recommend the licensee justify why the trigger for the transition does not include criteria for concentration of metals of concern.

2. Geotechnical Monitoring – CIRNAC concerns were addressed

3. Community Consultation – In comment R-03, CIRNAC recommended that: Section 8 of the PCMP include a detailed plan for proposed community consultations including how the community will be notified, how materials understandable by the general public will be prepared, what times of year will be prioritized for maximum participation, as well as information contained in Schedule B, Item 1(i).

In its response, the licensee stated that they are not required to provide the summary of the consultation as part of the overall PCMP but has included an overview and believe they have met the water licence condition.

LMI has not yet provided the 2020 annual report, so CIRNAC is not able to determine if Part B, Item 20 of the water licence has been met. CIRNAC is expecting the following information as part of consultation summary referred in Schedule B, Item 1(i) and Schedule J, Item 1.

- List of community members and organizations in attendance;
- What concerns were raised by the community members;
- Which information was provided to the community members in attendance with regards to the status of reclamation and closure activities;
- How were the community notified about the meeting; and
- Schedule of upcoming events and information sessions.



CIRNAC's community consultation concern remains outstanding and CIRNAC recommends the consultation summary referred in the water licence be provided in the 2020 annual report.

- 4. Visual Inspections of TCA Pond Perimeters** – Licensee is committed to continue visual inspection for signs of active oxidation and seepage during phase 2 monitoring.

This addresses CIRNAC's concern and we request this be added in a PCMP addendum.

- 5. Schedule J Items Missing** – CIRNAC concerns were addressed.

- 6. Duration of Passive Monitoring** – In comment R-06, CIRNAC recommended that: The PCMP support the proposed shorter passive monitoring period with evidence that permanent physical and chemical stability of the site could be determined in this timeframe.

In its response, stated that:

The Passive Closure Period (Phase 2) refers to the 5-year period following the completion of active reclamation work (2022 to 2026). Environmental monitoring will be conducted through Phase 2 to determine the success of the reclamation measures and confirm that the closure objectives have been achieved. The adaptive monitoring framework outlined in Section 6.2.6 allows for enhanced monitoring if closure objectives of physical stability, chemical stability, and future use and aesthetics are not met by the end of the passive closure period in 2026. In this case, an extended passive monitoring period would be considered depending on the magnitude and spatial extent of the concern. As per the response to KIA TC 2, 3, and 4 below, active monitoring will occur until the global closure objectives have been confirmed.

This response does not address CIRNAC concern as CIRNAC wanted the licensee to provide an evidence that permanent physical and chemical stability of the site could be achieved in 5 years. CIRNAC is of the opinion that permanent physical and chemical stability in the arctic cannot be demonstrated in such a short timeframe and requests the licensee provides evidence on how they intend to do so.

- 7. Demolition Landfill Monitoring Wells** – CIRNAC concerns were addressed.

- 8. Activity Schedule Unclear** – In comment R-08, CIRNAC recommended that: The PCMP be modified to include a schedule of activities with expected completion dates.



In its response, the Licensee stated that an updated schedule has been provided to CIRNAC and the schedule will also be provided with the Final Closure and Reclamation Plan (FCRP) addendum (s) as part of the Annual Report.

The updated version of the schedule provided does not address CIRNAC's concern, as the following details are missing from the schedule:

- Extent or degree the items planned in the 2020 schedule have been completed;
- Details on the time lines of work planned for 2021; and
- Duration of each activities.

However, on June 21, 2021, the Licensee provided more detailed schedule for the 2021 earthworks reclamation activities to CIRNAC field inspectors. It will be helpful if the Licensee incorporate this amount of detail into the FCRP addendum that will be submitted alongside the annual report.

9. Inadequate Figures – Licensee is committed to updating the PCMP figures on completion of the closure and reclamation activities. CIRNAC will comment further once the drawings become available.

10. Changes To General Monitoring – Licensee is committed to updating the wording in section 1.4 of the PCMP to reflect the water licence thus:

Wherein general monitoring is subject to change as per the water licence, Part J, Item 8, which states: Additional monitoring requirements may be requested by the Inspector (note: without approval of the Board); or Part J, Item 10, the Licensee shall submit to the Board for approval any requests for changes(s) to the Monitoring Program as outlined in Part J and Schedule J, including justification for the change(s). The NWB may modify the Monitoring Program under Schedule J without an Amendment to the Licence.

This addresses CIRNAC's concern and we request this be added in a PCMP addendum.

11. Thermistor Repair – The licensee is committed to repairing the damaged thermistors and including the results of the repairs in the annual report.

This addresses CIRNAC's concern and we request this be added in a PCMP addendum.



CIRNAC appreciates the opportunity to participate in this review. If there are any questions, please contact me at (867) 975-4738 or vincent.okonkwo@canada.ca and (867) 975-3876 or sarah.forte@canada.ca

Sincerely,

Vincent Okonkwo
Environment Assessment Coordinator