



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

Your file - Votre référence
2BE-EQE----

March 13, 2019

Our file - Notre référence
CIDM# 1243907

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

Sent via email: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) comments to Baffinland Iron Mines Corporation (Baffinland) response on Type B Water Licence Application 2BE-EQE---- comments for the Ege Bay Exploration Program.

Dear Ms. Porter,

Thank-you for the email notice to interested parties, received on February 27, 2019, regarding Baffinland's response to Type B Water Licence Application 2BE-EQE---- comments for the Ege Bay Exploration Program.

CIRNAC reviewed Baffinland's response and provided comment for the NWB's consideration pursuant to its mandated responsibilities from the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*. Baffinland's February 22, 2019 response was to CIRNAC's original 14 comments submitted to the NWB on January 21, 2019. At this time, CIRNAC considers all 14 comments resolved.

SUBMISSIONS

The documents reviewed for the March 13, 2019 submission included:

- Baffinland Response to Reviewer Comments (22 Feb 2019)
- Environmental Protection Plan (22 Feb 2019)
- Spill Contingency Plan (22 Feb 2019)
- Closure and Reclamation Plan (22 Feb 2019)
- Environmental Inspection and Monitoring Plan (22 Feb 2019)
- Waste Management Plan (22 Feb 2019)

The documents reviewed for the January 21, 2019 submission included:

- Water Licence Application Cover Letter (07 Dec 2018)





- A1 Executive Summaries English and Inuktitut (07 Dec 2018)
- A2 Water Licence Application Form (07 Dec 2018)
- A3 Regulatory Correspondence (07 Dec 2018)
- A4 Consultation Record (07 Dec 2018)
- A5 Corporate Information (07 Dec 2018)
- A6 SIG Concordance (07 Dec 2018)
- A7 Project Proposal (07 Dec 2018)
- A8 Vendor Information (Incinerator, STP, WTP) (07 Dec 2018)
- A9 Culvert Design Memo (07 Dec 2018)
- A10 Spill Contingency Plan (07 Dec 2018)
- A11 Closure & Reclamation Plan (03 & 07 Dec 2018)
- A12 Inspection and Monitoring Plan (07 Dec 2018)
- A13 Sampling Program QA-QC Plan (07 Dec 2018)
- A14 Waste Management Plan (07 Dec 2018)
- A15 Environmental Protection Plan (07 Dec 2018)
- A16 Figures (07 Dec 2018).

COMMENTS

Water Licence Application Cover Letter

Comment 1 (Figure 3)

CIRNAC original comment: Baffinland have provided a topographic map of the proposed exploration area layout. CIRNAC requests further explanation be provided on water management through the exploration area, such as around infrastructure to avoid erosion and sedimentation of freshwater waterways. Additionally, CIRNAC requests details of the snow management plan for the exploration layout area.

CIRNAC follow-up comment: Section 2.3.2 of the Environmental Protection Plan (Feb 22, 2019) states “*prior to construction activities, a site drainage drawing must be submitted to the Environmental Representative for approval.*” CIRNAC requests the site drainage plan is submitted to the NWB for approval at least 60 days prior to Construction. With the site drainage plan, a snow management strategy shall be submitted to the NWB for approval. The snow management strategy shall demonstrate how water from snow removal is being managed on site. At this time, CIRNAC considers comment 1 resolved.

A1 Executive Summaries English and Inuktitut

Comment 2 (Description of the Undertaking)

CIRNAC original comment: Baffinland have multiple transport options to the camp including, but not limited to: helicopters, and aircraft that will land either on floats on a lake adjacent to the camp, or on the tundra if equipped with tundra tires. Over the subsequent 5 years, the exploration program may expand to include construction of access trails to connect the camp to exploration areas, and construction of an airstrip to

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improve air access to the site. CIRNAC requests additional details on where the diesel and Jet-A1 fuel will be stored, and what the refueling and spill response procedures will be when unloading the fuel from sealift barges and using the fuel at the exploration camp.

CIRNAC follow-up comment: CIRNAC acknowledges Baffinland's response that "fuel storage locations will be identified in future update to this (Spill Contingency) Plan, once the camp has been established," and that fuel will be stored 31 metres from the high water mark with secondary containment.

CIRNAC appreciates the inclusion of potential fuel spill scenario 4: spill during fuel transfer from sealift barge in the spill contingency plan, and that "*prior to undertaking the use of bulk fuel storage at Ege Bay, this plan or a separate response plan dealing with this specific scenario will be developed and submitted to the NWB for review and approval.*" CIRNAC requests that the updated spill contingency plan is provided to interested parties for comments 60 days prior to undertaking fuel transfer from sealift barge. At this time, CIRNAC considers comment 2 resolved.

Comment 3 (Predicted Environmental Impacts of the Undertaking and Proposed Mitigation Measures)

CIRNAC original comment: Baffinland indicate one or two quarries may be exploited to construct an access road and airstrip. CIRNAC requests further information on the approximate quarry sizes and anticipated volume of material to be removed from the quarries.

CIRNAC follow-up comment: CIRNAC acknowledges Baffinland's response that "*a ball-park estimate of the volume of rock that may be extracted from the two quarries is 25,000 to 50,000 m³. Engineering design of these project components and the quarries will be completed once a decision has been made to construct these project components.*" At this time, CIRNAC considers comment 3 resolved.

A2 Water Licence Application Form

Comment 4 (Quantity and Quality of Water Involved)

CIRNAC original comment: Guidelines for water removal for lakes are based on up to 10 percent (%) below ice water volume unless more information has been provided. Baffinland have provided expected below-ice drawdown based on lake-catchment size and mean annual unit runoffs, however have not provided the volumes of the lakes. CIRNAC requests Baffinland provide the lake volumes and corresponding calculated drawdowns of the water supply lakes – ideally based on the bathymetric surveys conducted on the two lakes in 2018.

CIRNAC follow-up comment: Baffinland responded "*Baffinland did not have a presence at Ege Bay in 2018, and therefore the bathymetric surveys were not completed, as originally intended. Baffinland expects to complete bathymetric surveys in 2019, and will*

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file updated water removal assessments with the NWB following analysis of the data.” CIRNAC requests the water licence terms and conditions reflect that:

- a bathymetric survey of water sources is to be completed by Baffinland in 2019, to inform the lake volumes and corresponding calculated drawdowns of the water supply lakes; and
- although the total volume specified in the water licence will not change, the volumes permitted from the individual water supply lakes may change based on the results of the 2019 bathymetric survey and corresponding calculated drawdowns of the water supply lakes – which are to be provided to the NWB for review and approval prior to the commencement of exploration activities. CIRNAC suggests that the water withdrawal volumes from unnamed lake EB-1 and EB-2 are specified in a management plan, and not the water licence, to therefore not require a potential water licence amendment based on the results of the 2019 bathymetric survey.

At this time, CIRNAC considers comment 4 resolved.

Comment 5 (Quantity and Quality of Waste Involved)

CIRNAC original comment: The water supply for drilling is estimated at 270 cubic metres per day (m³/day). CIRNAC asks for clarification as to why the 270 m³/day associated with drilling is not also listed under quantity and quality of waste involved.

CIRNAC follow-up comment: Baffinland responded “*drill water was not identified as a waste stream because it will be recycled to the extent possible. Due to losses, however, drill water should have been identified as a waste. The drill water will contain solid fines from drilling that will settle in sumps. Most drilling will not use a brine, so the drill water will in most instances be fresh.*” CIRNAC considers comment 5 resolved.

Comment 6 (Quantity and Quality of Waste Involved)

CIRNAC original comment: Waste oil is listed as a type of waste involved. Composition of the waste oil was not defined. CIRNAC seeks clarification on the type and source of waste oil generated.

CIRNAC follow-up comment: Baffinland responded “*waste oil will likely be a combination of used engine oil, gear oil and hydraulic oil generated by the drills, gensets, trucks and heavy equipment.*” CIRNAC considers comment 6 resolved.

A3 Regulatory Correspondence

Comment 7 (4. Public Comments and Concerns)

CIRNAC original comment: During the Nunavut Impact Review Board (NIRB) screening process, CIRNAC Impact Assessments Division noted “*concerns regarding the potential for geotechnical drilling, physical scarring, land disturbance activities to cause water and groundwater contamination, and influence acid generation and release of metal-bearing groundwater; and recommended that the Proponent submit revised management plans that account for all activities and phases of the project, including potential expansion.*”



CIRNAC Waters requests the aforementioned revised management plans are submitted to the NWB for review by interested parties, in particular on assessing and mitigating the influence of acid generation and release of metal-bearing groundwater.

CIRNAC February 21, 2019 Clarification to Baffinland: CIRNAC recognizes the proponent has submitted management plans which are site specific to the Ege Bay project such as

the: Environmental Inspection and Monitoring Plan, Spill Contingency Plan, Waste Management Plan, Environmental Protection Plan, and Closure and Reclamation Plan. CIRNAC requests the site specific to the Ege Bay project 'Surface Water and Aquatic Ecosystems Management Plan' and 'Borrow Pit and Quarry Management Plan' are also submitted to the Nunavut Water Board (NWB) for review by interested parties as they also are water related. With respect to assessing and mitigating the influence of acid generation and release of metal-bearing groundwater, CIRNAC appreciates the environmental protection measures in Section 2.5.2 in the Ege Bay Environmental Protection Plan (3 July 2018). CIRNAC requests additional details on the methodology (i.e. material and procedure) for plugging and permanently sealing drill holes if artesian flow is encountered.

CIRNAC follow-up comment: CIRNAC agrees the water management and erosion and sediment control details are provided in Sections 2.3, 2.5, 2.9, 2.17, 2.18 and 2.20 of the Environmental Protection Plan. A Surface Water and Aquatic Ecosystems Management Plan is no longer requested by CIRNAC at this time. CIRNAC agrees with Baffinland's recommendation to the NWB to incorporate a term in the licence that requires Baffinland to submit a Quarry Management Plan to the Board for approval 60 days prior to developing any quarries, and such a plan will present an assessment of acid rock drainage and metal leaching (ARD/ML) potential.

CIRNAC agrees with Baffinland that *"there are various methods that may be used to plug and permanently seal drill holes if artesian conditions are encountered, including premanufactured plugs, grouting, or installing a permanent standpipe. Baffinland needs to consult its drilling contractor regarding their proposed approach."* CIRNAC requests the preferred method for plugging and permanently sealing drill holes, as agreed upon with the drilling contractor, is disclosed in the Environmental Protection Plan prior to commencement of exploration activities, and that the materials required for plugging and permanently sealing drill holes are available on site during exploration activities. At this time, CIRNAC considers comment 7 resolved.

A4 Consultation Record

Comment 8 (page 5)

CIRNAC original comment: At the Igloolik meeting on April 5, 2018 with the Mayor and Council, HTA Representatives and QIA Representatives, a comment was made to Baffinland that *"this site is closer to the tide water; I imagine you'll have measures to protect the marine environment?"* CIRNAC Waters requests a map be provided to the

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NWB for interested parties to review of the high tide mark, including anticipated storm surge height, for the Ege Bay Exploration Program. Mitigative measures on how infrastructure will be protected from high tide water should be included in the revised management plans for review.

CIRNAC follow-up comment: CIRNAC appreciates the additional figure submitted with contour intervals of 1 metre, and information that the camp will be located at about 10 to 12 metres above sea level. CIRNAC considers comment 8 resolved.

A7 Project Proposal

Comment 9 (1.1 Overview)

CIRNAC original comment: Baffinland states “*equipment and materials will be delivered to Ege Bay by sealift and the camp will be established in the fall of 2018.*” CIRNAC asks for clarification on what activities have already taken place at the Ege Bay Exploration area prior to receiving a Type B Water Licence. Specifically, was a sealift delivered and a camp established in 2018? And if so, under what licence did the aforementioned activities take place.

CIRNAC follow-up comment: Baffinland responded “*Baffinland did not mobilize equipment and a camp to Ege Bay in 2018 as originally planned. This is now being planned for 2019.*” CIRNAC considers comment 9 resolved.

Comment 10 (Figure 3)

CIRNAC original comment: Figure 3 indicates water will be removed from the unnamed lake (EB-2) for the drill water supply, from unnamed lake (EB-1) for the camp water supply, and from two lakes labeled “additional drill water sources.” Only volumes from unnamed lakes EB-1 and EB-2 are included in the Type B Water Licence application. CIRNAC requests clarification on the volume of water intended to be removed from the two lakes labeled “additional drill water sources.”

CIRNAC February 21, 2019 Clarification to Baffinland: CIRNAC is satisfied with the water licence authorizing removal of water from the unnamed lakes EB-1 and EB-2 specified in the water licence application. If the proponent requires water from additional water sources, and the [Baffinland’s] proposed condition is approved by the NWB, CIRNAC would be satisfied with the proponent submitting to the NWB for approval, at least 30 days prior to commencement of use of water from the additional source, the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures. CIRNAC requests that a list of the additional water sources be approved by the NWB and be uploaded to the NWB ftp site for the benefit of CIRNAC Inspections and other interested parties. CIRNAC also requests that the total water volume from the approved water sources does not exceed the daily nor total volume specified in the water licence.

CIRNAC follow-up comment: CIRNAC agrees with Baffinland’s suggestion that the NWB



consider a condition in the water licence similar to conditions in previous exploration and geotechnical drilling water licences issued to Baffinland such as “*at least 30 days prior to commencement of use of water, submit to the Board for approval the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures*” when water is removed from additional water sources outside for unnamed lakes EB-1 and EB-2. As stated by Baffinland: “*Baffinland concurs that the overall volume of water approved in the licence would remain unchanged with the use of additional water sources for which Baffinland will seek approval.*” At this time, CIRNAC considers comment 10 resolved.

Comment 11 (2.3 Sewage and Grey Water Disposal)

CIRNAC original comment: Baffinland indicates “*camp sewage will be treated using a package sewage treatment plant prior to effluent being discharged to land for runoff into Ege Bay.*” CIRNAC requests additional information on:

- how the treated sewage effluent flow will be managed in the winter when it freezes closest to the sewage treatment plant outlet;
- if barriers will be used to laterally contain the sewage land treatment area as Figure 3 shows the area is relatively flat; and
- if signs and/or fencing will be deployed advising pedestrians and vehicles to avoid going the treated sewage effluent area.

CIRNAC follow-up comment: Baffinland responded “*the outlet pipeline will be insulated and heat-traced to avoid freezing, as is the case at the Mary River Project. The outlet pipeline will be placed in consideration of grade (achieving sufficient grade to continue to run off through the winter), minimizing potential for erosion, and uses of the surrounding area to avoid conflict with people and equipment. Signs or fencing will be used as needed to prevent traffic from affecting the pipeline or land disposal area.*” CIRNAC considers comment 11 resolved.

A10 Spill Contingency Plan / A9 Culvert Design Memo

Comment 12 (6.1 Fuel Spills, Figure 1)

CIRNAC original comment: CIRNAC recommends that the updated Spill Contingency Plan, including the spill kit locations, is provided with the 2019 Annual Report or sooner.

CIRNAC follow-up comment: Baffinland responded “*Baffinland agrees to file an updated Spill Contingency Plan with the 2019 Annual Report by March 31, 2020, or possibly sooner. The Plan will be updated once the initial camp is established, to confirm fuel storage and spill response equipment locations.*” CIRNAC considers comment 12 resolved.

Comment 13 (Figure 1)

CIRNAC original comment: CIRNAC requests clarification on the location of the culverts as the ‘proposed culvert in fish bearing waters’ symbol on Figure 1 is not located on a stream. CIRNAC requests the site-specific stream assessments and revised culvert



designs be provided to the NWB and distributed to interested parties for review prior to construction.

CIRNAC follow-up comment: Baffinland responded “*at the scale of the figure, a stream draining unnamed lake EB-2 is not shown. Any revised culvert designs will be filed with the NWB. Following completion of its fisheries assessments, Baffinland will also seek guidance from DFO, and will obtain a letter of advice or an authorization under the Fisheries Act, as directed by DFO.*” CIRNAC considers comment 13 resolved.

A11 Closure & Reclamation Plan

Comment 14 (5.2.4.5 Engineering Work Associated with Closure Activity & 6 Progressive Reclamation)

CIRNAC original comment: Both 5.2.4.5 Engineering Work Associated with Closure Activity & 6 Progressive Reclamation refer to “*at least 30 m above the ordinary High Water Mark.*” CIRNAC reminds that the value should be at least 31 m above the ordinary High Water Mark.

CIRNAC follow-up comment: Baffinland responded “*Noted. The Closure and Reclamation Plan has been revised to state 31 m above the ordinary high water mark.*” CIRNAC considers comment 14 resolved.

If you have any questions or require further information with respect to this matter, contact me at (867) 975-3877 or email michelle.blade@canada.ca, or Godwin Okonkwo at (867) 975-4550 or email godwin.okonkwo@canada.ca.

Regards,

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