



Aboriginal Affairs and  
Northern Development Canada

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# **Lupin Mines Incorporated (LMI) Lupin Mine Project Type 'A' Water Licence Renewal Application**

Nunavut Water Board (NWB) Public Hearing  
Kugluktuk, Nunavut  
February 4-5, 2015

**Canada**



## Presentation Outline

1. AANDC's Role and Responsibilities
2. Contributions to the Water Licence Review
3. Main Issues at the Pre-Hearing Conference
4. Final Review Comments
5. Other Considerations
6. Conclusion



## 1. AANDC's Role and Responsibilities

The department's responsibilities, mandate and obligations stem from the following applicable laws and policies:

- *Department of Indian Affairs and Northern Development Act*
- *Nunavut Land Claims Agreement Act*
- *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the associated regulations
- *Territorial Lands Act* and the associated regulations
- Mine Site Reclamation Policy for Nunavut



## **2. Contributions to the Water Licence Review**

1. Completeness review of the application submitted on June 9, 2014
2. Technical review of the application submitted on August 14, 2014
3. Teleconference with LMI to discuss outstanding issues on October 16, 2014
4. Participation at the Technical Meeting / Pre-Hearing Conference in Kugluktuk, NU on October 22-23, 2014
5. Teleconference with LMI to discuss the reclamation cost estimate on November 24, 2014
6. Response to the NWB Pre-Hearing Conference Decision on December 4, 2014
7. Final written submission submitted on January 5, 2015



### 3. Main Issues at the Pre-Hearing Conference

1. **List of Commitments:** AANDC and LMI submitted lists to the NWB for their consideration. AANDC notes that there is disagreement between the two lists and recommend that both lists are considered by the NWB.
2. **Updated Reclamation Cost Estimate:** LMI disagrees with the deficiencies identified and does not consider the estimate submitted on December 12, 2014 to be in any way deficient. AANDC considers the estimate to be deficient and will detail this further in the presentation. AANDC requests that the Board consider these uncertainties and deficiencies and that the financial security required under the licence is adjusted accordingly.
3. **Outstanding information:** LMI did provide information since the Pre-Hearing Conference but some remains outstanding, including historic studies on windblown tailings, evidence regarding windblown material, and a current inventory of hazardous waste.



## **4. Final Review Comments**

Technical comments and recommendations were provided for new information submitted by LMI in December 2014 and are presented under the following headings:

1.1 Fuel Inventory

1.2 Landfarm Management Plan

1.3 Erratum for Interim Abandonment and Restoration Plan (IARP)

1.4 Revised Reclamation Cost Estimate

1.5 Water Use Thresholds – Scaled Monitoring (refer to 2.5)



## 4. Final Review Comments

### 1.1 Fuel Inventory

#### AANDC Recommendation

- a) AANDC recommends that the total quantity of fuel on site is provided, including fuel stored in other vessels, prior to the Public Hearing;
- b) If the total amount of fuel remains unknown following the Public Hearing, the precautionary approach should be used to assume the highest reclamation liability on site.

#### LMI Response

- a) LMI provided the quantity of fuel in each tank as requested and commits to providing a complete inventory of fuel on site (including fuel stored in other vessels, including drums) during the 2015 season.
- b) LMI stated that the estimate of fuel stored in vessels would be less than 0.1% of the total inventory.



## 4. Final Review Comments

### 1.1 Fuel Inventory

#### Final Comments

- The 2014 Spill Contingency Plan indicates that an inventory will be done in 2013 as required under Schedule H, Item 1g of the Type A licence. This was never fulfilled.
- AANDC requests that the licence reflect the commitments made by LMI to provide complete inventories of fuel on site in 2015 and to provide annual updates to the inventory of fuel in annual reports.



## 4. Final Review Comments

### 1.2 Landfarm Management Plan

#### AANDC Recommendation

- a) Landfarm construction should only be considered during mine operations due to the limited presence on site during care and maintenance;
- b) The licence should require a final Landfarm Management Plan a minimum of 90 days prior to construction of a landfarm;
- c) Interested parties should be provided an opportunity to comment on the final Landfarm Management Plan; and
- d) Construction of a landfarm should not occur until the plan is approved, in writing, by the NWB.

#### LMI Response

- a) LMI would like the ability to construct a landfarm during care and maintenance.
- b) The plan is sufficiently detailed with respect to landfarm operations and expects to submit a construction summary report.
- c) and d) LMI requests that the NWB not delay approval of the current plan or the ability to proceed.



## **4. Final Review Comments**

### **1.2 Landfarm Management Plan**

#### **Final Comments**

- AANDC agrees that a landfarm during care and maintenance will allow for progressive reclamation of contaminated soil.
- Information was provided to supplement the landfarm management plan. An update is required to provide more detail and include new information (i.e., schedule for turning soil during periods of inactivity vs. activity on site and the measures proposed to accelerate the remediation process, etc.). AANDC recommends that the licence include a requirement to submit an updated plan at least 90 days prior to construction of a landfarm.
- LMI commits to confirming that the objectives are consistent with those outlined in territorial legislation and guidelines in addition to Canadian guidelines (CCME).



## 4. Final Review Comments

### 1.3 Erratum for Interim Abandonment and Restoration Plan (IARP)

#### AANDC Recommendation

- a) The licence should require an updated IARP within 90 days of licence issuance;
- b) The updated plan needs to be prepared in accordance with the *Mine Site Reclamation Guidelines for the Northwest Territories*, (INAC, 2007) and consistent with the *Mine Site Reclamation Policy* (INAC, 2002) as required in Schedule I, Item 1 of the existing licence;

#### LMI Response

- a) LMI commit to providing a revision to the IARP following licence issuance and agrees with the 90-day submission timeframe.
- b) LMI agrees.



## 4. Final Review Comments

### 1.3 Erratum for Interim Abandonment and Restoration Plan (IARP)

#### AANDC Recommendation

- c) The plan should be circulated for comments by interested parties prior to approval;
- d) A change in status (i.e., mining operations) should not commence until the plan is approved, in writing, by the Board; and
- e) The precautionary approach should be used where sufficient information is not provided in the IARP and the reclamation estimate when setting financial security.

#### LMI Response

- c) LMI agrees.
- d) LMI states that approval of the next iteration of the plan should not be a condition of recommencing operations.
- e) LMI objects as it unnecessarily fetters the discretion of the Board in determining financial security.



## **4. Final Review Comments**

### **1.3 Erratum for Interim Abandonment and Restoration Plan (IARP)**

#### **Final Comments**

- The first three parts (a-c) are considered addressed.
- AANDC recommends that the IARP is updated as part of the notification to resume operations. Approval of the updated plan is recommended prior to commencing mining operations to ensure that sufficient information is provided prior to a significant increase to the level of activity on site.
- There remains uncertainty about the performance of the cover, the quantity of contaminated soils, the quantity of acidic waste rock, etc. As such, a precautionary approach is recommended where there is uncertainty. The estimate submitted in our final submission applies the precautionary approach by increasing the contingency from 10% to 25% to account for uncertainties.



## 4. Final Review Comments

### 1.4 Revised Reclamation Cost Estimate

#### AANDC Recommendation

- The reclamation liability for the closure plan should be increased to at least \$43.5 million. There remains substantial uncertainty in the reclamation estimate and these costs could increase further.

#### LMI Response

- LMI were and still are in disagreement with AANDC and do not consider the estimate to be in any way deficient. LMI's estimates that reclamation liability at the Lupin Mine site is equal to \$24.1 million. LMI are very confident in this estimate.



## 4. Final Review Comments

### 1.4 Revised Reclamation Cost Estimate

#### AANDC Recommendation

- a) LMI should be required to provide all outstanding information regarding the reclamation estimate prior to the Public Hearing (AANDC requested that this information be provided on or before January 14, 2015 to allow sufficient time for parties to review the new information prior to the Public Hearing);
- b) Where information is incomplete at the Public Hearing, the precautionary principle should be used by the Board when making a determination regarding financial security.

#### LMI Response

- a) There is no outstanding information to be provided, and AANDC has not provided any rationale which supports the increase.
- b) There is no outstanding information to be provided.



## 4. Final Review Comments

### 1.4 Revised Reclamation Cost Estimate

#### Final Comments

- The revised estimate is an improvement over the 2012 estimate. However, LMI's estimate is not consistent with the RECLAIM model. There remains a number of items that are deficient and there are costs that we believe are inadequate to complete the work. A list of these deficiencies will be described in the following slides.
- AANDC provided rationale to support an increase in Appendix 1 of our Technical Review, at the Technical Meeting, in the December 19, 2014 SENES Memo, and in Appendix 1 of our Final Submission. In the latter, a memo was provided outlining the rationale to support the increases and a RECLAIM estimate using available information was included in Appendix A.
- AANDC recommends that the financial security is increased to cover the highest reclamation liability on site and, if information is not made available, that it accounts for the uncertainty and is adjusted accordingly.



## 4. Final Review Comments

### 1.4 Revised Reclamation Cost Estimate

#### Comparison of SENES and LMI Reclamation Estimates

Closure Cost		LMI	SENES	% Change
Underground Mine		\$439,639	\$463,580	5%
Tailings Areas		\$3,935,562	\$5,648,333	44%
Building Demotion		\$6,664,708	\$6,682,152	0%
Chemicals		\$2,498,718	\$7,222,882	189%
Waste Rock		\$1,887,702	\$2,852,000	51%
Post Closure Monit'g		\$830,013	\$2,205,670	166%
Indirect Costs		\$7,844,046	\$18,405,538	135%
Total Costs		<b>\$24,100,389</b>	<b>\$43,480,155</b>	80%



## **4. Final Review Comments**

### **1.4 Revised Reclamation Cost Estimate**

#### **Tailings Containment Area**

- No allowance for small islands of vegetation +\$200,000.
- Sand cover +\$387,000 (more cover but at lower unit rate).
- Allowance for existing cover maintenance and repair +\$142,000.
- Effluent treatment allowance - \$100,000.

#### **Chemical and Contaminated Soil Management**

- No allowance for disposal of on-site fuel inventory +\$4,700,000.
- Disposal of existing inventory of hazardous material +\$25,000 (may be covered in LMI estimate but it's location has not yet been made clear).



## **4. Final Review Comments**

### **1.4 Revised Reclamation Cost Estimate**

#### **Waste Rock**

- Higher unit rate for excavation, transport and disposal. LMI rate was \$4.72/m<sup>3</sup>. SENES uses \$7.08. Results in cost of + \$944,000.
- This rate could be much higher as it involves selective excavation and identification of the acid and clean rock and removal to underground mine (assumes accessibility) and tailings area.

#### **Post Closure Monitoring**

- LMI assume site will be abandoned after 25 years. SENES believes long term care is required. Allowance for 100 years. Future costs are discounted + \$1,375,000.



## **4. Final Review Comments**

### **1.4 Revised Reclamation Cost Estimate**

#### **Indirect Costs**

- No allowance for Final ARP, permitting, environmental review +\$900,000.
- LMI uses low cost for contingency at 10%. SENES recommends 25% +\$3,640,000.
- Mobilization - increased costs for fuel and equipment +\$3,310,000.
- Engineering - applied 10% (LMI 4%) +\$2,507,000
- Project Management - applied 5% (LMI 4%) +\$604,000.



## **4. Final Review Comments**

### **1.4 Revised Reclamation Cost Estimate**

#### **Uncertainties not accounted for in the SENES estimate:**

- Potential increased costs associated with asbestos remediation.
- There will likely be large quantities of contaminated soil.
- Project Management costs could be much higher (consultation, external review, project delays, etc.).
- Possible need for long term treatment.
- Extended schedule beyond 1 year.
- Above items could easily add more than \$5 million.

#### **Conclusion**

- The LMI estimate of \$24.1 million is too low and an increase to \$43.5 million is recommended.



## **4. Final Review Comments**

Final review comments and recommendations regarding the water licence application were presented under the following headlines:

- 2.1 Windblown Tailings
- 2.2 Porewater Quality Monitoring
- 2.3 Hazardous Waste Management
- 2.4 Management Plans
- 2.5 Care and Maintenance
- 2.6 Progressive Reclamation



## 4. Final Review Comments

### 2.1 Windblown Tailings

#### **AANDC recommendation**

- a) A study framework for the windblown material should be submitted for review and approval prior to issuance of a licence;
- b) A precautionary approach should be used when setting the financial security and it should be based on the assumption that windblown material is tailings, until proven otherwise; and
- c) The investigation and report on windblown material required by December 31, 2015 should be included as a condition of the licence.

#### **LMI Response**

- a) LMI commits to doing a study in June – August 2015. LMI is requesting a reason for the study before providing a study framework.
- b) LMI believes this uncertainty should not affect the financial security amount.
- c) No response.



## 4. Final Review Comments

### 2.1 Windblown Tailings

#### Final Comments

- Windblown tailings were identified by the Inspector in 2012 as a potential issue. LMI committed in 2012 to undertake an update to the Environmental Site Assessment to assess whether or not contamination is present or occurring on site, including the tailings containment area (TCA). This study was not undertaken.
- LMI committed to undertake an evaluation of the windblown material in June and July 2014 and to provide information by the end of August 2014. LMI did not undertake this confirmatory sampling prior to snowfall and AANDC had no choice but to agree that the sampling be undertaken in 2015.
- Because sampling was not completed in 2014, we do not have the evidence we need to be confident that potential impacts to the environment are being mitigated. A condition to conduct sampling and submit results to the Board and Inspector is required.



## 4. Final Review Comments

### 2.1 Windblown Tailings

#### Final Comments

- LMI's commitment to sample is limited to the localized area proximal to DAM 6. However, LMI did commit to ongoing clarification of the area of potential impacts to ensure sampling targets the correct area. AANDC recommends that the investigation program fulfill the inspector's original intent: to determine whether contaminated material may be leaving the TCA. Where windblown materials are identified outside of the TCA, LMI should be required to demonstrate whether the material is tailings and develop a plan to address remedial measures, as committed.
- LMI asserts that there is no evidence to suggest that concentrations of metals outside the TCA warrant additional measures and that contaminated dust continues to be deposited outside of the facility at concentrations that warrant covering of the remaining exposed tailings prior to final closure. AANDC notes that there is also no evidence that tailings are not being deposited outside of the TCA and that progressive covering of exposed tailings is not warranted.



## 4. Final Review Comments

### 2.1 Windblown Tailings

#### Final Comments

- AANDC is requesting a study framework prior to licence issuance to ensure that the Board is in agreement with the methodology proposed. LMI is of the position that analytical results of the sediment grab sample AANDC provided was consistent with background soil concentrations specific to the site. However, the background consisted of surface samples collected (by Morrow in 2005) within the vicinity of the mill and may have been impacted by 20 years of mining operations and thus, may not constitute background concentrations prior to mining.
- AANDC would like to ensure that the samples taken in 2015 will be compared against background concentrations remote from the mine influence. As mentioned previously the purpose of the study is to determine whether the windblown material is tailings or esker sand, whether tailings are leaving the TCA, and whether the exposed tailings need to be covered or removed prior to closure. This will allow the Board to determine the risk to the environment and whether the proposed mitigation measures (if any) are appropriate.



## 4. Final Review Comments

### 2.1 Windblown Tailings

#### Final Comments

- The Mine Site Reclamation Policy (INAC, 2002) states that the total financial security for final reclamation should be equal to the total outstanding reclamation liability on site. The financial security required under this licence should take into account the remaining uncertainties and be adjusted accordingly. When new information becomes available, LMI can request a reduction to the amount of security under Part C, Item 3 of the licence and s. 43 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*.



## 4. Final Review Comments

### 2.2 Porewater Quality Monitoring

#### **AANDC recommendation**

AANDC recommends that the licence require:

- a) porewater quality monitoring in the sand cover; and
- b) annual sampling of the piezometers.

#### **LMI Response**

- a) LMI does not commit to monitoring porewater quality. LMI does commit to monitoring porewater levels in the esker sands and surface water quality within the tailings ponds. LMI indicates that water levels will demonstrate the cover is functioning as designed and that porewater quality will be monitored by sampling water in tailings ponds.
- b) No response.



## 4. Final Review Comments

### 2.2 Porewater Quality Monitoring

#### Final Comments

- AANDC requested porewater quality monitoring as a confirmatory measurement and notes that this monitoring was done on site up until 2006.
- AANDC agrees that monitoring the progression of water quality in the interior ponds will also provide data that can be used to assess whether the system is performing as projected. While continued monitoring of porewater quality isn't essential, it was recommended that LMI provide additional information on cover performance.
- LMI committed to collect water quality samples from the interior ponds annually and to provide the NWB with results in annual reports. AANDC recommends that LMI also monitor water levels annually and provide results in annual reports.



## 4. Final Review Comments

### 2.3 Hazardous Waste Management

#### AANDC recommendation

- a) A current inventory of hazardous waste as committed by LMI should be submitted for review prior to the Public Hearing;
- b) Annual removal of hazardous waste should be required to prevent the over-accumulation of hazardous waste on site;
- c) The type and volume of hazardous waste on-site should be reported annually in the Annual Report;

#### LMI Response

- a) LMI committed to providing a list of the current inventory of hazardous waste on site but this was not possible due to an early snow fall.
- b) LMI does not agree with annual removal of hazardous waste but will remove hazardous waste at every opportunity.
- c) LMI agreed to include updated inventories of hazardous waste in future annual reports, only if required by the renewed licence.



## 4. Final Review Comments

### 2.3 Hazardous Waste Management

#### AANDC recommendation

- d) LMI needs to confirm that removal of hazardous waste is included in the reclamation estimate (and indicate where in the estimate it is accounted for) and clarify the total volume of the 2 truckloads;
- e) The storage of hazardous waste on site should be limited to the maximum amount of stored hazardous waste used to calculate the reclamation cost estimate (i.e. 2 truckloads).

#### LMI Response

- d) LMI states that removal of hazardous waste is included in the cost estimate.
- e) While the amount of hazardous waste is not likely to exceed 2 truckloads, defined restrictions should not be imposed.



## **4. Final Review Comments**

### **2.3 Hazardous Waste Management**

#### **Final Comments**

- AANDC requested an inventory of hazardous waste in July 2014 (AANDC Inspection Report) and again at the October 16 meeting but this information has not yet been provided.
- AANDC requests that the licence reflect the commitments made by LMI to provide complete inventories of hazardous waste on site in 2015 and to provide annual updates to inventory of hazardous waste in annual reports.
- LMI stated in their response to Comment No. 2.5 that LMI completed an inventory of fuel and chemicals on site as part of their standard procedures to vacating the site. AANDC requests clarification on whether standard procedures were followed prior to vacating the site in 2014 and whether this information can be made available prior to licence issuance.



## 4. Final Review Comments

### 2.3 Hazardous Waste Management

#### Final Comments

- Hazardous waste has been consolidated and stored in a lined area but there remains historic hazardous waste onsite that requires a plan for removal. A schedule to remove accumulated hazardous waste was requested but LMI is unwilling to make this commitment. AANDC recommends that the licence include a schedule for the removal of accumulated hazardous waste.
- AANDC recommends staged removal of 'historic' hazardous waste for the duration of the licence term and annual removal of 'new' hazardous waste to prevent accumulation of hazardous waste on site.
- AANDC recommends that the Board include a requirement to comply with the Government of Nunavut's *Environmental Guideline for the General Management of Hazardous Waste*.



## 4. Final Review Comments

### 2.3 Hazardous Waste Management

#### Final Comments

- LMI states that removal of hazardous waste is included in the cost estimate but LMI has not yet clarified where in their cost estimate the cost for removal can be found or the total volume of 2 truckloads. LMI needs to provide confirmation that removal of hazardous waste is fully accounted for prior to licence issuance.
- LMI states that defined restrictions should not be imposed regarding the storage of hazardous waste. AANDC recommends that the annual updates to the reclamation estimate (Schedule B, Item 1b) be required to outline and account for increases to the maximum amount of hazardous waste stored on-site and that the Board consider adjustments to the amount of security based on annual updates to the current mine reclamation liability.



## 4. Final Review Comments

### 2.4 Management Plans

#### AANDC Recommendation

- a) The licence should require LMI to submit updated management plans for approval within 60 days of licence issuance;
- b) Plans should be distributed for comments prior to approval;
- c) Commitments made by LMI should be reflected in the water licence; and
- d) Monitoring of internal pond water quality should be included as a condition of the licence.

#### LMI Response

- a) LMI will update the management plans and suggests that a minimum of 90 days be included.
- b) LMI agrees.
- c) LMI agrees that its commitments be noted by the NWB in the written decision document for the water licence.
- d) LMI agrees. LMI proposed to collect water samples annually from the interior ponds and to provide the NWB with results in annual reports.



## **4. Final Review Comments**

### **2.4 Management Plans**

#### **Final Comments**

- LMI agreed to having their commitments noted in the written decision document (response to part c). AANDC would like to clarify that our request was that LMI's commitments would be incorporated as conditions in the licence.
- LMI has agreed to all other comments but has requested 90 days to allow for suitable time to address all management plans. AANDC agrees with this timeframe.



## 4. Final Review Comments

### 2.5 Care and Maintenance

#### AANDC Recommendation

- a) Part E, Item 6f of the existing licence should remain as a condition during mining operations;
- b) Confirmation is requested that the recommendations for the monitoring frequency during ramp-up were provided by a geotechnical engineer;
- c) The monitoring frequency during care and maintenance should include a caveat “or as recommended by a Geotechnical Engineer in annual geotechnical inspection reports required under Part E, Item 6g”;

#### LMI Response

- a) There is no need to maintain an ongoing site presence.
- b) The monitoring frequency during ramp-up is proposed by LMI on the basis that water and waste facilities used during this time will not be substantially different than during care and maintenance. Therefore, inspection frequency would remain the same.
- c) LMI agree that frequencies may be adjusted from time to time based on input from an independent geotechnical engineer.



## 4. Final Review Comments

### 2.5 Care and Maintenance

#### **AANDC recommendation**

- d) LMI should continue to investigate the feasibility of remote surveillance for monitoring during care and maintenance and submit a future amendment request should it prove feasible and agreeable to LMI, AANDC and the Board;
- e) A definition of Care and Maintenance should be consistent with the Mine Site Reclamation Guidelines (INAC, 2007).

#### **LMI Response**

- d) LMI had investigated remote video surveillance monitoring but have not been able to locate a reasonable reliable system. LMI will continue to assess options and the feasibility of this approach.
- e) LMI believes that the guidelines noted by AANDC need to be revised.



## 4. Final Review Comments

### 2.5 Care and Maintenance

#### Final Comments

- LMI proposes to use 100X more water during ramp-up than care and maintenance and will likely accommodate more people at the camp and deposit more waste on site. The monitoring frequency should reflect the level of activity on site and since the level of activity during ramp-up is higher, so should be the monitoring frequency.
- AANDC recommends that the Board consider this increased activity when setting the monitoring requirements for ramp-up and care and maintenance. Due to the uncertainty associated with ramp-up, AANDC recommends that the monitoring frequencies during ramp-up be the same as those during operations.



## **4. Final Review Comments**

### **2.5 Care and Maintenance**

#### **Final Comments**

- LMI submitted a request to set thresholds for Part D, Item 6f regarding the TCA. Clarification is requested whether LMI intends to request similar monitoring requirements for inspections of water management structures (Part D, Item 4) and fuel containment (Part H, Item 6) facilities.
- AANDC maintains that monitoring of facilities and infrastructure are conducted on site year-round. Until a 'reasonable reliable system' can be identified for remote surveillance monitoring, LMI must consider alternative options. For example, other projects in the region have employed local Hunters and Trappers Organization members to conduct monthly inspections on behalf of the company.



## 4. Final Review Comments

### 2.6 Progressive Reclamation

#### AANDC Recommendation

Due to the potential risk that the mine does not resume operations during the life of the proposed licence, AANDC recommends that the licence require:

- a) Progressive covering of the exposed tailings during care and maintenance;
- b) LMI to submit an updated progressive reclamation plan as part of the update to the IARP. This plan should provide a schedule for the decommissioning and reclamation of the tailings and waste rock areas.

#### LMI Response

- a) Progressive reclamation only applies to facilities that can no longer be used. The TCA will not be covered until final closure.
- b) LMI carried out progressive reclamation where possible (i.e. backhaul of waste and the submission of a landfarm management plan which will support the clean up of the historic spill at the satellite tank farm).



## 4. Final Review Comments

### 2.6 Progressive Reclamation

#### Final Comments

- LMI stated that the TCA will not be covered any further until final closure and that there is no evidence to suggest that the covering of the remaining exposed tailings is an urgent matter. AANDC notes that there is no evidence that covering of the remaining exposed tailings is not required to ensure protection of the surrounding environment.
- AANDC maintains that covering of the exposed tailings should be required as a non-discretionary licence condition. This could include a temporary stabilizer, as proposed in the Care and Maintenance Plan, to mitigate the risk of windblown tailings and to enable future use of the TCA.



## **4. Final Review Comments**

Additional comments and recommendations were included in Section 3.0 of the Final Review Submission and are presented under the following headings:

3.1 Acid Generating Waste Rock

3.2 Asbestos

3.3 Updated Environmental Site Assessment



## 4. Final Review Comments

### 3.1 Acid Generating Waste Rock

#### AANDC recommendation

AANDC recommends that a detailed waste rock characterization study be included in the licence to address the acid rock issue and its potential effect on the environment. The study should:

- a) identify the total quantity of potentially acid generating waste rock;
- b) propose a management plan for potentially acid generating waste rock; and
- c) address ground water contamination as identified by Morrow (2006).

#### LMI Response

- a) LMI agrees that additional studies are required to assess various remedial options for dealing with potentially acid generating waste rock.
- b) LMI proposes to complete a more detailed options evaluation prior to closure.
- c) No response.



## **4. Final Review Comments**

### **3.1 Acid Generating Waste Rock**

#### **Final Comments**

- AANDC requests that the licence include a requirement for the licensee to: a) conduct a detailed rock characterization program within the term of the licence to identify the total quantity of potentially acid generating waste rock at the Lupin Mine site, and b) address ground water contamination as identified by Morrow (2006).



## 4. Final Review Comments

### 3.2 Asbestos

#### AANDC recommendation

AANDC recommends that the licence require LMI to:

- a) conduct an investigation to confirm whether or not asbestos is present on site; and
- b) complete a remedial cost estimate for mitigation and cleanup if asbestos is found to be present on site.

#### LMI Response

- a) LMI confirmed that investigations were conducted in 2006 and 2012. The 2006 survey identified a number of buildings that contain asbestos.
- b) LMI states that the need for special handling of certain materials was considered in demolition plans.



## 4. Final Review Comments

### 3.2 Asbestos

#### Final Comments

- It is understood that the presence of asbestos was considered in demolition plans. Clarification is requested whether the demolition plans include the disposal of materials containing asbestos.



## 4. Final Review Comments

### 3.3 Updated Environmental Site Assessment

#### AANDC Recommendation

- The last environmental site assessment was conducted in 2005. AANDC recommends that the licence require an updated site assessment to determine more accurate estimates of hydrocarbon-contaminated soils; potentially acid generating waste rock; exposed tailings within the TCA; and windblown material outside the TCA.

#### LMI Response

- The site has been in care and maintenance since 2005, as such results obtained by Morrow remain valid.



## 4. Final Review Comments

### 3.3 Updated Environmental Site Assessment

#### Final Comments

- An addendum to the 2006 Lupin Environmental Site Assessment was requested by an AANDC Inspector in 2012. LMI committed to providing this by March 31, 2013. This work has not been started and they have since reduced their commitment that this will be done prior to resuming mining operations.
- AANDC recommends that the licence require an updated site assessment to be conducted by the licensee in 2015 to address legacy hazards and contamination issues as requested by the Inspector in 2012: to determine the mechanisms that could cause contamination to leave the site footprint, assess whether or not contamination is present or occurring, determine mitigation measures to prevent further contamination. This assessment should also identify quantities of contaminated soil and waste rock material to better calculate the reclamation liability on site.



## 5. Other Considerations

- AANDC suggested proposed changes to terms and conditions of the existing water licence for the Board's consideration.
- Commitments (as well as the absence of commitments) need to be considered prior to issuing a licence.
- The outstanding issues and the existing level of uncertainty need to be considered prior to issuing a licence or assigning security.
- More prescriptive terms and conditions are required to ensure water is adequately protected.
- The water licence should include schedules for studies, monitoring, and progressive reclamation.
- Responsibility for monitoring and care and maintenance is that of the Licensee.



## 5. Other Considerations

### Compliance

Operational Compliance (mitigate risks to environment/water, management plans) with the water licence is summarized below:

- 26 compliant
- 21 non-compliant
- 3 uncertain



## 5. Other Considerations

### Compliance

Action Required:	Status:
Prevent overtopping of sewage lagoon.	Resolved
Inventory of hazardous waste.	Pending: Annual Report.
Backhaul of hazardous waste.	Pending: Quantities and type of waste backhauled is to be reported in the Annual Report.
A geotechnical inspection: Main and Satellite Tank Farms, Upper and Lower Sewage Lagoon, and waste containment areas.	Partially resolved: Reports were not accompanied by plans/timelines to implement the recommendations as requested by the Inspector. Implementation of the engineer's recommendations is to be undertaken in 2015.
The uncovered tailings shall be covered according to the engineer's specifications and any applicable operating plan, and tailings/cover blown out of the TCA be replaced in the TCA and permanently encapsulated.	Unresolved: The company has refused to carry out this activity, despite it having been a condition of the licence since issuance in 2009, and repeated instructions to do so by Inspectors. This issue remains unresolved and will be escalated from voluntary compliance to enforcement action.
The spill outside the STF is to be remedied as per the Spill Contingency Plan.	Unresolved: The Licensee has failed to carry out the requirements of the Inspector; the spill has not been addressed. The cleanup of the spill is to be undertaken by August 31, 2015.



## 5. Other Considerations

### Compliance

#### **AANDC Recommendation**

AANDC is recommending a term and condition within the new licence that requires LMI to address the outstanding non-compliances from the last licence as identified in the 2012 and 2014 inspections, to the satisfaction of the Inspector, within 2 years of issuance.



## 6. Conclusion

- By incorporating the Department's recommendations, the applicant will be in a better position to minimize water issues on site.
- The financial security currently held by the Minister under the expired licence 2AM-LUP0914 is \$25.5 million.
- A new estimate (prepared in accordance with RECLAIM and the Department's Mine Site Reclamation Policy for Nunavut) shows an increase in the reclamation cost amount from the previous licence. This new estimate is \$43.5 million.
- The financial security required under this licence can be adjusted by the Board in the future with the submission by LMI of :
  - an updated environmental site assessment that reflects current conditions and demonstrates effectiveness of the tailings cover, and
  - a fully itemized reclamation cost estimate consistent with most current version of RECLAIM and the Department's Mine Site Reclamation Policy for Nunavut.



## 6. Conclusion

The Department is recommending a five year term to the water licence during which the following must occur:

- Compliance issues must be addressed within 2 years of licence issuance
- An updated Environmental Site Assessment is to be conducted.

Additionally, the application states the project will remain in care and maintenance until the economic feasibility is determined. However, there is no evidence before the board that a mineable reserve or resource exists to support resumption of mining activities.



**Koana**  
**Thank you**  
**Merci**  
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