



Water Resources  
Nunavut Regional Office  
P.O. Box 100  
Iqaluit, NU, X0A 0H0

September 12, 2016

Karen Kharatyan  
A/Manager of Licencing  
Nunavut Water Board  
Gjoa Haven, NU, X0E 1J0

INAC reference  
CIDM# 1099205

NWB reference  
#2AM-LUP1520

**Re: INAC comments in regards to a letter dated August 19, 2016 from the  
Nunavut Water Board for Water Licence 2AM-LUP1520 - Licensee Lupin  
Mines Incorporated (LMI)**

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Dear Mr. Kharatyan,

On August 19, 2016 the NWB asked the parties, LMI and INAC, to provide additional information to the Nunavut Water Board (NWB) in respect of the request to amend Quantum of Security for Lupin Mines Incorporated's (LMI) Licence No. 2AM-LUP1520.

ARCADIS Canada, on behalf of Indigenous and Northern Affairs Canada (INAC) has provided a memorandum that further supports INAC's current reclamation closure cost estimate for the Board's consideration.

Please do not hesitate to contact me by telephone at 867-975-4282 or email at [ian.parsons@aandc-aadnc.gc.ca](mailto:ian.parsons@aandc-aadnc.gc.ca) for further comments or any questions.

Sincerely,

(Original Signed By)

Ian Parsons  
A/Manager Water Resources, B.Sc.  
Indigenous and Northern Affairs Canada  
P.O. Box 100  
Iqaluit, NU, X0A 0H0



## Memorandum

**TO** Karen Kharatyan  
A/Manager of Licencing  
Nunavut Water Board

**FROM** Ian Parsons  
A/Manager Water Resources  
Indigenous and Northern  
Affairs Canada

INAC reference  
CIDM# 1099205

NWB reference  
#2AM-LUP1520

DATE: September 12, 2016

**Re: INAC comments in regards to a letter dated August 19, 2016 from the Nunavut Water Board for Water Licence 2AM-LUP1520 - Licensee Lupin Mines Incorporated (LMI)**

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### A. BACKGROUND INFORMATION

On April 20, 2016 the NWB sent correspondence to the parties, LMI and INAC, of the next steps in this amendment process.

This letter outlined 4 steps:

1. A thirty (30) day period, commencing on the date of this correspondence, to be provided to INAC, as the initiator of the application, to respond to LMI submissions;
2. A joint teleconference with the main stakeholders and interested persons, to be scheduled within fourteen (14) days following the receipt of INAC's response(s) to LMI's submission(s), to discuss in an open forum the issues of concern and potential resolution of differences in positions on reclamation security with the goal of achieving an agreement;
3. If the participants are unable to resolve the issues and reach agreement in whole or in part, the NWB will retain a neutral third party contractor to review and evaluate the reclamation estimates provided by both INAC and LMI within sixty (60) days following the teleconference. The third party retained to review the submissions will also be requested to provide its recommendations regarding an acceptable security estimate for the project (INAC's value, LMI's value or a value derived from the analysis of both INAC's and LMI's estimates); and
4. Within thirty (30) days of receipt of the third party's determination and in the absence of any agreement between INAC and LMI, the Board will issue a determination on



whether or not the Board agrees to amend the reclamation security requirements of Part C of the Licence.

The teleconference was held over two days (August 18 and 24). After the first day of the teleconference, the NWB sent their August 19, 2016 letter requesting INAC to submit additional information on to its original reclamation closure cost estimate in respect of the request to amend the amount of security.

In the August 19, 2016 letter the NWB outlined 5 items where INAC had committed to providing additional information. This information is provided below in an attached Memorandum from ARCADIS Canada, INAC's Consultant.

**B. Additional information in support of original reclamation closure cost estimate.**

On behalf of INAC, the following - is submitted to the Nunavut Water Board for consideration:

INAC is confident that ARCADIS's memorandum has solidified and strengthened our position that the \$25.5 Million held under the licence is insufficient and should be amended to address the reclamation closure cost estimate of \$45.5 Million.

Attached to this letter is ARCADIS's Memorandum entitled: Response to NWB Request for Additional Information Arising from 18th August Teleconference Lupin Mine Water Licence Application No. 2AM-LUP1520.

Given the information presented here, and evidence already submitted, INAC is requesting that the NWB amend Water Licence 2AM-LUP1520 under Part C Item 3 which states "*The Licensee or the Minister may apply to change the amount of security held under Part C, Item 1 and/or Part C, Item 2 of the Licence. Any request to change the amount of security shall be supplemented by submission(s) that include supporting evidence to justify the request and will be processed by the Board as an amendment to the terms and conditions of the Licence*".

To:  
Ian Parsons  
Indigenous & Northern Affairs Canada

Copies:  
File  
Karen Costello - INAC

ARCADIS Canada Inc.  
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From:  
Charles Gravelle

ENVIRONMENT

Date:  
September 11, 2016

ARCADIS Project No.:  
702524-001

Subject:  
Response to NWB Request for Additional Information Arising  
from 18<sup>th</sup> August Teleconference  
Lupin Mine Water Licence Application No. 2AM-LUP1520

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Further to the letter of 19<sup>th</sup> August 2016, issued by the Nunavut Water Board, with respect to next steps to be taken on the request of Indigenous and Northern Affairs Canada (INAC) to amend the security for the Lupin Mine as part of the current Water Licence application, a list of party commitments to supply additional information arising from the teleconference of the 18<sup>th</sup> August 2016 was forwarded to INAC. From this list of fifteen items, five were to be addressed directly by INAC. As the consultant to INAC on the topic of quantum of security, the enclosed are Arcadis' positions on the various items listed in the NWB letter of 19<sup>th</sup> August 2016. For ease of review the text of each request is included herein with the applicable response provided.

**Item 1 – Agenda Topic 3(f) Tailings Cover** – Revisit basis for cover estimate (whether drill, blast, load and haul was the basis for the selection of a higher unit rate for the cover as no esker material that is used does not require blasting).

**Response to Item 1** – the unit rate selection for the placement of a cover on the tailing containment area did not consider any blasting of rock to complete the work. Blasting was only considered for the production of rip rap for the construction of the spillway as part of the closure plan works for the tailings containment area. While related to the closure of the tailings containment area, the blasting of rock to produce rip rap is not part of the cover placement cost.

The unit rate used to derive the cover placement cost was based on the location of the borrow source, the nature of the equipment readily available to complete the work, and a non-engineered cover with material being sourced from a long distance. The long distance rate was applied as the distance to the borrow source was on the order of 5 km which is greater than the 1.5 km distance set in the RECLAIM model for the short haul distance.

Given that the haulage distance has a direct relationship with the production that can be achieved, with respect to the placement of cover material using a fixed number of haulage vehicles, the longer the distance between the borrow source and the placement area, the higher the costs to complete the work.

**Item 2 – Agenda Topic 3(g) Changes to Unit Rates** – Provide information from Public Works (publicly available sources only) that support the increased/updated unit rates included in RECLAIM 7.

**Response to Item 2** – The Water Licence application process requires that a proponent use the latest version of the RECLAIM Estimate software when preparing a quantum of security estimate as part of a licence submission. Furthermore the Version 6.1 used by both LMI and SENES in 2014 to prepare their estimate is based on rates generated prior to March 2009 and as such could under value the cost of the reclamation work. Consumer Price Indexing alone between 2009 and 2014 would justify the marginal increase in unit rates observed between the RECLAIM Versions 6.1 and 7.0. For example the cost for soil cover placement on tailings increased from \$8.90/m<sup>3</sup> to \$9.30/m<sup>3</sup> which is a 4.3% increase while over the period of 2009 to 2014 the CPI has increased more than 7.5% based on StatsCan published values of CPI (2010 2.4%, 2011 2.9%, 2012 0.8%, 2013 1.2%, 2014 1.2%).

**Item 3 – Agenda Topic 3(j) Contingency Amount** – Supply the description from the RECLAIM User Guide that outlines the basis for the selection of a 20% contingency.

**Response to Item 3** – A copy of the text provided in the RECLAIM User's Manual is provided herein at the end of this memorandum. In general the contingency is established by the estimator on the basis of the existing site conditions, the state of reclamation work on the site, the maturity of the site closure design process, evaluation of the work completed to date and the estimator's confidence that all issues to be addressed during the reclamation process have been adequately addressed in the costing model.

For this site the contingency amount is set high given the uncertainty with respect to the hydrocarbon impacts on site (both quantity and the ability to mitigate the concern in a single reclamation season) and concerns regarding the amount of petroleum and other chemical products currently housed on site within the tank farm and mill related structures. On the basis of observations made during the 2015 site visit

the quantity and usability of the chemicals and petroleum products within the mill buildings could not be quantified, nor could the suitability or usability of the petroleum product within the tank farm be determined during the short period of time the consultant was on site. Furthermore past experience with the reclamation of sites smaller or comparable in size to the Lupin site have taken more than one year to complete (eg Colomac, Tundra), and as such, there is a significant risk to the quantum of security should this reclamation program be extended by a year. It is for these reasons that the contingency amount was set high.

**Item 4 – Agenda Item 3(j) Contingency Amount** – To address whether a lack of detailed design drawings has resulted in the higher contingency amount being adopted; and if so, whether review of detailed design drawings available on-site could result in adoption of lower contingency.

**Response to Item 4** - The presence or absence of detailed design drawings has had little impact on the contingency amount set. See above (Item 3) for the primary reasons for the relatively high contingency amount. The engineering costs that would be incurred by INAC should the quantum of security be required to complete the reclamation of the Lupin site would not be significant relative to the balance of the costs and is effectively covered under other components of the estimate (i.e Engineering).

**Item 5 – Agenda Item 3(k) Building Dismantling and Decommissioning** – Revisit the INAC unit rates used with respect to building dismantling decommissioning to assess whether choice of higher LMI unit rate has resulted in “double counting” or overlap in accounting for some costs under this item.

**Response to Item 5** – No double counting of work related to the decommissioning and dismantling of the respective structures on site was included in the Arcadis RECLAIM estimate. There was a material change in how costs were assigned for this work between Version 6.1 and 7.0 of the RECLAIM estimate but those changes related primarily to the decontamination of the structures prior to demolition or decommissioning. The cost for dismantling the structures are effectively the same between the LMI and Arcadis estimates. The costs to manage hazardous materials were reassigned under the costs for management of chemicals as per the RECLAIM Version 7 model.

## **EXCERPT FROM RECLAIM VERSION 7.0 MANUAL**

### 4.4.1 Contingency

A contingency is added to the estimated cost to provide an allowance for uncertainty in the mine plan, required reclamation activities and scope, and actual unit costs at closure. Even if there is a high degree of certainty on the scope and effort of the anticipated reclamation work, a contingency is still required. Note that there is commonly considerable debate between owners and regulators about what is an appropriate contingency percentage.

It should be recognized that most reclamation security estimates are prepared early in the mine life. The degree of detail in the closure plan is relatively low. Consequently, a low contingency at this stage is not justified. Assuming diligent efforts by the company during the mine life, it is expected that the contingency would decrease.

Another way to evaluate what is an appropriate contingency is to critically assess the quality of the reclamation plan. It is suggested that a low contingency would be indicative of a plan based on a comprehensive database of site specific parameters, detailed engineering, and proven reclamation measures. In this regard, the latter point; “proven reclamation measures” is often key. Proven reclamation measures means that completed progressive reclamation activities on site have been shown to be effective and the effort and cost associated with that work is well understood.

Some guidance in the selection of an appropriate contingency factor can be found in the following Table 2. Virtually all reclamation plans and associated cost estimates are at the “feasibility or advanced conceptual” stage until possibly the last few years of the mine life.

In some cases, it may be appropriate to consider a different level of contingency for different components of the site reclamation.

Table 2. Selection of Appropriate Contingency for Security Estimate

Estimate Type	Description	Accuracy or appropriate contingency
Detailed or Project Control	Based upon detailed engineering take-offs and written quotes	+/- 5 %
Definitive or construction drawing phase	Engineering mostly complete, some written quotes	+/- 10 %
Preliminary or budget level	Little detailed engineering and costs based upon verbal quotes	+/- 15 %
Feasibility or advanced conceptual	Engineering may be 10 % complete and costs based upon typical unit costs	+/- 20 %
Pre-feasibility, conceptual or trade-off study	Very basic engineering only and costs based upon typical unit costs	+/- 25 %