



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

*Your file - Votre référence*  
2AM-MRY1325

January 7, 2018

*Our file - Notre référence*  
CIDM#1237216

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
Gjoa Haven, NU X0B 1J0

Sent via email: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

**Re: 2AM-MRY1325 Baffinland Iron Mines Corporation Information Requests Responses**

Dear Mr. Dwyer,

Thank you for your email message, received on December 21, 2018, requesting CIRNAC to confirm by January 7, 2019, on whether CIRNAC is satisfied with the information and going to the next, full technical review stage.

On behalf of CIRNAC, Arcadis Canada Inc. reviewed Baffinland's responses to CIRNAC's information requests (IRs) and the review report is attached to this letter.

CIRNAC notes that Baffinland's response does not include any new technical information to address CIRNAC's IRs. CIRNAC believes that having the requested data available prior to technical review would facilitate an effective and/or more productive technical discussion. However, given that Baffinland has committed to providing such information later, CIRNAC accepts that the application can advance to the technical review stage and will provide further technical review when information is received.

If you have any questions or require any further information with respect to this matter, please contact me at (867) 975-4555 or email [david.zhong@canada.ca](mailto:david.zhong@canada.ca), or Ian Parsons at (867) 222-9278 or email [ian.parsons@canada.ca](mailto:ian.parsons@canada.ca).

Regards,

David Zhong  
Regulatory & Science Advisor, Water Resource Division

Attachment 1: Arcadis Review Report on Mary River Project Phase 2 Proposal Baffinland Responses to CIRNAC Information Requests.



3 January 2019

**Bridget Campbell**

Water Resource Coordinator, Water Resources Division  
Crown-Indigenous Relations and Northern Affairs Canada,  
Nunavut Regional Office  
VIA EMAIL: [bridget.campbell@canada.ca](mailto:bridget.campbell@canada.ca)

Subject:

**Mary River Project Phase 2 Proposal  
Baffinland Responses to CIRNAC Information Requests**

Dear Bridget:

Further to your request, ARCADIS Canada Inc. (ARCADIS) has reviewed Baffinland's responses to CIRNAC's Information Requests (IRs) related to the Phase 2 Proposal of the Mary River Project. Baffinland's responses were provided in the following document, as posted on the Nunavut Water Board's (NWB) Public Registry:

- Baffinland Mary River Project Phase 2 Development Proposal - Supplemental IR Responses Submitted in response to the NWB Regulatory Process.<sup>1</sup>

In addition, we have also reviewed the following related document due to linkages between CIRNAC's IRs for the regulatory and Environmental Assessment processes:

- Baffinland IR Responses Submitted in response to the Nunavut Impact Review Board (NIRB) Environmental Assessment Process.<sup>2</sup>

The current letter summarizes the findings of our review.

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<sup>1</sup>[ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MRY1325%20BIMC/1%20APPLICATION/2018%20Phase%202%20Expansion%20Project/181221%20AM-MRY1325%2008MN053\\_mrp2\\_IR-supplementary\\_responses-IMLE.pdf](ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MRY1325%20BIMC/1%20APPLICATION/2018%20Phase%202%20Expansion%20Project/181221%20AM-MRY1325%2008MN053_mrp2_IR-supplementary_responses-IMLE.pdf)

<sup>2</sup><ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MRY1325%20BIMC/1%20APPLICATION/2018%20Phase%202%20Expansion%20Project/181219%20AM-MRY1325%20BIM%20Info%20Request%20Responses-IMLE.pdf>

## Mary River Project Phase 2 Proposal Baffinland Responses to CIRNAC Information Requests

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### 1.0 Synopsis of Information Requests

CIRNAC's Information Request submission to the NWB included a total of six new IRs in the following subject areas:<sup>3</sup>

- CIRNAC #1: Incremental Mining Activities Associated with Increased Production Rate
- CIRNAC #2: Waste Rock Management
- CIRNAC #3: Closure Planning
- CIRNAC #4: Borrow Material and Rock Cut Characterization
- CIRNAC #5: Updates to Management Plans
- CIRNAC #6: Surface Water Monitoring

In addition to the IRs noted above, CIRNAC submitted a separate set of IRs to the parallel Environmental Assessment process being administered by the Nunavut Impact Review Board (NIRB). CIRNAC and ARCADIS concluded that ten of the NIRB process IRs were also applicable to the regulatory approvals process and were therefore reiterated in CIRNAC's NWB submission. Those additional IRs included:

- CIRNAC #7: Railway Cut Material ARD/ML Potential (Submitted to NIRB as IR#8)
- CIRNAC #8: Characteristics of Seepage and Runoff from Waste Rock Storage Facility (Submitted to NIRB as IR#9)
- CIRNAC #9: ARD/ML Characterization from Quarry Material and Pit Walls (Submitted to NIRB as IR#10)
- CIRNAC #10: Snow Management and Stockpile Locations (Submitted to NIRB as IR#11)
- CIRNAC #11: Snow Management and Capacity Snow Stockpiles (Submitted to NIRB as IR#12)
- CIRNAC #12: Risk of Excessive Settlement of Railway Embankment (Submitted to NIRB as IR#13)
- CIRNAC #13: Thermal Modelling on Key Infrastructure (Submitted to NIRB as IR#14)
- CIRNAC #14: Mine closure management strategies for ARD/ML materials (Submitted to NIRB as IR#15)
- CIRNAC #15: Comparison of the Approved Project to the Phase 2 Proposal (Submitted to NIRB as IR#16)
- CIRNAC #16: ARD-ML Characterization of Ore and Bedrock within Deposit (Submitted to NIRB as IR#17)

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<sup>3</sup> Note that the IR numbering system used in this memo is based on CIRNAC's submission to the NWB. Baffinland has used a separate numbering system in their response (based, in part, on their responses to similar IRs submitted to the NIRB process).

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### 2.0 New Information Provided by Baffinland

In general, Baffinland's response does not include new technical information to address the topics identified in CIRNAC's IRs. However, the response provides additional details that are pertinent to the regulatory approvals process and the concerns identified in CIRNAC's submission:

1. **Waste Rock Management** (IRs 1, 2, 8<sup>4</sup> and 16): ARCADIS' primary technical concern related to waste rock is the potential for acid rock drainage and/or metal leaching (ARD/ML).

Baffinland's response indicates there are no proposed changes to the waste rock management strategy associated with the Phase 2 expansion proposal and, by extension, any waste rock concerns are not within the scope of the current approvals process. Instead, Baffinland asserts that pre-existing regulatory processes will be used to address waste rock management concerns and that they will be implemented regardless of the outcome of the Phase 2 expansion.

Notwithstanding Baffinland's position, recent monitoring data provides evidence that waste rock produced by the Mary River Project has the potential to result in ARD/ML impacts that are worse than previously assumed. On that basis, ARCADIS continues to recommend that the ARD/ML potential of waste rock warrants further detailed study. We defer to CIRNAC and the NWB regarding the most appropriate regulatory process through which this important need should be met.

2. **Closure Planning** (IR 3, 13 and 14): CIRNAC's IR submission expressed a concern that the current Phase 2 application did not include an updated Interim Closure and Reclamation Plan (ICRP) and that the plan would not be submitted for review until 60 days following approval of the requested water licence amendment. As a consequence, the approval would be issued without confirming whether the ICRP adequately addresses the incremental infrastructure, activities and costs associated with Phase 2.

In their response to IR 3, Baffinland indicates a draft ICRP will be provided for review by Interveners during the water licence amendment process, but the date of the submission is not specified.

In reviewing prior versions of the closure plan, we note the importance of freezing in the overall closure strategy for the site, particularly with regard to the geochemical stability of

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<sup>4</sup> We note that Baffinland did not provide an explicit response to CIRNAC's IR 8 to the NWB process. That IR addresses issues related to Waste Rock Management that are also dealt with through other IRs (e.g., IRs 1, 2 and 16). Baffinland's responses to those IRs were therefore deemed to be applicable to IR 8.

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waste rock. In their response to IR 13, Baffinland states: *"Thermal modelling for the North Railway is currently being updated and will be made available with the technical response. Thermal modelling for port infrastructure will be provided after that date. The waste rock facility (WRF) is not part of the Phase 2 Proposal."* On that basis, it appears there will not be opportunities to discuss the thermal modelling during the Technical Session. This may undermine our ability to assess potential risks and the technical viability of the closure strategy.

ARCADIS believes the updated ICRP should be an integral component of the proposed application and that it should be subjected to a comprehensive review prior to approval of the licence amendment. By extension, the thermal modeling used to support the closure concepts presented in the ICRP should also be reviewed in detail.

On this basis, we recommend that CIRNAC request that sufficient time be included in the Technical Review phase to conduct the required review of the ICRP and thermal modelling reports. Further, we recommend that CIRNAC clarify it will review the full ICRP, not just those components that are directly linked to the proposed amendment (e.g., closure of the waste rock facility will also be considered).

3. **Borrow and Rock Cut Characterization** (IRs 4, 7 and 9<sup>5</sup>): As indicated in CIRNAC's IR submission, there is currently limited data available to characterize the geochemical properties of rock cuts and borrow sources associated with the Phase 2 expansion.

In their response for IR 4, Baffinland states: *"Though not explicitly stated in the Water Licence Amendment Application, Baffinland intends to complete geochemical testing to confirm ARD/ML potential before use of quarried rock or rock removed from rock cuts."*

Based on this commitment, we consider this issue to be sufficiently resolved for the current IR phase. Nonetheless, there is a need for further scrutiny of the plans, designs and protocols that will be used to assess and classify and use such materials.

It is ARCADIS' expectation that this can be achieved during subsequent stages in the approvals process (e.g., during the Technical Review stage, review/approval of management plans and detailed designs).

4. **Updates to Management Plans** (IRs 5, 6, 10 and 11): Based on the substantive changes associated with the Phase 2 application, CIRNAC emphasized the need for updated management plans to be submitted and reviewed during the current application process.

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<sup>5</sup> We note that Baffinland did not provide an explicit response to CIRNAC's IR 9 to the NWB process. That IR addresses issues related to Borrow and Rock Cut Characterization that are also dealt with through other IRs (e.g., IRs 4 and 7). Baffinland's responses to those IRs were therefore deemed to be applicable to IR 9.

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In their response, Baffinland indicated that all relevant management plans will be updated following the Technical Meeting, currently planned for March 12-15, 2019. Based on that timeline, it is our understanding that the management plans will not be subject to formal review and/or approval during the licensing process.

To provide clarity, we recommend that CIRNAC confirm the schedule and process for management plan approvals (e.g., whether the management plans will be approved prior to or after issuance of the licence amendment). Depending on the response provided, sufficient time and resources should be made available to perform the required management plan reviews.

5. **Risk of Excessive Settlement of Railway Embankments** (IR 12): CIRNAC requested that Baffinland provide additional detail on geological conditions and embankment designs within the railway corridor. Further information was provided in Baffinland's response and the adequacy of that information will be assessed during the Technical Review phase.
6. **Comparison of the Approved Project and Phase 2 Proposal** (IR 15): CIRNAC requested that Baffinland provide: "a) *Relevant updates to the Phase 1 Waste Rock Management Plan on closure strategies based on thermal modelling in light of climate change*; b) *Additional short and long term contingencies for managing potential ARD/ML concerns*; and c) *Comparison to other relevant mine sites in similar climatic conditions using the strategy establishing and maintaining permafrost in order to encapsulate PAG material within a waste rock storage facility*." In their follow-up submission to the NWB, Baffinland committed to providing a response to this request during the Technical Review period.

Based on other statements by Baffinland, it is unclear whether they intend to submit a detailed technical response to CIRNAC's request (i.e., as opposed to a reiteration of their previously stated position that such issues are not in scope for the current review). There is also ambiguity whether the response will be provided early enough during the Technical Review period to ensure any new information can be factored into CIRNAC's evaluation of the project.

We therefore recommend that CIRNAC seek clarification regarding the anticipated scope and timing of Baffinland's pending response on this important issue.

### 3.0 Overall Finding

In general, as noted above, Baffinland responses provided no new technical data, but rather, provided additional details pertinent to the regulatory approvals process with respect to the concerns identified in CIRNAC's submission. However, the lack of additional data at this time, in particular as related to ARD generation, while disappointing, should not prevent the application from advancing to the Technical Review

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phase of the regulatory process. Our conclusion is based on the expectation that further relevant information will be provided by Baffinland during the licensing process and/or prior to undertaking activities associated with the amendment and that our concerns and the need for this commitment can be re-iterated during the Technical Review phase.

Should additional information be required please do not hesitate to contact the undersigned or Tony Brown at your convenience.

Sincerely,

**ARCADIS CANADA INC.**

A handwritten signature in black ink, reading "Gerd M. Wiatzka".

Gerd M. Wiatzka, P. Eng. NT/NU  
Senior Project Manager, Director Mining