Fisheries and Oceans Canada | Pêches et Océans Canada

P.O. Box 358
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June 22, 2012

Your file *Votre référence*
2AM-MRY

Our file *Notre référence*
NU-07-0050

Sean Joseph
Technical Advisor
Nunavut Water Board
Gjoa Haven, NU X0B 1J0

Dear Mr. Joseph:

Subject: Fisheries and Oceans Canada Technical Review of the Mary River Type A Water License Application and Supporting Documents

Fisheries and Oceans Canada (DFO) would like to thank the Nunavut Water Board (NWB) for providing an opportunity to participate in the technical review of the Type A Water License Application for the Mary River Project.

Fisheries and Oceans Canada (DFO) offers technical comments with respect to the water license application and the supporting documents as it relates to our mandate. The areas of concern for DFO are as follows:

- Sediment and Erosion Control Plan
- Blasting Plan;
- Closure and Reclamation Plan and
- Fish Habitat Off-Setting Plan

DFO looks forward to participating in the Nunavut Water Board technical meeting and pre-hearing conference for the Mary River Project. Should you have any questions, please contact me by telephone at 705-522-9909 or by email at Derrick.Moggy@dfo-mpo.gc.ca.

Yours sincerely,

Derrick Moggy

Habitat Team Leader
Fisheries and Oceans Canada – Eastern Arctic Area

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Canada

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Technical Comments for the Type A Water License Application Mary River Project Baffinland Iron Mines Corporation

June 22, 2012

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1. Technical Review Comments

Fisheries and Oceans Canada (DFO) has completed a review of the Type A Water Licence application NWB File NO: 2AM-MRYand the supporting documents submitted by Baffinland Iron Mines Corporation for the Mary River Project. DFO has conducted our review in regard to our mandate under the *Fisheries Act* which is explained briefly below. Our review identifies the impacts to fish and fish habitat as a result of the Project. We submit the following to identify the technical issues that need further clarification during the technical meeting.

2. Introduction

The *Constitution Act* (1982) provides the federal government with exclusive authority for sea coastal and inland fisheries within Canada's territorial boundaries. Fisheries and Oceans Canada exercises this authority under the *Fisheries Act*. Specifically, DFO is responsible for the management and protection of fish and marine mammals and their habitats. There are two fundamental provisions in the *Fisheries Act* that pertain to the conservation and protection of fish habitat. One is section 35 of the *Act* that prohibits the harmful alteration, disruption or destruction of fish habitat without an authorization from the Minister of Fisheries and Oceans or through a regulation under the *Fisheries Act*. The other is section 36 that prohibits the deposit of deleterious substance into fish bearing waters unless authorized by a regulation under the *Act* or by another law of Parliament.

Environment Canada, on behalf of the Minister of Fisheries and Oceans, administers section 36 of the *Fisheries Act*. DFO relies upon advice provided by Environment Canada regarding issues pertaining to water quality. There are other sections of the *Fisheries Act* that pertain to the conservation and protection of fish and fish habitat and these include sections 20 (fish ways), 30 (fish guards) and 32 (destruction of fish) among others.

DFO's Policy for the Management of Fish Habitat ("the Habitat Policy"), introduced in 1986, provides general guidance on the application of the habitat protection provisions of the *Fisheries Act* and applies to all projects that have the potential to harm fish habitat. The long-term objective of DFO is to achieve a net gain in the productive capacity of fish habitat for Canadian fisheries resources. A fundamental strategy for achieving this is to prevent the further loss of productive capacity of existing habitats. Productive capacity is defined in the Habitat Policy to mean the maximum natural capacity of habitats to produce healthy fish, safe for human consumption, or to support or produce aquatic organisms upon which fish depend. DFO will strive to achieve No Net Loss by avoiding impacts, by the application of mitigation and, failing that, to balance unavoidable habitat losses through habitat off-setting on a project-by-project basis to maintain the productive capacity of habitats supporting fisheries resources.

Under the *Nunavut Land Claims Agreement*, DFO participates in the regulatory review process led by the Nunavut Water Board (NWB). In this context, DFO has reviewed the Type A Water License application and supporting documents as submitted for impacts to fish and fish habitat. DFO respectfully submits the following comments as expert advice to the NWB to assist in their review of this project. The information requests and recommendations presented in this submission may be subject to change as new information is brought forward during the technical review meeting and/or public hearing. Should new information be obtained, any changes in DFO's recommendations will be brought to the attention of NWB.

3. Freshwater Environment

3.1. Sediment and Erosion Control Plan

Reference: Type A Water Licence Application, Attachment 3: Project Wide Documents, Section 6.2.3.2 and Attachment 5: Surface Water and Aquatic Ecosystem Management Plan Appendix 10D-2, Section 4 and Environmental Protection Plan Appendix 10B Section 2.9.

There is the potential for fine sediment to be released into project waterbodies as a result the infrastructure and watercourse construction, operation and decommissioning. The introduction of sediment into a waterbody can result in a reduction of primary productivity and an impairment of water quality. Sedimentation can be directly harmful to fish by affecting their ability to feed and migrate and may result in egg mortality in the substrate. The installation of watercourse crossings and intake structures and lake encroachments may initiate erosion, slumping or bank failure which may lead to the introduction of silt and sediment into waterbodies.

The current plan does not provide sufficient detail on the mitigation measures which will be implemented to avoid negative impacts to fish and fish habitat resulting from either in-water works or works occurring adjacent to water bodies.

DFO's Recommendation:

1. DFO recommends that BIM provide detailed sediment and erosion control plans for the installation of watercourse crossings, water intake structures and lake encroachment areas.

2. A monitoring plan to ensure that all sediment and erosion control measures are functioning as intended should be developed. This should include contingency measures if it is found that some measures are not functioning as intended.

3. BIM should provide detailed dewatering and fish removal plans for the installation of the watercourse crossings, which will occur during the open water season. The dewatering plan should also include the methodology for maintaining flows downstream of the dewatered area ie. use of pumps or diversions.

3.2. Watercourse Crossings – Culverts and Bridges

Reference: Type A Water Licence Application, Attachment 5: Surface Water and Aquatic Ecosystem Management Plan, Section 6.4.4 and Attachment 7.

Construction of the railway and access road will involve 64 culvert installations on streams with juvenile Arctic Char. To mitigate potential fish passage issues at these crossings, numerous design features that promote fish passage have been considered and will be incorporated into the design where feasible.

The mitigation measures presented by the Proponent to maintain or facilitate fish passage have been used at culvert installations in the past with varying degrees of success. Many of the measures proposed have not been used in the Arctic environment before and therefore there is a high degree of uncertainty as to whether or not they will function as intended.

DFO's Recommendations:

1. DFO recommends that BIM provide stream crossing design criteria, final crossing designs and site specific mitigation measures to DFO for review upon completion of the detailed engineering phase.

2. DFO recommends that a monitoring program be developed to determine if the mitigation measures installed to facilitate fish passage are functioning as intended and that this includes a contingency plan if it is found that fish passage was not maintained as predicted.

3.3. Use of Explosives In or Near Fish Bearing Waters

Reference: Type A Water Licence Application, Attachment 3: Project Wide Documents, Sections, 6.5.1and 6.1.5.2.

Section 32 of the *Fisheries Act* prohibits the destruction of fish by means other than fishing. The *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (Wright and Hopky, 1998) offer guidance on the use of explosives to ensure no harm to fish and fish habitat. In the Nunavut, DFO uses a more protective overpressure threshold of 50 kPa in order to take the intensifying effects of ice cover into consideration.

DFO's Recommendation:

1. DFO recommends that the detailed blasting program, mitigation and monitoring plan be developed in consultation with DFO during the regulatory phase, using the 50 kPa threshold.

3.4. Preliminary Mine Closure and Reclamation Plan

Reference: Attachment 10: Preliminary Mine Closure and Reclamation Plan, Figure 8.10

It is proposed that all watercourse crossings will be removed from the Tote Road, access Road and railroad to allow creeks and rivers to return to natural drainage conditions. The current plans provided lacks sufficient detail to ensure that the crossing locations will be stabilized and fish passage will be maintained.

DFO's Recommendation:

1. DFO recommends that the proponent develop detailed plans for the decommissioning of the watercourse crossings to ensure that removal of watercourse crossings and the associated rock fill. The plan should include measures which will be taken to ensure that fish passage is maintained, the bed and banks of the watercourse are stable.

2. Sediment and erosion control plans, dewatering plans and fish salvage plans should also be included to ensure there are no negative impacts to fish and fish habitat resulting from the removal of the watercourse crossing.

4. Marine Environment

4.1. Construction Phase Monitoring

Reference: Attachment 5: Environmental Monitoring Plan, Section 5, Surface Water and Aquatic Ecosystem Management Plan, Section 6.5.1.

During the construction phase the Proponent has proposed to monitor marine water quality (Total Suspended Solids) and noise levels from pile driving, blasting and freight vessels in the water. Additionally there is proposed monitoring of noise levels produced by aircraft at the port site and selected walrus haul out sites.

The monitoring plan presented in the Type A water license application lacks sufficient detail to ensure that the proposed monitoring will be effective in preventing negative impacts to water quality, fish, marine mammals and their habitat during the construction phase of the project.

DFO's Recommendation:

1. DFO recommends the proponent develop a detailed mitigation and monitoring plan for construction phase of the project in Steensby Inlet.

4.2. Dredging and Disposal of Dredged Sediments

Reference: Attachment 3: Project Wide Documents, Section 6.4

Dredging is proposed in the area of the freight dock and the ore dock to facilitate docking and ship manoeuvring. The methodology for the dredging has not been provided and it is uncertain how the dredged sediments will be disposed of. The proponent has not indicated where the dredged sediments will be side cast or if they will be disposed of at sea. The disposal of dredged materials in Foxe Basin may also result in the Harmful Alternation, Disruption or Destruction of Fish Habitat (HADD).

DFO's Recommendation:

1. DFO recommends that the Proponent provide the methodology for the proposed dredging at the freight dock and the ore dock. This should include mitigation measures which will be implemented to reduce the negative impacts to fish and marine mammals and identify the location where the dredged sediments will be disposed.

5. Fish Habitat Off –Setting Plan (No Net Loss Plan)

The development of the Mary River project will result in the Harmful alteration, disruption or destruction (HADD) or fish habitat in both the freshwater and marine environment. Impacts in the freshwater environment are the result of the installations of watercourse crossings and lake encroachments associated with the railway and access road. In the marine environment the HADD will result from the construction of the port infrastructure at Steensby Inlet. BIM has presented a Conceptual Fish Habitat Off-Setting Plan to satisfy Fisheries and Oceans Canada's Policy for the Management of Fish Habitat (1986).

The Conceptual Fish Habitat Off-Setting Plan provides off- set options for both the freshwater and marine environment including: the excavation of nearshore areas, the addition of substrate and the removal off barriers to fish passage.

The current plan is still at the conceptual stage and lacks sufficient details on which off-setting options will be chosen and where they will be constructed.

DFO's Recommendation:

1. DFO recommends that BIM continue to explore off-setting options in both the freshwater and marine environment to offset the HADD.

2. As new fish habitat off-setting options are considered community consultation should also occur so that input from the communities can be incorporated into the design of the Fish Habitat Off-Setting Plan.

3. In order to evaluate the success of the off-setting options that are implemented DFO recommends that BIM develop a monitoring plan and ensure that sufficient baseline data is collected to determine if the new fish habitat is stable and functioning as intended.

6. Summary

In summary, DFO appreciates the on-going efforts of Baffinland Iron Mines Corporation for the Mary River Project and supports the approach, in principle, to mitigate and compensate impacts to fish and fish habitat. DFO looks forward to participating in the Nunavut Water Board Technical Sessions.

6.1 Summary List of Recommendations

3.1 Sediment and Erosion Control Plan

1. DFO recommends that BIM provide detailed sediment and erosion control plans for the installation of watercourse crossings, water intake structures and lake encroachment areas.

2. A monitoring plan to ensure that all sediment and erosion control measures are functioning as intended should be developed. This should include contingency measures if it is found that some measures are not functioning as intended.

3. BIM should provide detailed dewatering and fish removal plans for the installation of the watercourse crossings, which will occur during the open water season. The dewatering plan should also include the methodology for maintaining flows downstream of the dewatered area ie. use of pumps or diversions.

3.2 Watercourse Crossings – Culverts and Bridges

1. DFO recommends that BIM provide stream crossing design criteria, final crossing designs and site specific mitigation measures to DFO for review upon completion of the detailed engineering phase.

2. DFO recommends that a monitoring program be developed to determine if the mitigation measures installed to facilitate fish passage are functioning as intended and that this includes a contingency plan if it is found that fish passage was not maintained as predicted.

3.3 Use of Explosives In or Near Fish Bearing Waters

1. DFO recommends that the detailed blasting program, mitigation and monitoring plan be developed in consultation with DFO during the regulatory phase, using the 50 kPa threshold.

3.4 Preliminary Mine Closure and Reclamation Plan

1. DFO recommends that the proponent develop detailed plans for the decommissioning of the watercourse crossings to ensure that removal of watercourse crossings and the associated rock fill. The plan should include measures which will be taken to ensure that fish passage is maintained, the bed and banks of the watercourse are stable.

2. Sediment and erosion control plans, dewatering plans and fish salvage plans should also be included to ensure there are no negative impacts to fish and fish habitat resulting from the removal of the watercourse crossing.

4.1 Construction Phase Monitoring

1. DFO recommends the proponent develop a detailed mitigation and monitoring plan for construction phase of the project in Steensby Inlet.

4.2 Dredging and Disposal of Dredged Sediments

1. DFO recommends that the Proponent provide the methodology for the proposed dredging at the freight dock and the ore dock. This should include mitigation measures which will be implemented to reduce the negative impacts to fish and marine mammals and identify the location where the dredged sediments will be disposed.

5.0 Fish Habitat Off –Setting Plan (No Net Loss Plan)

1. DFO recommends that BIM continue to explore off-setting options in both the freshwater and marine environment to offset the HADD.

2. As new fish habitat off-setting options are considered community consultation should also occur so that input from the communities can be incorporated into the design of the Fish Habitat Off-Setting Plan.

3. In order to evaluate the success of the off-setting options that are implemented DFO recommends that BIM develop a monitoring plan and ensure that sufficient baseline data is collected to determine if the new fish habitat is stable and functioning as intended.