



Water Resources Division
Nunavut Regional Office
Iqaluit, NU X0A 0H0

Your file - Votre référence
2AM-MRY1325

May 9, 2017

Our file - Notre référence
CIDM#1146270

Ida Porter
Licensing Administrator
Nunavut Water Board
Gjoa Haven, NU X0B 1J0

Re: Indigenous and Northern Affairs Canada's (INAC) comments on Baffinland Iron Mines Corporation's modification request for expanding crusher pad under water licence #2AM-MRY1325 Amendment #1 – Mary River Project

Dear Ms. Porter,

Thank-you for the email notice received on April 25, 2017 regarding the above mentioned modification request.

INAC Water Resources Division reviewed Baffinland's modification request and the results of our review are provided in the enclosed memorandum for the Board's consideration. Comments have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me at 867-975-3876 or sarah.forte@aandc-aadnc.gc.ca for any additional information.

Regards,

Sarah Forté
Water Management Coordinator

Technical Review Memorandum

To: Ida Porter, Licensing Administrator, NWB

From: Sarah Forté, Water Management Coordinator, INAC

Date: May 9, 2017

Re: Modification Request for Water Licence #2AM-MRY1325

Licensee: Baffinland Iron Mines Corporation
Project: Mary River Project
Region: Qikiqtani

A. BACKGROUND

Baffinland Iron Mines Corporation (Baffinland) submitted their 2017 Workplan on November 4, 2016. It included the expansion of the Crusher Pad Storage Area at the Mine Site as an activity. The necessity of providing plans and a modification request for this activity, as well as the pad expansion at Milne Site, was discussed and agreed upon during the December 9, 2016 Annual Security Review Teleconference.

On April 25, 2017, The Nunavut Water Board distributed for review the 2017 Mine Site Crusher Pad Expansion (Modification Request) submitted by Baffinland. The modification is described as increasing the pad size by approximately 10%. The Nunavut Water Board asked interested parties to submit representations by May 10, 2017.

B. RESULTS OF REVIEW

On behalf of the Water Resources Division of Indigenous and Northern Affairs Canada (INAC), the following comments and recommendations are provided:

1. Design criteria

References:

- 2017 Mine Site Crusher Pad Expansion (Modification Request), Water Licence 2AM-MRY1325 – Amend. No. 1, Baffinland Iron Mines Corporation, April 24, 2017
- Crusher Pad Expansion Detailed Design Brief, Mary River Project, Nunavut, Golder Associates Ltd., April 17, 2017

- Baffinland Iron Mines Corporation: Mary River Project, Design Criteria, Civil, Hatch/Baffinland, August 28, 2013, Sections 7.1 & 7.4
- Mine Site Ore Crushing & Screening Earthworks & Drainage – Plan H349000-4133-10-035-0001, Hatch, August 29, 2013
- Mine Site Crusher Pad Sedimentation Pond Earthworks & Drainage Plan H349001-4385-10-035-001, Hatch, March 27, 2015

Comment:

The expansion of the crusher pad by approximately 10% at the mine site will cause a larger area to drain into the sedimentation pond located to the west of the pad. The Crusher Pad Expansion Detailed Design Brief offers the following explanations regarding the pond's capacity:

“Based on the available information, the current pond capacity (approximately 3,490 m³) was sized to contain the 1:10 year storm 24 hour event below the design high water level (HWL) of 191.88 m. The required pond capacity to contain the 1:10 year storm 24 hour event including the expansion would be approximately 3,972 m³.

Based on the existing pond storage capacity below the HWL and the proposed increase in catchment area, the pond can contain a 24 hour event with a rainfall intensity of approximately 1.6 mm/hr which is between the 1:5 year storm 24 hour event (1.4 mm/hr) and 1:10 year storm 24 hour event (1.7 mm/hr).”

The document also includes a comment on the perimeter ditch capacity; *“The pad expansion will increase the peak flow in the perimeter ditch by approximately 0.03 m³/s during the 1:10 year storm. This is considered to be negligible and no perimeter ditch upgrade is recommended.”*

The design criteria for the storm water management systems on site are described in a document entitled Design Criteria, Civil, dated August 2013. Specifications which seem relevant to this expansion include:

- *Internal surface drainage ditches shall be designed to convey a 1 in 25 year flood event;*
- *Sedimentation ponds shall be sized based on 1 in 10 year, 24 hour design storm volumes;*
- *Sedimentation ponds shall contain emergency overflow weirs of sufficient capacity to safely convey a 1 in 200 year return period storm event or the Probable Maximum Flood (PMF), maximum wind-induced waves, or unexpected operational difficulties; and*

- *Mine Site Ore Crushing and Screening and Waste Rock Drainage sedimentation ponds shall be lined and the discharge from the ponds shall be controlled.*

The documents submitted by Baffinland in April 2017 do not offer an explanation as to why the initial design criteria will not be respected. Additionally, the Crusher Pad Expansion Detailed Design Brief refers to a 1:10 year storm when discussing the ditches when the design criteria are for a 1:25 year flood event, and there is no discussion of the adequacy of the emergency overflow weir of the current pond for the proposed expansion.

The crusher pad sedimentation pond is an important feature for protecting water resources as it prevents runoff potentially enriched in suspended solids and/or metals from entering the environment uncontrolled. Expanding the pad would result in the sedimentation pond being under-sized by approximately 500 m³ for the design criteria of a 1:10 year storm. Capturing all the runoff from the pad, even during a large rain event is necessary, especially given the current dust generation from the crushers.

We are cognisant of the fact Baffinland has more experience on site presently than when the 2013 Design Criteria document was produced. This may include more local meteorological data that would allow them to more accurately estimate the rainfall of a 1:10 year storm.

Recommendation:

INAC recommends that prior to expanding the crusher pad, the proponent be required to increase the crusher pad sedimentation pond capacity to meet design criteria, or justify why it will not to meet design criteria and how this will not increase the risk of uncontrolled discharge of pad runoff to the environment.