LUPIN MINES INCORPORATED

2019 and 2020 Annual Reports

Review Comment Responses

Submitted to:

Nunavut Water Board
PO Box 119
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Submitted by:

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On behalf of:
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October 29, 2021

Contents

1.0 ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	ECCC	**Technical Comment No:**	1
Subject/Topic:	General – Errors and Inconsistencies in the Report		

Reference:

- 2020 Annual Report

Detailed Review Comment by Party (September 28, 2021):

There are several inconsistencies and errors within the report, such as the following examples:

- It is stated in one location of the report that discharge at LUP-10 concluded on August 29 and other sections state that discharge concluded on September 23. (pg. 6);
- The reviewer is directed to Table 3 in Appendix B, which does not appear to be correct (pg. 11); and
- The reviewer is directed to Appendix A for Certificates of analysis, when this data is provided in Appendix B (pg. 13).

Request or Recommendation by Party (September 28, 2021):

ECCC recommends that the overall annual report be reviewed for accuracy and consistency and that all errors be corrected.

LMI Response (October 29, 2021):

Lupin Mines Incorporated (LMI) has changed the date from August 20, 2020 (which the date for LUP-14) and updated to September 23, 2020 for LUP-10 under Section C (pg 6). See attached revised 2020 Annual Report, with changes highlighted in yellow.

LMI has corrected the typos to the Appendices as stated above and are highlighted in Yellow in the attached revised 2020 Annual Report (pgs 11 and 13).

Reference(s): 2020 Revised Annual Report

Interested Party:	ECCC	**Technical Comment No:**	2
Subject/Topic:	Clarification of Monitoring Data		

Reference:

- 2020 Annual Report – Section G – Monitoring Data; Appendix A – Table 3

Detailed Review Comment by Party (September 28, 2021):

The Annual Report states that,

> "*The final date of discharge, September 23, 2020, was not included in the calculations for minimum, maximum, and average values as the results for most regulated parameters were erroneously high, likely due to the inclusion of suspended matter, as evidenced by the high total suspended solids value of 10.5 mg/L and the higher total metals concentrations, whereas the soluble parameters of ammonia, nitrate, nitrite, and cyanide exhibited little difference to the previous days discharge."*

However, Appendix A – Table 3, which includes a summary of the data collected at LUP-10 on all monitoring events, does not support this statement, as the data presented in the table does not have elevated TSS or metal concentrations. According to Table 3, the TSS concentration for September 23 was 1.1 mg/L and metal concentrations fell within the range of previously recorded values.

Request or Recommendation by Party (September 28, 2021):

ECCC recommends the Proponent provide additional clarification and discussion on the September 23 data and clarify whether the statements provided in Section G are correct or the laboratory data provided in Appendix A is correct.

LMI Response (October 29, 2021):

LMI apologizes for the error, the statement above was mistakenly carried forward from the 2018 Annual Report and not intended (was not deleted) to be included when drafting the 2020 Annual Report (pg 11). All data in Table 3 for LUP-10, from 2020 was utilized in the calculating of averages for the discharge. Please see the attached revised 2020 Annual Report.

Reference(s): 2020 Revised Annual Report

Interested Party:	ECCC	**Technical Comment No:**	3
Subject/Topic:	Dates not Sampled – LUP-10		

Reference:

- 2020 Annual Report – Section G – Monitoring Data

Detailed Review Comment by Party (September 28, 2021):

The Annual Report states that,

> *"As noted in Table 3, Appendix B, several dates were missing analysis results due to either the sample not being able to be taken, mostly due to high winds in Pond 2 that make it unsafe or the sample shipment not arriving at the lab in Yellowknife, NT."*

ECCC notes that Appendix B only provides the laboratory certificates of analysis and there does not appear to be a Table included that describes which sampling dates were missed in 2020 and the reasons that sampling analysis was not completed for these dates.

Request or Recommendation by Party (September 28, 2021):

ECCC recommends the Proponent provide information on which intended sampling dates were missed in 2020 and the reasons that sampling and analysis was not completed.

LMI Response (October 29, 2021):

Again, LMI apologizes for the error, this wording was carried over from the 2018 annual report and should have been removed (pg 11). There was only one day that was missing a sample, as highlighted in the Table 3, Appendix A on September 16, 2020 (legend at the bottom Note 1 - No Sample Obtained) as there was no discharge due syphon malfunction from ice build-up which was corrected, as shown in Table 1, Appendix A – Discharge Volume Monitoring Summary. Please see the attached revised 2020 Annual Report, with the correction highlighted in Yellow.

Reference(s): 2020 Revised Annual Report

Interested Party:	ECCC	**Technical Comment No:**	4
Subject/Topic:	Downstream Water Quality Results		

Reference:

- Appendix A – Table 4 & 5

Detailed Review Comment by Party (September 28, 2021):

Tables 4 and 5 provide summaries of water quality monitoring data downstream of discharge from the Tailings Containment Area. The tables include several highlighted values (Nitrate – Sept 17, Copper – Aug 11) but does not include a legend as to why these values are highlighted. It is assumed that these highlighted values may be guideline exceedances, however, water quality guidelines used for analysis of data at these downstream locations have not been provided for reference in the table. In addition, the annual report provides no discussion of any guideline exceedances in the downstream environment.

Request or Recommendation by Party (September 28, 2021):

ECCC recommends the Proponent:

- Provide a legend for all tables in this and future annual reports;
- Include the water quality guidelines used for analysis of water quality in the downstream environment within tables; and
- Provide a discussion of any water quality guideline exceedances in the downstream environment within the body annual report.

LMI Response (October 29, 2021):

Type A Water Licence 2AM-LUP2032 does not include water quality guidelines used for analysis of water quality at the downstream monitoring stations. LMI Annual Report requirements under Schedule B – General Condition – Item G states LMI is to provide:

g. Tabular summaries of all data generated under the "Monitoring Program";

The results in Tables 4 and 5 were not screened against CCME guidelines; the highlighted values were flagged as being outliers.

The 2020 MDMER annual report for Lupin Mine provides a comparison of results from reference area and exposure area stations (LUP-21 and LUP-24) to acute and chronic Canadian Water Quality Guidelines for the Protection of Aquatic Life (see Table 4 of Golder 2021). Comparison to aquatic life guidelines is not required by Type A Water Licence 2AM-LUP2032, and LMI therefore refers ECCC to the MDMER report for this comparison.

Reference(s): Type A Water Licence 2AM-LUP2032; 2020 MDMER annual report (Golder 2021)

2.0 CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	CIRNAC	**Technical Comment No:**	1
Subject/Topic:	Geotechnical Inspection Findings, Recommendations and Actions		

Reference:

- 2020 Annual Report – Section 4.2

Detailed Review Comment by Party (September 28, 2021):

In section 4.2 of the 2019 Annual Geotechnical Inspection of the Tailings Containment Area Report, Stantec geotechnical engineer recommended that the following repairs be given a priority attention in 2020:

- Repair of Dam K toe using compacted sand and gravel to restore original design configuration and armoring of the repaired toe with boulders/riprap for wave protection. Removal of the loose material from the crest of the dam and repair of the crest with compacted sand and gravel.
- Repair of the northern section of the Divider Dyke with compacted sand and gravel to restore the original design configuration, including side slopes and leveled crest and armoring up to the high-water mark. Finalizing the repair on the southern section to restore the original configuration. Fully and effectively plugging the malfunctioning gate valve to prevent the flow from Cell 4 into Pond 1 and maintain the intended Tailings Containment Area (TCA) water management.
- Monitoring of water level behind Dam N and lowering the water level to maintain a minimum 1 m freeboard.
- Monitoring of Dam 2 seepage and managing it as necessary by pumping the seepage back into Pond 2.
- Repairing of the sloughed section of the buttress to the original elevation and shape once Pond 2 is lowered. LMI is monitoring and managing the water in Cell 5 as part of maintenance work. This monitoring and water management should continue to prevent damage to Dam M.
- General repairs on surface and slope erosion at high water mark on various perimeter and internal dams.

The 2020 Annual Report did not provide specific details that identify the actions taken by licensee in 2020 to address these concerns raised in 2019 Annual Geotechnical Inspection of the Tailings Containment Area Report. In section I of the 2020 annual report, the licensee provided a brief description of the work completed to address Stantec's geotechnical engineer prioritized repair recommendations. It is unclear to what extent those prioritized repairs were completed.

Also, in section 4.1 and 4.2 of the 2020 Annual Geotechnical Inspection of the Tailings Containment Area Report, the inspection of the Tailings Management Facility (TMF) noted several concerns that needed to be addressed including a localised failure at Dam M.

CIRNAC notes that many of the observations and recommendations are repeats or similar to 2018 (per the 2019 Annual Geotechnical Inspection of the Tailings Containment Area Report) and 2019 observations and recommendations. It is not clear if this means that the recommendations were not acted on by licensee or if similar issues have reoccurred for the same inspection item, but in either case there are outstanding concerns to address.

Part E, Item 7(d) of the Type A Type A Water Licence 2AM-LUP2032 requires that: *"Erosion of constructed facilities is addressed immediately".*

In February 1, 2021 response to letter with plans to implement the geotechnical engineer's recommendations, the licensee stated that*: "Upon recommencement of closure activities in 2021, the localized failed section of Dam M should be repaired."*

CIRNAC is of the opinion that the licensee must provide specific details of work completed at the localized failure at Dam M to address concerns raised in both the 2019 and the 2020 geotechnical inspections.

Request or Recommendation by Party (September 28, 2021):

- Provide specific details and evidence that the 2019 geotechnical inspection priority repairs were completed in 2020;
- Clarify if previous recommendations were not acted upon or that similar issues reoccurred in 2018, 2019 and 2020 annual geotechnical inspections; and
- Clarify the extent of work completed if any action has been taken to address the failure at Dam M.

LMI Response (October 29, 2021):

Under Type A Water Licence 2AM-LUP2032 - Schedule B – General Conditions – Item I states LMI is to provide:

> "A summary of modification and/or major maintenance work carried out on the Water supply and the Waste Management Facilities, including all associated structures;"

The Annual Geotechnical Inspection of the Tailings Containment Area Reports, signed and stamped by a Professional Engineer, were provided with the Annual Reports, not required under Type A Water Licence 2AM-LUP2032 - Schedule B, as evidence of the work completed. It should be noted that CIRNAC comments misrepresented the 2019 Annual Geotechnical Inspection of the Tailings Containment Area Report (2019 Report). The 2019 Report did not list six items as priority items, rather the 2019 Report listed three items as recommendations to be prioritized and the remaining three bullets were recommendations that LMI should consider carrying out after completion of the priority items.

Some of the items CIRNAC has pointed out as repeats are areas that require monitoring each year but are not considered modifications and/or major maintenance work, such as monitoring of the water level behind Dam N and lowering the water level to maintain a minimum 1 m freeboard; general repairs; monitoring of Dam 2 seepage and managing it as necessary by pumping the seepage back into Pond 2.

As noted below, the three priority recommendations in the 2019 Report were started in 2019 and continued in 2020, as documented in the 2019 Report and the 2020 Annual Geotechnical Inspection of the Tailings Containment Area Report (2020 Report).

Priority Recommendations:

For Bullet No 1 - Repair of Dam K

The 2019 Report states under Section 3.4 and Section 4.1 respectively:

> "……**The crest gullies were partially repaired in early July 2019 and temporary ditches were constructed upstream of the erosion to mitigate further damage the area**……."; and
>
> **"…….2019 maintenance and repair were completed to fill some of the crest erosion gullies and temporary ditches were constructed to mitigate further damage from surface water flows.** However, the toe erosion repair was not completed due to the high Pond 2 water level. The proposed plan is to lower Pond 2 water in 2020 to allow access along the toe for repair. The repair should include a buttress along the toe to reinforce the dam and riprap at closure water level elevation for protection. Once the repair at the toe is complete, any loose crest material should be removed, and additional compacted fill should be placed in lifts to complete the repair of the erosion gullies. All the proposed work should be endorsed by the Engineer-of-Record prior to commencement."

The 2020 Report states under Section 3.4:

> **"A buttress was constructed to reinforce Dam K at the eroded toe and provide support beneath the gullies at the crest.";** and
>
> "Dam K has experienced considerable undercutting at the toe from Pond 2 wave action that was reported previously, **and it was repaired this year**. Construction was conducted as the Pond 2 water level was lowered to allow stable access to the toe of the dam. **A buttress was constructed with compacted sand and gravel to reinforce the toe and support the face of the dam. The buttress was constructed to approximately half the height of the dam with a 5m crest. The construction work was overseen by a designated EOR representative to ensure the buttress was constructed using appropriate material and compacted accordingly."**

As stated in the 2020 Annual Report under Item I:

> "**LMI lowered the Pond 2 water and once the Pond 2 was lowered repairs began on Dam K. Overall, a volume of 11,505 m3 was hauled, placed and compacted as per the engineer's instructions. The repairs were complete on October 7, 2020."**

After the original contractor departed site, LMI hired another contractor to come to site specifically to carry out this work.

For Bullet No 2 - Repair Divider Dyke

The 2019 Report states under Section 3.4:

> "…..Immediately after the site inspection, Stantec communicated to site personnel that additional fill must be placed along the sloughed section of the south divider dyke to maintain a minimum 1m of freeboard. In addition, the gate valve should be plugged to limit flow into Pond 1 and meet TCA water management objectives. **Since the site inspection LMI has informed Stantec that both tasks were partially completed, where fill was placed to restore a minimum 1m freeboard and cement was used to partially plug the flow through from Cell 4 into Pond 1."**

The 2020 Report states under Section 3.4:

> **"The cracks and erosion observed in the divider dyke were repaired by the newly placed compacted fill.** However, new zones of seepage were observed at the newly constructed downstream toe of the divider dyke. These seepages were not observed previously and were monitored during closure activities. The

seepages will continue to be monitored until the proposed spillway is constructed in 2021. The seepages are expected to stop once the spillway is constructed to passively manage the water at the closure elevation, which is below the observed seepage zones."

As stated in the 2020 Annual Report under Item I:

"The divider dyke was repaired and raised by 0.5m for emergency water management to prevent overtopping – as stated in the 2020 Geotechnical Report."

For Bullet No 3 – Monitor Dam N water level

The 2019 Report states Section 3.4:

"Dam N was observed to be in stable condition, but it had only 0.5m of freeboard between it and Pond 2. This was communicated with LMI site personnel, and the need to increase the freeboard to 1m to meet water license requirement was highlighted. **It was agreed that the water behind Dam N would be lowered when practicable, after water treatment operations. Dam N and its contents were submerged in previous years and this did not appear to have had any adverse impact on geotechnical stability. The reduced freeboard does not create any geotechnical or environmental concerns as Dam N and its contents are contained within Pond 2."**

The 2020 Report states under Section 3.4:

"During freshet, a shallow ditch was constructed at the north abutment of Dam N to passively manage the freshet water. This was backfilled after the freshet. Both the construction and backfill were overseen by EOR representative. During the inspection Dam N was observed to be in stable condition, but it had only 0.5m of freeboard between it and Pond 2. This was communicated to LMI site personnel, and the need to increase the freeboard to 1m to meet water license requirement was highlighted. Stantec was later informed that the pond level was lowered after water treatment operations and Cell N freeboard increased to 0.8m prior to winterization."

As stated in the 2020 Annual Report under Item I:

"The water level was monitored in Dam N and lowered to increase the freeboard."

Previous priority recommendations were carried out in consultation with the EOR and details provided by the EOR in the Annual Geotechnical Inspection of the Tailings Containment Area Reports.

CIRNAC has misrepresented the 2020 Report above, as there was not a failure to Dam M but a localized failure while placing additional fill to limit previously unobserved seepage. This occurred in 2020, not 2019, while carrying out the non-priority repairs as per the 2019 Report. Dam M's overall stability was not compromised by the localized failure and was monitored by the EOR representative throughout the 2021 construction season. With the Cell 5 cover now completed this has mitigated the potential risk associated with ponding water in Cell 5 and the said seepage.

Work carried out at the Lupin site during 2021 will be included in the 2021 Annual Report and the 2021 Annual Geotechnical Inspection of the Tailings Containment Area Report.

Reference(s): Type A Water Licence 2AM-LUP2032; 2019 Report; 2020 Report; 2020 Annual Report

Interested Party:	CIRNAC	**Technical Comment No:**	2
Subject/Topic:	Seepage at the Divider Dyke		

Reference:

- 2020 Annual Report – Section J

Detailed Review Comment by Party (September 28, 2021):

In section J of the 2020 Annual Report, the licensee stated that: "*There were no unauthorised discharges or spills reported in 2020."*

The Geotechnical engineer, in section 3.4 of 2020 Annual Geotechnical Inspection of the Tailings Containment Area Report stated that:

"The cracks and erosion observed in the divider dyke were repaired by the newly placed compacted fill. However, new zones of seepage were observed at the newly constructed downstream toe of the divider dyke. These seepages were not observed previously and were monitored during closure activities. The seepages will continue to be monitored until the proposed spillway is constructed in 2021. The seepages are expected to stop once the spillway is constructed to passively manage the water at the closure elevation, which is below the observed seepage zones."

It is not clear if pond was constructed to contain the seepage or what measures were taken by the licensee to mitigate unauthorized discharge to the environment.

Request or Recommendation by Party (September 28, 2021):

- Clarify if pond was built to contain the seepage; and
- Identify measures taken to mitigate the unauthorized discharge in the subsequent annual reports if no pond was built.

LMI Response (October 29, 2021):

No pond was built to contain this seepage as it was not necessary. The seepage at Divider Dyke is not an unauthorized discharge or a spill to the environment. The seepage is contained with the Tailings Containment Area (TCA) thus no pond is required to contain the seepage.

As stated in the 2019 Report and the 2020 Report:

Under Section 2.0:

- "The internal dams are Dam 3a through 3e, Dams J through N, and the Divider Dyke."
- "The water in Cell 4 then flows through the Divider Dykes either though the control structure or by seepage into Pond 1."

Under Section 2.1 – Table 2.2:

- Under Table 2.2, the Divider Dyke is consequence classification is low; any release of effluent or tailings are contained within the TCA.

Figure 4 – this figure showing the Divider Dyke is within the TCA

Reference(s): 2019 Report; 2020 Report

Interested Party:	CIRNAC	**Technical Comment No:**	3
Subject/Topic:	Instrumentation Installation		

Reference:

- 2020 Annual Report – Section 3.2.1

Detailed Review Comment by Party (September 28, 2021):

In section 3.2.1 of the 2020 geotechnical inspection report, findings states that:

"From the existing records, there were thirteen thermistors installed in the dams, but only five of them are currently functional. There were seven functional thermistor last year, but the one thermistor located on each Dam 1A (D1A-00-01s) and Dam 4 (D4-3) were damaged this year and cannot be readily repaired without specialized equipment and supplies. Of the five functioning thermistors, three are in the perimeter dams and two are in the internal dams. There are an additional seven thermistors installed in the reclaimed tailings cover, but three of them do not have calibration data on record to evaluate the results. This report focuses on the thermistor readings from dams, using the thermistor readings from the cover for reference and comparison."

Following the licensee's plan to have closure works completed in 2021, consideration should be given to upgrading the site monitoring instrumentation as it relates to thermistors and moisture sensors as the current installations are either damaged beyond repair or non-existent. The damaged thermistors should be replaced while additional moisture sensors installed such that there is at least one in each cell of the TCA.

Having a functional and adequate number of thermistors and moisture sensor installations will not only enhance performance monitoring of the dams and tailings covers but will also reduce room for reading errors.

Request or Recommendation by Party (September 28, 2021):

CIRNAC recommends that licensee replace damaged thermistors and install additional moisture sensors at least one in each cell at the TCA.

LMI Response (October 29, 2021):

Thank you for your comment. The annual report is a summary of activities that occurred at site during each given year as per Schedule B of Type A Water Licence 2AM-LUP2032. There were no instrumentation installations in the 2020 Annual Report. The annual geotechnical inspection report of the tailings containment area reports are distributed by the NWB separately for information only.

LMI would like to clarify that CIRNAC's misrepresented the 2020 Report above by commenting that the current installations of the site monitoring instrumentation as it relates to thermistors and moisture sensors at Lupin are either damaged beyond repair or non-existent, this is not correct. As per the approved Final Closure and Reclamation Plan there are seven thermistors to be monitored, of which two were damaged in 2020 and LMI repaired in 2021. As per the approved Final Closure and Reclamation Plan there are four thermistors within the tailings cells to be monitored, all are currently functional. As per the approved Final Closure and Reclamation Plan volumetric moisture sensors were installed in Cell 1 and Cell 3 in 2018, as described in the 2019 Report and the 2020 Report and both are currently functional.

Reference(s): 2019 Report; 2020 Report, Final Closure and Reclamation Plan

Interested Party:	CIRNAC	**Technical Comment No:**	4
Subject/Topic:	Incorrect/Estimation Information		

Reference:

- 2020 Annual Report

Detailed Review Comment by Party (September 28, 2021):

CIRNAC notes that the licensee has improved in ensuring consistency of information. However, the 2020 Annual Report has few instances of incorrect information which includes:

- Licensee stated that in section C of the 2020 Annual Report that discharge at LUP-10 took place from July 29 to August 29, 2020. Appendix A, Table No 1 indicates that the last day of discharge was September 23, 2020.
- Documents provided include a file titled "Appendix 5 - Cell 4 - Drawing 002 – Plan View_Rev_20210618; On review it is a figure for Cell 5.
- Condition (g) "Sampling at East Lake and Boot Lake took place on July 21-22, 2020 and the results are included in Appendix A Certificate of Analysis Lab WO#: L2479238. The referenced Certificate is provided in Appendix B.
- Section 1 of the 2020 annual geotechnical inspection report appears to be referencing the previous water licence (2AM-LUP1520) and not the current 2020 Water Licence 2AM-LUP2032. While there are similarities between the two licences, it would have been expected that some of the newer conditions would have been reported on in the 2020 Annual Geotechnical Inspection of the Tailings Containment Area Report (for example Part E Condition 25, 26 and 27).

Furthermore, in Appendix A, Table No. 1, September 14 and 16, 2021, quantity of the effluent discharged was estimate at 8632m3 and 5076m3 respectively. It is unclear if the estimate was triggered by the broken flow meter.

Inconsistencies in information provide misleading accounts of activities and discharge flow estimates could pose the risk of discharge exceedances.

Request or Recommendation by Party (September 28, 2021):

(R-04) CIRNAC recommends that the licensee clarify:

- Information in the 2020 annual report and update accordingly in the subsequent reports; and
- Rational for the estimated discharge volumes of 8632 m^3 and 5076 m^3 on September 14 and 16, 2021 respectively.

LMI Response (October 29, 2021):

LMI has changed the dated from August 20, 2020 (which was for LUP-14) and updated to September 23, 2020 for LUP-10 under Section C. See attached revised 2020 Annual Report, with change highlighted in yellow (pg 6).

LMI has attached the corrected Appendix 5 to state Cell N contour – not Cell 4, the annual report has been corrected to reflect the same. See attached revised 2020 Annual Report, with change highlighted in yellow.

LMI has made the correction to state Appendix B not Appendix A (pg 13). See attached revised 2020 Annual Report, with change highlighted in yellow.

LMI will ensure that the 2021 Annual Geotechnical Inspection of the Tailings Containment Area Report states and reflects the terms and conditions of Type A Water Licence 2AM-LUP2032.

The short-term lower discharge flows were due to syphon malfunctions from ice build-up, which was corrected, as evidenced by the subsequent return to higher discharge flows. With all syphons working normally LMI has not been able to discharge the maximum quantity allowed by Type A Water Licence 2AM-LUP2032 (125,000m3) as indicated in the Discharge Volume Monitoring Summary (Table 1) so there is no risk of discharge exceedances.

Reference(s): 2020 Revised Annual Report

Interested Party:	CIRNAC	**Technical Comment No:**	5
Subject/Topic:	Certification of Repair Work		

Reference:

- 2020 Annual Report – Section I

Detailed Review Comment by Party (September 28, 2021):

In section I (Modification and Major Maintenance Work), the licensee stated that:

"Various earthwork was done in 2020 as part the closure activities and emergency water management. The divider dyke and Dam L were raised by 0.5m and 0.8m, respectively, for emergency water management to prevent overtopping. Prior to the emergency raise, Dam L was mechanically breached and backfilled by the contractor to dewater Cell 3 ***without the engineer-of-record (EOR) authorization or engineering oversight.*** *During repair of Dam M, earthwork equipment has caused a localized minor failure at the downstream face of the dam. Dam K received maintenance and repairs this year. The Pond 2 water level was lowered significantly by the water treatment and discharge operation, providing a freeboard upwards of 5m at the perimeter dams."*

The EOR did not report any concerns with raising the elevation of the respective structures as a means of ensuring the structures would not be overtopped. There was no explanation as to why licensee did not advise the EOR in advance of breaching Dam L to lower the water level in Cell 3 as the licensee mentioned that repair works were completed without the certification of an EOR.

The annual report also, did not discuss or confirm whether or not any observations or records from monitoring after 2020 inspection work or during any dam rehabilitation work was provided to Stantec or the EOR for review.

CIRNAC is concerned on the long term stability of the structural earthwork completed as it requires an EOR's supervision and endorsement to provide confidence and ensure quality assurance on the repair work performed.

Request or Recommendation by Party (September 28, 2021):

- Clarify if observations and records from monitoring after 2020 inspection was sent to Stantec and EOR for review; and
- Ensure that an EOR is present to supervise and endorse structural earthworks in subsequent emergency repair works and that, signed and stamped As-Built drawings detailing the adequacy of those repairs are provided for review.

LMI Response (October 29, 2021):

An EOR Representative, reporting directly to the EOR, was present at site the entire season and observed the work and carried out daily inspections at site.

LMI and their engineers will comply with all their legal and regulatory requirements. To clarify the CIRNAC statement that an EOR be present to supervise is not entirely correct as the EOR or the EOR representative is able to supervise the work.

As stated in the 2020 Report:

> "The higher water levels necessitated a **temporary raise of the Dam L and divider dyke** to prevent overtopping. Dam L was raised by a maximum 0.8m and divider dyke was raised by a maximum of 0.5m. The raises were completed by placement of compacted sand and gravel over the crest width of the dam and dyke. **The work was overseen by the EOR representative to ensure quality assurance."**

The breach and backfill at Dam L is now the outflow structure between Cell 3 to Cell 4. The temporary raise at Dam L was removed in 2021 to facilitate final closure activities according to the approved design.

In regards to CIRNAC's comment as to why the Licensee did not advise the EOR of the breach in advance, the contractor on site carried out the breach (breached early evening and backfill during the overnight and morning hours) without advising LMI, the EOR or the onsite EOR representative. LMI, the EOR, and the EOR Representative were all available to contact. This contractor is no longer working at the Lupin site. The EOR representative noticed the work being carried out and notified the EOR and LMI. The EOR issued an Incident Report as stated in the 2020 Report.

Reference(s): 2020 Report

Interested Party:	CIRNAC	**Technical Comment No:**	6
Subject/Topic:	Certification of Repair Work		

Reference:

- 2020 Annual Report – Part D, Item 5

Detailed Review Comment by Party (September 28, 2021):

Part D, Item 5 terms and condition of the Type A Water Licence states that:

"The Licensee shall, during the active Closure Phase and Care and Maintenance Phase of the Project, conduct inspections of Water and Waste management structures on a bi-weekly basis during freshet (approx. May and June), and on a monthly basis during the remainder of the open water period (approx. July to October). All records of the inspections and findings must be maintained for review, upon the request of the Board or an Inspector."

In regards to 2020 inspections of the water and waste management structures, it is unclear from the Annual Report, if the licensee completed bi-weekly inspection during the freshet (approximately May and June) and monthly during the remainder of the open water period (approximately July – October) and kept the records as required by the above Type A Water Licence terms and condition.

CIRNAC is of the opinion that the licensee provide summary record of inspections as an annex to the annual report for review in subsequent annual report submissions.

Request or Recommendation by Party (September 28, 2021):

- Clarify if bi-weekly and monthly inspections were completed during the freshet and open water seasons respectively as specified in the Type A Water Licence 2AM-LUP2032; and
- Provide the summary record of the inspections for review in subsequent annual report submissions.

LMI Response (October 29, 2021):

Bi-weekly and monthly inspections were completed during freshet and open water seasons. The EOR representative, reporting directly to the EOR, was present at site the entire season and completed daily inspections while on site.

LMI will abide by the Type A Water Licence 2AM-LUP2032 terms and conditions for the Annual Reports.

Reference(s): Type A Water Licence 2AM-LUP2032

Interested Party:	CIRNAC	**Technical Comment No:**	7
Subject/Topic:	Late Submission of Report		

Reference:

- 2020 Reports

Detailed Review Comment by Party (September 28, 2021):

The 2020 Annual Geotechnical inspection was carried out September 17 through September 18, 2021 by Stantec's geotechnical engineer. CIRNAC notes that the Annual report states that geotechnical inspection report was submitted to the NWB on February 1, 2021. This is in contravention of the Part J, Item 12 of the Type A Water Licence which states that:

"The Licensee shall, during active Closure Phase and prior to Post Closure, undertake annual inspection of the Tailings Containment Area, during ice free, open-water conditions by a Geotechnical Engineer. The Engineer's report shall be submitted to the Board within sixty (60) days following the inspection, and shall include a cover letter from the Licensee outlining an implementation plan to respond to the Engineer's recommendations."

The 2020 Annual Report was submitted to the NWB on June 26, 2021, also in contravention of Part B, Item 2 of the Type A Water licence which requires that:

"The Licensee shall file an Annual Report with the Board no later than March the 31st in the year following the calendar year being reported. The Annual Report shall be developed and submitted in accordance with Schedule B of the Licence, unless otherwise approved by the Board in writing."

CIRNAC is of the view that licensee's timely delivery of reports is important to avoid delays and ensure it is possible for the licensee to carry out any remedial work needed immediately as required by the licence. Late delivery of reports is a constraint to the review process, making it difficult for interveners to assess the extent at which reclamation work has been done.

Request or Recommendation by Party (September 28, 2021):

CIRNAC recommends that the licensee ensure that all reports are submitted to the NWB in a timely fashion as per the terms and condition of the Type A Water Licence 2AM-LUP2032.

LMI Response (October 29, 2021):

LMI will ensure that reports are submitted to the NWB in a timely fashion as per the terms and conditions of the Type A Water Licence 2AM-LUP2032.

Reference(s): Type A Water Licence 2AM-LUP2032

3.0 NUNAVUT WATER BOARD (NWB)

Interested Party:	NWB	**Technical Comment No:**	1
Subject/Topic:	Late Submission of 2019 Annual Report		

Reference:

- 2019 Annual Report

Detailed Review Comment by Party (October 6, 2021):

The NWB would like to emphasize that in accordance with Part B, Item 2 of the Licence, all Annual Reports should be submitted to the Board *"no later than March the 31st in the year following the calendar year being reported"*.

The Board notes that the 2019 Annual Report was provided to the Board on March 16, 2021 with no further explanation as to why this one- year delay has occurred and no previous requests for an extension.

Request or Recommendation by Party (October 6, 2021):

Provide an explanation as to why the 2019 Annual Report was submitted one year past the deadline.

LMI Response (October 29, 2021):

It was definitely an oversight on LMI's part due to a number of things such as preparation for the public hearing for the water licence renewal and approval of the final closure plan; winter road construction; preparation for the first full year of closure work; COVID-19 stress that increased LMI's work load exponentially; contractor issues; hiring Discovery to finish out the 2020 season; and then finding a new construction manager and getting them up to speed on the work program for 2021. LMI acknowledges and apologizes for the late submission. LMI will ensure that reports are submitted to the NWB in a timely fashion as per the terms and conditions of the Type A Water Licence 2AM-LUP2032 and in compliance with the *Nunavut Waters Regulations* SOR/2013-69.

Reference(s): Type A Water Licence 2Am-LUP2032; Nunavut Water Regulations SOR/2013-69

Interested Party:	NWB	**Technical Comment No:**	1
Subject/Topic:	Full Versions of Management Plans		

Reference:

- Management Plans

Detailed Review Comment by Party (October 6, 2021):

The NWB appreciates the Licensee providing Addendums to a number of Management Plans within the 2020 Annual Report submission. However, the Board would also appreciate submission of full versions of these plans, and in particular the *Spill Contingency Plan* and the *Final Closure and Reclamation Plan,* to be posted in the Public Registry. The Board would like to emphasize that the entire purpose of posting documents on this Public Registry is to allow any Nunavummiut, or any Canadian, to readily access the documents of interest and be able to review them without switching back and forth between multiple documents, if possible. The Board suggests that having all updates to a Management Plan within the plan itself, as opposed to having multiple Addendums with references to specific pages of the plan, would make the review process more robust and reader friendly.

Additionally, the Board notes that the original management plans were missing Inuktitut, Inuinnaqtun and French translations of the Executive Summaries, which is required under Part B, Item 8 of the Licence. This might make it challenging for Nunavummiut to review these documents and will have to be addressed.

Request or Recommendation by Party (October 6, 2021):

Provide full versions of the updated *Spill Contingency Plan* and the *Final Closure and Reclamation Plan* with Executive Summaries translated into Inuktitut, Inuinnaqtun, and French by March 30, 2022.

LMI Response (October 29, 2021):

LMI appreciates the NWB's comments and would like to clarify that they (LMI) were following the Type A Water Licence condition Part B, Item 15:

> "The Licensee shall review the Plans referred to in this Licence as required by changes in operation and/or technology and modify the Plans accordingly. Revisions to the Plans are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made."

and Schedule B: Item K:

> "Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals;"

and Schedule A: Scope, Definitions and Enforcement:

> "Addendum" means the supplemental text that is added to a full plan or report, usually included at the end of the document and is not intended to require a full resubmission of the revised report. It may also be considered as an appendix or supplement;".

It is LMI's understanding that the purpose of the Addendum is to provide confidence that the main or core aspects of any given plan not identified in an Addendum remain un-changed and therefore not subject to detailed review by parties allowing for improved efficiency in review of "approved" plans by specifically identifying changes via an Addendum.

As requested, the full versions of the Spill Contingency Plan and the Final Closure and Reclamation Plan, including the Executive Summaries translations in Inuktitut, Inuinnaqtun, and French, will be provided no later than March 39, 2022, but LMI anticipates providing these plans well in advance of that date, with the understanding that they are Board approved plans and will be distributed for information purposes only.

Reference(s): Type A Water Licence 2Am-LUP2032