



Water Resources
Nunavut Regional Office
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Your file - Votre référence
2AM-LUP0914

January 5, 2015

Our file - Notre référence
CIDM# 879283

Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0A 1J0

**Re: 2AM-LUP0914 – Lupin Mine Project – Lupin Mines Incorporated (LMI) –
Renewal and Amendment Application - Final Written Submission**

Dear Ms. Beaulieu:

Thank you for distributing the December 1, 2014, report regarding the Nunavut Water Board (Board or NWB) Pre-Hearing Conference (PHC) Decision for the Lupin Mine Project.

Aboriginal Affairs and Northern Development Canada (AANDC) has reviewed the information provided by Lupin Mines Incorporated (LMI) regarding the above application and comments and recommendations are provided in the attached report for the Board's consideration.

As indicated in our letter of December 4, 2014, AANDC identified three main issues at the Technical Meeting and Pre-Hearing Conference (TM-PHC) that we believe would prevent the application from proceeding to a hearing, including the failure to submit the following:

- a list of commitments (incomplete list submitted on October 31, 2014);
- an updated reclamation cost estimate that addresses the deficiencies identified by AANDC at the Technical Meeting (revised estimate submitted on December 12, 2014); and
- outstanding information requested by AANDC throughout the application process (some information submitted on December 5, 2014).

While a list of commitments was provided by LMI on October 31, 2014, the list appears to be incomplete and does not document all commitments made by LMI since the start of the application process.

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LMI did not meet the deadline of November 28, 2014, to submit outstanding information but they did submit information on December 5, 2014, to satisfy some of their commitments including:

- Fuel inventory;
- Errata to Interim Abandonment and Restoration Plan (IARP); and
- Landfarm Management Plan.

AANDC has reviewed the above documents and offers comments and recommendations in Sections 1.1-1.3 of the enclosed submission for the Board's consideration.

LMI submitted a revised reclamation cost estimate on December 12, 2014, which was distributed by the NWB on December 17, 2014. Preliminary comments and recommendations are offered in Section 1.4 and Appendix 1 of the enclosed submission for the Board's consideration.

While LMI has provided some of the information committed, there are several issues that remain outstanding. Please refer to Section 2.0 of the attached report for outstanding issues and find enclosed the updated status of issues following the TM-PHC (originally submitted in our December 4, 2014, letter and later revised on December 16, 2014, following LMI's submissions) in Appendix 2.

Despite our statements made at the TM-PHC, the failure of LMI to meet the deadline set by the NWB for submissions, and our December 4, 2014, letter to the NWB recommending that the process not proceed further and that the timeline not be fixed until the information is received by the Board and distributed to interested parties for review, parties are required to file final written submissions with the NWB on January 4, 2015, and the Public Hearing is scheduled for the week of February 2-7, 2015.

Given the delays already experienced on this file and lack of timely and complete provision of information by LMI, AANDC is concerned that the Board may be faced with making determinations on incomplete information at the Public Hearing. LMI has proven unreliable at providing requested information, and as such, simply including conditions in the licence requiring the provision of the information within specified timelines is unlikely to be effective. While it remains important to capture all the outstanding information in enforceable licence conditions, unless the information is provided prior to licence issuance, AANDC recommends that the uncertainties arising from the lack of information be factored into the reclamation security required and let LMI apply to reduce the security in the future as new information becomes available. This may provide the required incentive to LMI to meet the licensing and information requirements.

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AANDC appreciates the opportunity to participate in this review. Should you have any questions or concerns, please contact me at (867) 975-4738 or by e-mail at Jean.Allen@aadnc.gc.ca.

Sincerely,

Jean Allen, B.Sc.
Water Management Specialist

Enclosures: AANDC Final Submission Report regarding LMI's Type A Water Licence Application
Appendix 1: SENES Review of LMI Reclamation Cost Estimate
Appendix 2: Status Table of Issues Going into the Public Hearing

cc. Karen Costello, Director, Resource Management, AANDC
Leslie Payette, A/Director, Resource Management, AANDC
Andrea Morgan, A/Manager, Water Resources, AANDC
Amjad Tariq, Regulatory and Science Advisor, AANDC
Ian Parsons, Regional Coordinator, AANDC
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Norm Cavanagh, Legal Counsel, Justice Canada
Shelagh Montgomery, Senior Environmental Scientist, SENES Consultants

**Final Submission Regarding
Lupin Mines Incorporated
Type A Water Licence Renewal Application
for the Lupin Mine Project**

Aboriginal Affairs and Northern Development Canada

Final Submission to the Nunavut Water Board

January 5, 2015

EXECUTIVE SUMMARY

Aboriginal Affairs and Northern Development Canada (AANDC or the Department) has participated in the ongoing review of the Lupin Mines Incorporated (the Licensee or LMI) application (the application) for the renewal and amendment of Type A water licence 2AM-LUP0914 (Type A licence or 2AM-LUP0914) for the Lupin Mine Project.

While some information has been provided to support the review of the application and some commitments have been made to provide information following licence issuance, more information is required from LMI prior to the issuance of a water licence. AANDC has reviewed the new information submitted by LMI and provides comments and recommendations in this submission for the Nunavut Water Board's (Board or NWB) consideration.

There remain a number of outstanding issues that pose a risk to water resources and should be considered if the mine is to be relicensed including: non-compliance with licence conditions and AANDC Inspector's requests; lack of monitoring and assessment of tailings cover effectiveness; characterization of windblown material outside of the tailings containment area; removal of hazardous waste from site, and the extent of contaminated soils and acid generating waste rock.

LMI has provided revisions to the reclamation cost estimate but has not addressed all the deficiencies identified in October 2014. The financial security currently held by the Minister is insufficient to cover the total outstanding reclamation liability of the mine site and a significant increase is recommended to ensure that Canada will not be held financially liable for the cost of reclamation should the mine be abandoned.

The information requested is necessary to assess environmental liability and to estimate reclamation costs. AANDC requests that this information is made available prior to the Public Hearing. Alternatively, the financial security required under this licence should take into account the remaining uncertainties and be adjusted accordingly.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
TABLE OF CONTENTS	ii
INTRODUCTION	1
COMMENTS ON THE TYPE A RENEWAL APPLICATION	2
1.0 Review of New Information Submitted in December 2014	2
1.1 Fuel Inventory	2
1.2 Landfarm Management Plan	3
1.3 Errata for Interim Abandonment and Restoration Plan	4
1.4 Revised Reclamation Cost Estimate	5
2.0 Outstanding Issues	6
2.1 Windblown Tailings	6
2.2 Porewater Quality Monitoring	7
2.3 Hazardous Waste	8
2.4 Management Plans	9
2.5 Care and Maintenance	9
2.6 Progressive Reclamation	11
3.0 Other Issues	12
3.1 Acid Generating Waste Rock	12
3.2 Asbestos	12
CONCLUSION & SUMMARY OF RECOMMENDATIONS	14
APPENDICES	17
Appendix 1: SENES Review of Reclamation Estimate	17
Appendix 2: Status of Issues Going into the Public Hearing	18

INTRODUCTION

Aboriginal Affairs and Northern Development Canada (AANDC or the Department) has participated in the ongoing review of the Lupin Mines Incorporated (the Licensee or LMI) application (the application) for the renewal and amendment of Type A water licence 2AM-LUP0914 (Type A licence or 2AM-LUP0914). The Department retained SENES Consultants (SENES) to assist in the review of the application throughout the Nunavut Water Board (NWB) water licence application process.

On July 18, 2014, AANDC conducted a completeness review of the application which included information requests and comments regarding proposed changes to the water licence. AANDC submitted a technical review of the application on August 14, 2014 and participated in a Technical Meeting and Pre-Hearing Conference (TM-PHC) in Kugluktuk on October 22 and 23, 2014.

On December 1, 2014, the NWB distributed the Pre-Hearing Conference Decision inviting interested parties to submit additional written submissions by January 4, 2015, despite the fact that much of the information requested of LMI remains outstanding. The Board gave LMI a deadline of November 28, 2014 to submit the outstanding information identified at the TM-PHC and LMI submitted three documents (fuel inventory, landfarm management plan, and an erratum for the Interim Abandonment and Reclamation Plan) on December 5, 2014 and a revised reclamation cost estimate on December 12, 2014. Out of the 18 technical comments submitted by AANDC in the Technical Review and the 5 additional comments provided at the Technical Meeting, a total of 5 have been addressed by LMI and 4 were directed to the NWB for their consideration, leaving a total of 14 that remain outstanding.

The results of our review are presented in this submission (in addition to our comments submitted on August 14, 2014), in the context of AANDC policy and relevant legislation including the *Nunavut Water and Nunavut Surface Rights Tribunal Act (NWNSRTA)* and the *Department of Indian Affairs and Northern Development Act*. Comments are structured as issues and supported by observations made during the course of the application review. A status of each issue is indicated below and includes recommendations to LMI and, in cases where a commitment has not been made or an agreement has not been achieved, recommendations are made directly to the Board.

COMMENTS ON THE TYPE A RENEWAL APPLICATION

1.0 Review of New Information Submitted in December 2014

The Pre-Hearing Conference Decision was distributed to parties on December 1, 2014. LMI was required to submit information prior to the Public Hearing including the following:

- Landfarm management plan;
- Interim Abandonment and Reclamation Plan (IARP);
- Fuel inventory; and
- Additional detail regarding the reclamation estimate.

While the first two documents were due on November 28, 2014, the last two were due prior to the Public Hearing. The fuel inventory, landfarm management plan, and the erratum to the IARP were distributed by the Board for review on December 5, 2014. AANDC reviewed these documents and provides comments and recommendations below.

The revised reclamation estimate was submitted by LMI on December 12, 2014 and distributed by the Board for review by interested parties on December 17, 2014. A preliminary review of the revised reclamation estimate was completed by SENES and a summary of this review is found below, with more detailed comments available in the attached memorandum in Appendix 1. Further comments and recommendations regarding the reclamation estimate may be submitted under a separate cover to the Board for consideration.

1.1 Fuel Inventory

Reference

NWB Water Licence 2AM-LUP0914, Schedules H, Item 1(g), and I 2(d)
AANDC Water Licence Inspection Report (July 15, 2014)
LMI Plan for Compliance (2012 and 2014)
AANDC Technical Review (August 14, 2014), No. 7
LMI Response to Technical Review (October 10, 2014)
Fuel Dips Calculation Sheet (August 23, 2014)

Background

AANDC requested information regarding the quantity and quality of fuel on site since the onset of the application process. LMI stated that all fuel on site is useable and is of good quality and committed to providing an updated inventory of fuel on site. LMI submitted a Fuel Dips Calculation Sheet done on August 23, 2014 which was distributed by the Board on December 5, 2014 for review by interested parties. While this submission provides sufficient information regarding the quantity of fuel stored within fuel tanks, the quantity of fuel stored within other storage vessels (i.e., drums) remains unknown.

Recommendation

AANDC recommends that the quantity of all fuel on site, including fuel stored in other vessels, is provided prior to the Public Hearing (i.e. number of vessels including drums). 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 when setting the financial security (i.e. assume all vessels are full).

1.2 Landfarm Management Plan

Reference

AANDC Completeness Review (June 9, 2014), No. 2.6

LMI Response to Completeness Review (July 2, 2014)

AANDC Technical Review (August 14, 2014), No. 5; SENES Review, No. 2.1.3

LMI Response to Technical Review (October 10, 2014)

Landfarm Management Plan (December 5, 2014)

Background

The Interim Abandonment and Restoration Plan (IARP) states that contaminated soil will be remediated on site. However, in their response to the AANDC Completeness Review, LMI clarified that they will continue to backhaul contaminated soil during care and maintenance. LMI committed to submitting a Landfarm Management Plan in November 2014 but it was not received before the TM-PHC. LMI submitted the plan to the Board and it was distributed to parties on December 5, 2014.

AANDC reviewed the plan and notes that it may be sufficient as a preliminary plan, however, a final plan containing more detailed information is required prior to construction of a landfarm. The following comments are offered for the Board's consideration:

- Although, section 6 provides general landfarm operating procedures (page 10), more detail is required in a final plan prior to its construction.
- The depth of soil to be treated is 1.5 m (0.3 m during periods of inactivity). Usually, a depth of 30 to 45 cm is recommended as thicker soils require more tilling for aeration of contaminated soil.
- The size of the landfarm may be too small for the remediation of contaminated soil at closure. It may address future contamination but it is unlikely that it will address the current inventory of contaminated soil (refer to Appendix 1 for further comments).
- It is unclear how often the contaminated soil will be turned during periods of activity (biweekly?) and inactivity (annually?). Detailed operational procedures during periods of activity vs. inactivity are required in a final plan.

- Regular turning of the soil will only take place during years when a discharge from the TCA is planned (page 10). While the depth will be reduced to increase the surface area, it may only be aerated once a year for up to 2-3 years, which could potentially affect the time required for proper remediation.
- Moisture management will require regular monitoring of the landfarm to maintain soil moisture (page 10). It is noted that increased soil mixing may be required to promote evaporation and that water may be required to increase soil moisture.
- Soil quality remediation objectives are provided in Table 1 (page 11). It is recommended that the Government of Nunavut Department of Environment is consulted to ensure that these objectives are consistent with those outlined in territorial legislation and guidelines in addition to the CCME guidelines used to derive the remediation objectives outlined in this plan.

Recommendation

AANDC recommends that a) landfarm construction is only considered during mine operations due to the limited presence on site during care and maintenance; b) the licence require a final Landfarm Management Plan a minimum of 90 days prior to construction of a landfarm; c) that interested parties are provided an opportunity to comment on the final Landfarm Management Plan; and d) construction of a landfarm not occur until the plan is approved, in writing, by the Board.

1.3 Errata for Interim Abandonment and Restoration Plan

Reference

AANDC Technical Review (August 14, 2014), No. 6 and SENES Review, No. 2.2.1
LMI Response to Technical Review (October 10, 2014), No. 2.2.1

Background

AANDC identified a number of deficiencies in the Interim Abandonment and Restoration Plan (IARP) and requested information in the Completeness Review. LMI provided responses to the information requests on October 10, 2014. AANDC requested an updated IARP and LMI originally committed to submitting an updated plan prior to the Public Hearing. This commitment was later reduced to LMI providing an erratum to the IARP to correct any errors by November 2014 and a subsequent revision of the IARP to incorporate the corrections post licence issuance. In the TM-PHC Decision, LMI was required to provide an erratum to the IARP by November 28, 2014 but this was not distributed for review until December 5, 2014.

AANDC reviewed the erratum to the IARP submitted by LMI and it appears to address much of the confusion as detailed in the response to the technical review.

Recommendation

AANDC recommends that a) the licence require an updated IARP within 90 days of licence issuance otherwise LMI will be in violation of the NWNSRTA and subjected to the enforcement measures; b) the updated plan is 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; c) the plan is circulated for comments by interested parties prior to approval; d) a change in status (i.e., mining operations) not commence until the plan is approved, in writing, by the Board; and e) the precautionary approach is used where sufficient information is not provided in the IARP and the reclamation estimate when setting financial security.

1.4 Revised Reclamation Cost Estimate

Reference

AANDC Completeness Review (June 9, 2014), No. 2.5

AANDC Technical Review (August 14, 2014), No. 14; Appendix 1, No. 2.5

LMI Revised 2014 Reclamation Cost Estimate (October 18, 2014)

LMI Revised 2014 Reclamation Cost Estimate (December 12, 2014)

SENES Comments on October Revised 2014 Reclamation Estimate (October 19, 2014)

SENES Comments on December Revised 2014 Reclamation Estimate (December 23, 2014)

Background

A revised reclamation cost estimate was submitted by LMI on December 12, 2014 and distributed to interested parties on December 17, 2014. While preliminary comments in regards to the reclamation cost estimate are attached (see SENES memorandum in Appendix 1), further comments regarding the reclamation cost estimate may be submitted to the Board once a more thorough review of the estimate has been completed.

SENES completed a preliminary review of LMI's December 2014 estimate and while some deficiencies identified in the October 19, 2014 memo (provided to LMI on October 24, 2014) were addressed (and some only partially addressed), a number of deficiencies still remain. The revised estimate by SENES suggests the reclamation cost will be considerably higher than that estimated by LMI. As shown on the Table 1 of Appendix 1, LMI's estimated cost is \$24.1 million while the SENES estimate is \$43.5 million.

Recommendation

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

AANDC further recommends that a) LMI be required to provide all outstanding information regarding the reclamation estimate prior to the Public Hearing (AANDC requests 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); and b) where information is incomplete at the Public Hearing, the precautionary principle be used by the Board when making a determination regarding financial security.

2.0 Outstanding Issues

AANDC reviewed the renewal application and submitted a completeness review including information requests on June 9, 2014 and a technical review on August 14, 2014, as requested by the Board. AANDC presented outstanding issues at the Technical Meeting and provided details in writing regarding the status of each issue following the TM-PHC in our December 4, 2014 response to the NWB's PHC Decision distributed on December 1, 2014.

Since our latest submission on December 4, 2014, LMI has submitted additional information on December 5 and December 12, 2014. AANDC reviewed this new information and briefly summarizes some of the outstanding issues below and provides more details regarding the status of issues in an updated table (Appendix 2).

2.1 Windblown Tailings

Reference

AANDC Water Licence Inspection Report (July 15, 2014)
LMI Response to AANDC Inspection Report (August 25, 2014)
AANDC Inspector's Response to LMI (October 1, 2014)
AANDC Inspector's Response to LMI October 31, 2014 Submissions (November 27, 2014)
AANDC Completeness Review (June 9, 2014), No. 2.1
AANDC Technical Review (August 14, 2014), No. 2; Appendix 1, No. 2.1.1
SRK Consulting Memo regarding arsenic concentration in soil sample collected by AANDC (October 29, 2014)
Environmental Site Assessment (Morrow, 2005)

Background

LMI initially committed to submit an evaluation and action plan for windblown tailings by the end of August, 2014. In response to the July 15, 2014 inspection report, LMI stated that there are no uncovered or windblown tailings and that it is esker material. Windblown tailings have been an issue for many years and AANDC has requested that additional investigations be completed to assess whether or not windblown material is tailings and if so whether additional cleanup is warranted.

LMI has committed verbally to assessing and characterizing the material that has blown from the tailings containment area (TCA), and not just in a localized area (proximal to Dam 6), to determine whether it is esker material or tailings. LMI has also committed to submit the results of the study to the NWB and should it be determined that it contains tailings, a plan is to be developed to address the issue.

LMI was requested by the Inspector to provide documentation proving that the material blown outside the TCA is esker material rather than tailings, but failed to conduct the sampling by November 15, 2014 as required. Similarly, LMI committed to submit the documentation requested by the Inspector by October 31, 2014. This was never provided. This information should have been provided prior to issuance of a licence and while there were opportunities to prove whether the material is esker or tailings, LMI has deferred this study until next year without the approval/agreement of the Inspector.

Upon reviewing the soil sample result collected by AANDC in 2012, LMI concluded that the arsenic concentration in the sample collected outside the TCA did not exceed background levels established at Lupin. However, the samples that LMI calls background were surface samples that may have been impacted by mine operations (samples collected by Morrow in 2005 were collected in the vicinity of the mill after more than 20 years of mining and milling in the vicinity of the sampling sites). A study framework (not to be confused with the sampling plan due on May 31, 2015 as requested by the Inspector in the November 27, 2014 response to LMI) is recommended to ensure that the windblown material being tested is compared against background concentrations remote from the mine influence and not concentrations that may have been potentially influenced by mine operations.

Recommendation

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

2.2 Porewater Quality Monitoring

Reference

AANDC Technical Review (August 14, 2014), No. 3, 10; Appendix 1, No. 2.1.2, 2.2.5

LMI Response to Technical Review (October 10, 2014)

Background

AANDC initially recommended that LMI conduct porewater quality monitoring to confirm that the esker sand cover is still functioning as designed (no data on

porewater quality has been collected since 2005). LMI has agreed to installation of piezometers in the sand cover over the tailings to monitor water levels in the tailings and sand cover.

On October 16, 2014, LMI verbally committed to porewater monitoring. However, since the TM-PHC, there is no longer a commitment on the record to complete porewater monitoring. Given that lime has been required to adjust the pH prior to discharge from the tailings pond, there may be issues with acid production in the covered tailings. Thus, recent monitoring data of porewater quality within saturated tailings are required to assess whether the system is performing as projected.

Recommendation

AANDC recommends that the licence require a) porewater quality monitoring in the sand cover; and b) annual sampling of the piezometers.

2.3 Hazardous Waste

Reference

AANDC Completeness Review (June 9, 2014), No. 2.7

AANDC Technical Review (August 14, 2014), No. 4

LMI Response to Technical Review (October 10, 2014)

Background

AANDC requested an inventory of hazardous waste on site and a plan for the removal of accumulated hazardous waste. LMI provided a manifest summary indicating the material that was backhauled but no information was provided on quantities of material in storage and quantities of material removed from site.

In our October 16 meeting, LMI committed to providing a copy of their current inventory of hazardous waste on site and agreed that this inventory should be updated annually. This has not yet been provided. LMI also committed to providing the inventory in the 2014 annual report.

Recommendation

AANDC recommends a) that a current inventory of hazardous waste as committed by LMI is submitted for review prior to the Public Hearing; b) that annual removal of hazardous waste be required to prevent the over-accumulation of hazardous waste on site; c) that the type and volume of hazardous waste on-site be reported annually in the Annual Report; d) that LMI confirm that removal of hazardous waste is included in the reclamation estimate (and indicate where in the estimate it is accounted for) and specify the total volume of the 2 truckloads; e) the storage of hazardous waste on site is limited to the maximum amount of stored hazardous waste used to calculate the reclamation cost estimate (i.e. 2 truckloads) and that the reclamation cost estimate be increased should more than two truckloads remain on site at the end of each year.

2.4 Management Plans

Reference

AANDC Technical Review (August 14, 2014), No. 6-13; Appendix 1, No. 2.2
LMI Response to Technical Review (October 10, 2014)

Background

LMI has submitted a number of management plans with the application including the Interim Abandonment and Reclamation Plan (discussed above); Fuel Containment Strategy; Spill Contingency Plan; Water Quality Monitoring Plan; Quality Assurance/Quality Control Plan; and Waste Management Plan. AANDC has provided comments and raised issues which have for the most part been addressed by LMI. AANDC requests that the plans be updated within a timeframe set by the licence to reflect the current care and maintenance status of the site.

The Water Quality Monitoring Plan and Quality Assurance/Quality Control Plan (2013) should be revised to include internal pond water quality monitoring. LMI indicated that they sample the interior ponds in August or September, after any thermocline has dissipated. The recent suite of analyses obtained by LMI included the following: pH, alkalinity, acidity, total ammonia, chloride, total cyanide, hardness, nitrate, nitrite, sulphate, total suspended solids, total metals and dissolved metals. LMI proposes to collect samples annually from the ponds Pond 1, Pond 2, Cell 4 and Cell 5 and to provide the NWB with these results in the annual report going forward.

Recommendation

AANDC recommends that a) the licence require LMI to submit updated plans for approval within 60 days of licence issuance; b) plans are distributed for comments prior to approval; c) commitments made by LMI are reflected in the water licence; and d) monitoring of internal pond water quality be included as a condition of the licence.

2.5 Care and Maintenance

Reference

AANDC Completeness Review (June 9, 2014), No. 2.10
AANDC Technical Review (August 14, 2014), No. 18; Appendix 1, No. 2.5.1
NWB Water Licence No. 2AM-LUP0914
AANDC Mine Site Reclamation Guidelines for the Northwest Territories (January 2007), Section 1.4

Background

The primary concern with the care and maintenance plan is the risk associated with an unattended site. During much of the year there is no presence at the site, despite the requirement for daily inspections under Part E, Item 6f of the existing licence. This greatly increases the risk that unplanned events could lead to

contamination of the environment. The site contains millions of dollars of infrastructure (buildings, fuel farms, sewage ponds, hazardous waste storage, tailings dams and ponds), all of which require care and maintenance. With no presence on site, spills could go undetected for weeks and during the winter period, months could pass without inspection during which period a material failure would go undetected. LMI cannot meet its own commitments in its management plans, water licence monitoring requirements or the Mine Site Reclamation Guidelines (MSR guidelines) with an unattended site.

In their application, LMI requested a reduction in monitoring requirements to bi-weekly during freshet and monthly during the remainder of the open water period. AANDC recommended that LMI satisfy Part E, Item 6f of the existing licence which requires daily inspections during freshet and weekly inspections during the open water period due to the fact that LMI requested the flexibility to resume operations at any time.

LMI responded that it has carried out care and maintenance work each year to ensure the site is secure and unless the geotechnical inspection identifies an issue that would warrant a permanent site presence, which is not the case to date, placing a crew at the remote site is unwarranted and poses an unacceptable health and safety risk for LMI. However, LMI's current level of care has been deficient: the 'care and maintenance work' is not addressing the deficiencies on site. The sewage lagoon overtopped in 2012, and in 2014 was determined to be seeping from the lower dam. The company has refused to address spills on site and has repeatedly failed to undertake work required by the Inspector, despite repeated extensions.

The challenges of providing a full time presence at the site during care and maintenance are understood but the terms and conditions of the water licence and the MSR guidelines need to be followed. AANDC has agreed to consider a request by LMI for different threshold for water use, monitoring, and inspections during care and maintenance and mine operations. A request for different thresholds for water use and monitoring frequencies during different activity levels (operations, ramp-up, and care and maintenance) was distributed to interested parties on December 17, 2014. AANDC reviewed the request and agrees with the proposed water use for all activity levels and the monitoring frequencies proposed for operations and care and maintenance. However, since the monitoring frequency during care and maintenance is recommended by a geotechnical engineer, the frequency may be subject to change depending on annual geotechnical inspections, which should be reflected in the licence.

Furthermore, the geotechnical engineer's recommendations are based on the assumption that the mine is under care and maintenance. A monitoring frequency of twice per month during freshet, monthly during the remainder of the open water period, and every other week depending on site presence is being proposed during ramp-up. It is unclear how the reduced monitoring frequency during ramp-up was

determined, considering that the geotechnical reports (2012-2014) submitted thus far did not include any recommendations for monitoring during ramp-up.

As ramp-up would assumedly include an increase in presence, activity, water use, and waste disposal, the monitoring requirements should increase accordingly.

AANDC requested LMI to assess whether there were remote methods (e.g. video surveillance) that could be considered. LMI has agreed to investigate options for remote monitoring but no response has been received to date.

Recommendation

AANDC recommends a) that Part E, Item 6f of the existing licence remain as a condition during mining operations; and b) confirmation that the recommendations for the monitoring frequency during ramp-up were provided by a geotechnical engineer; c) that the monitoring frequency during care and maintenance include a caveat “or as recommended by a Geotechnical Engineer in annual geotechnical inspection reports required under Part E, Item 6g”; and d) that LMI continue to investigate the feasibility of remote surveillance for remote monitoring during care and maintenance and submit a future amendment request should it prove feasible and agreeable to LMI, AANDC and the Board.

2.6 Progressive Reclamation

Reference

AANDC Completeness Review (June 9, 2014), No. 3.0

AANDC Technical Review (August 14, 2014), No. 2; Appendix 1, No. 2.5.2

NWB Water Licence No. 2AM-LUP0914

Background

LMI is required to implement progressive reclamation under Part I, Item 9 of 2AM-LUP0914 but only when realistically possible. Because no progressive reclamation of the tailings or waste rock areas had been conducted during the 5 year licence term, AANDC recommended that LMI provide a schedule with clear objectives and timelines for progressive reclamation to be conducted during the proposed licence period, applicable whether the mine is operational or in care and maintenance. LMI did not agree to address exposed tailings except as part of the final reclamation.

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; and 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 progressive decommissioning and reclamation of the tailings and waste rock areas.

3.0 Other Issues

3.1 Acid Generating Waste Rock

Reference

Interim Abandonment and Reclamation Plan (March 2013)
Abandonment and Reclamation Plan (Kinross, 2005)
Environmental Site Assessment (Morrow, 2006)

Background

In the original closure plan documentation, waste rock was generally believed to be non-acid generating. During development studies, waste rock was alkaline and had near neutral net neutralization potential. Morrow (2006) collected a large number of samples and reported that about 44% of the waste rock samples had already become acidic and some leached elevated levels of metals (see Figure 1 in Morrow 2006). Morrow (2006) found acidic ground waters in drainage from waste rock and also measured the median concentration of arsenic in the waste at 1140 mg As/kg. Morrow recommended that additional ground water quality monitoring would need to be conducted to assess the long term impact of seepage from the waste.

In the revised Abandonment and Reclamation Plan developed by Kinross in 2005, the potential for acid rock drainage was identified and this was addressed by removing waste rock to the underground mine where it would be frozen or capped and no longer a long term residual liability. Morrow also suggested that cover in place may also be a suitable option. LMI has suggested that some waste rock will be relocated to the tailings area.

The actual quantity of waste rock that may require management is not known and additional study will be required.

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 identify the total quantity of potentially acid generating waste rock and propose a management plan for this material. The study should also address ground water contamination as identified by Morrow (2006). These investigations are required to provide an improved estimate of the quantity of waste rock that may require relocation and management for the reclamation liability estimate and to assess what impacts are occurring from acidic seepage.

3.2 Asbestos

Reference

LMI Revised Reclamation Cost Estimate (2014)

Background

Given the age of the structures, there is concern that asbestos could be present at the site (i.e., insulation, buildings, etc.) and if this was the case, the reclamation liability could increase. An investigation should be completed to confirm there is no asbestos present on the site. Should asbestos be present, a remedial cost estimate for mitigation and cleanup should be completed and the reclamation cost estimate should be adjusted accordingly.

Recommendation

AANDC recommends that the licence require LMI to conduct an investigation to confirm whether or not asbestos is present on site.

CONCLUSION

Only 5 out of a total 23 comments (18 comments in the technical review and the 5 additional comments provided at the technical meeting) have been fully addressed by LMI. There are still a number of issues that remain outstanding at the time of this submission and given the lack of timely provision of information by LMI throughout the application process, there is concern that sufficient information may not be made available prior to the Public Hearing, which may result in interveners not being able to contribute fully at the hearing, and the Board having to make a determination based on incomplete information.

Based on the information provided and the significance of information that remains outstanding (i.e., reclamation estimate), and given LMI's contribution to the application process thus far, it is recommended that the information requested in this submission be provided prior to the Public Hearing, while allowing sufficient time for interested parties to review the new information. Alternatively, the financial security required under this licence should take into account the remaining uncertainties and be adjusted accordingly.

SUMMARY OF RECOMMENDATIONS

1.1 Fuel Inventory

AANDC recommends that the quantity of all fuel on site, including fuel stored in other vessels, is provided prior to the Public Hearing (i.e. number of vessels including drums). 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 when setting the financial security (i.e. assume all vessels are full).

1.2 Landfarm Management Plan

AANDC recommends that a) landfarm construction is only considered during mine operations due to the limited presence on site during care and maintenance; b) the licence require a final Landfarm Management Plan a minimum of 90 days prior to construction of a landfarm; c) that interested parties are provided an opportunity to comment on the final Landfarm Management Plan; and d) construction of a landfarm not occur until the plan is approved, in writing, by the Board.

1.3 Errata for Interim Abandonment and Restoration Plan

AANDC recommends that a) the licence require an updated IARP within 90 days of licence issuance otherwise LMI will be in violation of the NWNSRTA and subjected to the enforcement measures; b) the updated plan is 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; c) the plan is circulated for comments by interested parties prior to approval; d) a change in

status (i.e., mining operations) not commence until the plan is approved, in writing, by the Board; and e) the precautionary approach is used where sufficient information is not provided in the IARP and the reclamation estimate when setting financial security.

1.4 Revised Reclamation Cost Estimate

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

AANDC further recommends that a) LMI be required to provide all outstanding information regarding the reclamation estimate prior to the Public Hearing (AANDC requests 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); and b) where information is incomplete at the Public Hearing, the precautionary principle be used by the Board when making a determination regarding financial security.

2.1 Windblown Tailings

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

2.2 Porewater Quality Monitoring

AANDC recommends that the licence require a) porewater quality monitoring in the sand cover; and b) annual sampling of the piezometers.

2.3 Hazardous Waste

AANDC recommends a) that a current inventory of hazardous waste as committed by LMI is submitted for review prior to the Public Hearing; b) that annual removal of hazardous waste be required to prevent the over-accumulation of hazardous waste on site; c) that the type and volume of hazardous waste on-site be reported annually in the Annual Report; d) that LMI confirm that removal of hazardous waste is included in the reclamation estimate (and indicate where in the estimate it is accounted for) and specify the total volume of the 2 truckloads; e) the storage of hazardous waste on site is limited to the maximum amount of stored hazardous waste used to calculate the reclamation cost estimate (i.e. 2 truckloads) and that the reclamation cost estimate be increased should more than two truckloads remain on site at the end of each year.

2.4 Management Plans

AANDC recommends that a) the licence require LMI to submit updated plans for approval within 60 days of licence issuance; b) plans are distributed for comments

prior to approval; c) commitments made by LMI are reflected in the water licence; and d) monitoring of internal pond water quality be included as a condition of the licence.

2.5 Care and Maintenance

AANDC recommends a) that Part E, Item 6f of the existing licence remain as a condition during mining operations; and b) confirmation that the recommendations for the monitoring frequency during ramp-up were provided by a geotechnical engineer; c) that the monitoring frequency during care and maintenance include a caveat “or as recommended by a Geotechnical Engineer in annual geotechnical inspection reports required under Part E, Item 6g”; and d) that LMI continue to investigate the feasibility of remote surveillance for remote monitoring during care and maintenance and submit a future amendment request should it prove feasible and agreeable to LMI, AANDC and the Board.

2.6 Progressive Reclamation

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; and 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 progressive decommissioning and reclamation of the tailings and waste rock areas.

3.1 Acid Generating Waste Rock

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 identify the total quantity of potentially acid generating waste rock and propose a management plan for this material. The study should also address ground water contamination as identified by Morrow (2006). These investigations are required to provide an improved estimate of the quantity of waste rock that may require relocation and management for the reclamation liability estimate and to assess what impacts are occurring from acidic seepage.

3.2 Asbestos

AANDC recommends that the licence require LMI to conduct an investigation to confirm whether or not asbestos is present on site.

APPENDIX 1

SENES Review of LMI Reclamation Cost Estimate (December 31, 2014)

APPENDIX 2

AANDC Status of Issues going into the Public Hearing (January 5, 2015)