



Fisheries and Oceans
Canada

Pêches et Océans
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August 3, 2007

Our file Notre référence
NU-06-0084

Derek Chubb
Vice President Sustainable Development
Baffinland Iron Mines Corporation
Suite 1016, 120 Adelaide Street West
Toronto, Ontario M5H 1T1

Dear Mr. Chubb:

SUBJECT: Authorization for the harmful alteration, disruption or destruction of fish habitat pursuant to subsection 35(2) of the *Fisheries Act*

The harmful alteration, disruption or destruction of fish habitat arising from the infilling of fish habitat as a result of the installation of crossing structures at 25 locations, along the Milne Inlet access tote road connecting Milne Inlet to the Mary River camp is hereby authorized pursuant to subsection 35(2) of the *Fisheries Act*. This Authorization shall be conditional upon implementation of measures specified in the attached document.

The environmental impacts of this undertaking have been reviewed by Fisheries and Oceans Canada in accordance with the *Canadian Environmental Assessment Act*. This review concluded that the project is not likely to cause significant adverse environmental effects if the mitigation and compensation measures specified are implemented.

Failure to comply with any of the conditions specified on the attached Authorization may result in a contravention of section 35 of the *Fisheries Act*.

NOTE: None of the foregoing should be taken to imply Authorization of this undertaking in accordance with any section of the *Fisheries Act* **other** than section 35. Also note that Authorization under the *Fisheries Act* does not release the proponent from the requirements of any other federal, territorial or municipal legislation.

Please contact Amy Liu at (867) 979-8007 or by fax at (867) 979-8039 should you have any questions or require additional information.

Sincerely,

Original Signed by:

Keith Pelley
Acting Area Director
Eastern Arctic Area
Fisheries and Oceans Canada

Copy: Maret Tae – Knight Piesold

Canada

Steven Aiken- Knight Piesold
Spencer Dewar – Indian and Northern Affairs
John Cowan – Transport Canada
Cindy Parker – Environment Canada
Andrew McAllister - Natural Resources Canada
Leslie Payette - Nunavut Impact Review Board
Phyllis Beaulieu – Nunavut Water Board

AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT

Authorization issued to:

Baffinland Iron Mines Corporation
Suite 1016, 120 Adelaide Street West
Toronto, Ontario M5H 1T1

Tel: (416) 814-3171
Fax : (416) 364-0193

Location of Project

The installation of crossing structures at 25 locations located along the Milne Inlet access tote road (100km long) which connects the mine property to Milne Inlet, in the Qikiqtani Region of Nunavut, south of the hamlet of Pond Inlet.

Specific watercourse crossing locations are as follows:

UTM Zone 17 at BG50 (UTM Easting 529334, UTM Northing 7926846)
CV128 (UTM Easting 513545, UTM Northing 7965895)
CV217 (UTM Easting 542219, UTM Northing 7922158)
CV223 (UTM Easting 555817, UTM Northing 7914691)
UTM Zone 17 at BG17 (UTM Easting 550703, UTM Northing 7917643)
CV040 (UTM Easting 535175, UTM Northing 7920305)
CV072 (UTM Easting 526897, UTM Northing 7934576)
CV099 (UTM Easting 521811, UTM Northing 7948820)
CV129 (UTM Easting 512381, UTM Northing 7966783).
UTM Zone 17 at BG32 (UTM Easting 540706, UTM Northing 7921622)
CV048 (UTM Easting 530415, UTM Northing 7925875)
CV049 (UTM Easting 529677, UTM Northing 7926542)
CV078 (UTM Easting 525852, UTM Northing 7936787)
CV079 (UTM Easting 525562, UTM Northing 7937276)
CV094 (UTM Easting 522805, UTM Northing 7945397)
CV216 (UTM Easting 542774, UTM Northing 7921700)
CV225 (UTM Easting 557407, UTM Northing 7915138)
UTM Zone 17 at BG01 (UTM Easting 557991, UTM Northing 7914919)
BG04 (UTM Easting 553250, UTM Northing 7915113)
BG 24 (UTM Easting 548766, UTM Northing 7918878)
CV 060 (UTM Easting 527622, UTM Northing 7930342)
CV104 (UTM Easting 521732, UTM Northing 7952788)
CV111 (UTM Easting 521355, UTM Northing 7954524)
CV114 (UTM Easting 520278, UTM Northing 7956528)
CV224 (UTM Easting 556238, UTM Northing 7915044)

Valid Authorization Period

The valid authorization period for the harmful alteration, disruption or destruction of fish habitat associated with the construction of watercourse crossings is:

From:
Date of Issuance

To:
August 30, 2008

The valid periods for other conditions of this Authorization are as set out below.

Description of Works or Undertakings (Type of work, schedule, etc.)

The harmful alteration, disruption or destruction of fish habitat hereby authorized is the loss of 8551m² of stream habitat due to infilling associated with the construction of 25 watercourse crossings to upgrade the Milne Inlet access tote road to the Mary River Camp, located in the Qikiqtani Region of Nunavut, south of the hamlet of Pond Inlet.

Conditions of Authorization

1. The conditions of this Authorization notwithstanding, should the above works or undertakings, due to weather conditions, different soil or other natural conditions, or for any other reason, appear, in the opinion of the Department of Fisheries and Oceans ("DFO") likely to cause greater impacts than the parties previously contemplated, then DFO may direct Baffinland Iron Mines Corporation (hereafter referred to as the "Proponent"), and its agents, and contractors, to suspend or alter works and activities associated with the project, to avoid or mitigate adverse impacts to fisheries resources. DFO may also direct the Proponent and its agents, and contractors, to carry out at the Proponent's expense any works or activities deemed necessary by DFO to avoid or mitigate further adverse impacts to fisheries resources. In circumstances where DFO is of the view that greater impacts may occur than were contemplated by the parties DFO may also modify or rescind this authorization. If the authorization is to be changed the Proponent will be given an opportunity to discuss any proposed modifications or rescission.
2. Conditions that relate to the Proponent plan:
 - 2.1. The Proponent confirms that all plans and specifications relating to this Authorization have been duly prepared and reviewed by appropriate professionals working on behalf of the Proponent. The Proponent acknowledges that they are solely responsible for all design, safety and workmanship aspects of all the works associated with this Authorization.
 - 2.2. The installation of crossing structures at nine (9) navigable watercrossing sites (four (4) extra-large crossing sites and five (5) large crossing sites), eight (8) large watercrossing sites and eight (8) medium watercrossing sites comply with those criteria as identified within this Authorization. Harmful alteration, disruption or destruction of fish habitat other than that specifically identified within this Authorization is prohibited.
 - 2.3. Works and undertakings shall be conducted in accordance with the practices outlined in the following reports, and as approved by DFO:
 - 2.3.1. Email regarding coordinates and spawning mitigation, prepared by Derek Chubb (Baffinland Iron Mines Corporation), dated July 31, 2007.
 - 2.3.2. Memorandum regarding Mary River Project Bulk Sampling Program – Fish Habitat Compensation Updated Footprint Calculations and Compensation Area Proposed, signed by Maret Tae (Knight Piesold Consulting) and approved by Steve Aiken (Knight Piesold Consulting), dated July 23, 2007.
 - 2.3.3. Memorandum regarding Mary River Project Bulk Sampling Program – Fish and Fish Habitat

Monitoring Plan for DFO, signed by Maret Tae (Knight Piesold Consulting), dated July 23, 2007.

2.3.4. Memorandum regarding the response to DFO Engineer's 2007-05-10 Questions, approved by Steven Aiken (Knight Piesold Consulting), dated June 6, 2007.

2.3.5. Letter regarding the Mary River Project Bulk Sampling Program Interaction with Fish and Fish Habitat, addressed to Derek Chubb (Baffinland Iron Mines Corporation), prepared by Maret Tae and Steven Aiken (Knight Piesold Consulting), dated May 25, 2007.

2.3.6. Baffinland Iron Mines Corporation Mary River Project – Information Package for DFO Meeting – Ottawa May 2 and 3, 2007, prepared by Knight Piesold Consulting, dated May 2, 2007.

2.3.7. Application for Authorization for Works or Undertakings Affecting Fish Habitat, signed by Rodney Cooper (Baffinland Iron Mines Corporation), dated December 20, 2006.

2.3.8. The above documents and drawings are hereafter referred to as the "Plan". Where contradictions exist, the most recent version shall apply.

3. Conditions that relate to the mitigation of potential harmful alteration, disruption or destruction ("HADD") of fish habitat. The following measures shall be implemented to avoid the unauthorized HADD of fish habitat:

3.1. Following the mitigations measures provided below as well as the mitigation measures provided in the Plan, the in-water work is allowed to occur within the restricted timing window from the September 1, 2007 to June 30, 2008.

3.1.1. An environmental monitor shall be on-site to assess the crossings prior to the onset of construction to confirm the absence or presence of spawning sites at least 20 metres upstream or downstream of the crossing location, and whether spawning Arctic char are present in the vicinity.

3.1.2. Machinery fording shall occur at least 20 metres upstream or downstream of location where fish and/or spawning sites are noted.

3.2. A qualified biologist or environmental inspector shall be on site during all in-water construction, compensation and restoration works to ensure implementation of the designs as intended in the Plan and conditions of this Authorization.

3.3. Machinery fording the watercourse to bring equipment required for construction to the opposite side of the watercourse shall be limited to a one-time event (over and back) and occur only if an existing crossing at another location cannot be used. If the stream bed and banks are highly erodible (e.g., dominated by organic materials and silts) and erosion and degradation is likely to occur as a result of equipment crossing, then a temporary crossing structure or other practices shall be used to protect these areas.

3.4. All materials and equipment used for the purpose of all work phases shall be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris, etc.) from entering the water.

3.4.1. Any stockpiled materials shall be stored and stabilized above the ordinary high water mark of any water body.

3.4.2. Vehicle and equipment re-fuelling and maintenance shall be conducted above the ordinary high water mark of any water body.

3.4.3. Any part of equipment entering the water shall be free of fluid leaks and externally

cleaned/degreased to prevent any deleterious substance from entering the water.

- 3.5. Only clean, competent, certified non-acid generating rock and material free of fine particulate matter shall be placed in the water.
 - 3.6. Material used for habitat compensation features shall not be taken from below the ordinary high water mark or shoreline of any water body.
 - 3.7. Sediment and erosion control measures shall be implemented prior to work, and maintained during the work phases, including decommissioning and restoration phases, to prevent entry of sediment into the water or the movement of re-suspended sediment.
 - 3.7.1. All disturbed areas shall be stabilized upon completion of work and restored to a pre-disturbed state or better.
 - 3.7.2. Sediment and erosion control measures shall be left in place and maintained until all disturbed areas have been stabilized.
 4. Conditions that relate to the compensation for the loss of 8551 square metres of fish habitat as defined in the Plan.
 - 4.1. The specific locations of the **fourteen (14) fish habitat compensation sites** are located at:
UTM Zone 17 at CV183 (UTM Easting 504683, UTM Northing 7976414),
CV181 (UTM Easting 504133, UTM Northing 7976217),
CV152 (UTM Easting 508201, UTM Northing 7969684),
CV157 (UTM Easting 507374, UTM Northing 7970538),
CV166 (UTM Easting 505538, UTM Northing 7972370),
CV170 (UTM Easting 505015, UTM Northing 7972923),
CV001 (UTM Easting 553782, UTM Northing 7914922),
CV154 (UTM Easting 507620, UTM Northing 7970076),
CV159 (UTM Easting 506908.82, UTM Northing 7970829.97),
CV188 (UTM Easting 562392.8, UTM Northing 7912843.07),
CV113 (UTM Easting 520747, UTM Northing 7955659),
CV176 (UTM Easting 503834, UTM Northing 7975057),
CV156 (UTM Easting 507580, UTM Northing 7970389) and
BG16 (UTM Easting 550742, UTM Northing 7917611).
 - 4.2. The Proponent shall prepare a comprehensive No-Net-Loss Plan, including a detailed description of the works at the fourteen (14) fish habitat compensation sites, detailed plans, construction methods, timelines for construction, and a monitoring program.
 - 4.2.1. The No-Net Loss Plan shall be submitted for DFO review and approval on or before **August 30, 2007**.
 - 4.3. In addition the Proponent shall prepare and submit for DFO review and approval on or before **August 30, 2007**, a construction plan including timing of the road enhancement activities, monitoring schedule for sediment and erosion control measures, and restoration details of how the four extra-large crossing sites and their respective floodplains shall be returned to pre-construction condition by restoring the natural hydrology, topography, and riparian vegetation.
 5. Conditions that relate to Monitoring.
 - 5.1. A detailed Monitoring Plan shall be developed by the Proponent and submitted on or before **August 30, 2007** to DFO for review and approval.
 - 5.2. The approved Monitoring Plan shall be implemented annually from the first year of upgrading the Milne Inlet tote road (i.e. 2007) to two years post-construction (2008-2009). The detailed Monitoring Plan
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shall include, but not be limited to, the following:

- 5.2.1. Monitoring to assess if the installation of crossing structures has adversely affected upstream and downstream fish migration according to the schedule in section 5.2 above.
- 5.2.2. Monitoring of fish habitat compensation sites to ensure that the works are functioning as intended, according to the schedule in section 5.2 above.
- 5.2.3. If at any time during the monitoring period, compensation features are not functioning as intended, measures shall be identified to reduce the risk of future failure and additional compensation shall be created to meet the No-Net-Loss guiding principle using an adaptive management approach.
- 5.3. A photographic record of before, during and after construction, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization, shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area, on or before, December 31 of each year, according to the schedule in 5.2 above.
 - 5.3.1. The photographic record shall include, but not be limited to, a record of the sediment and erosion control measures, compensation measures and upstream and downstream views of the crossings.
 - 5.3.2. The photographs for each pre-construction, during construction, post-construction time periods shall be taken from the same vantage point(s) and general direction.
 - 5.3.3. All photographs shall be clearly labelled as to date and vantage points. The photographic vantage points and viewing directions shall be indicated, and clearly indexed to the photographs, on a plan view drawing of the construction site(s).
- 6. A written report summarizing the above monitoring results shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans – Fish Habitat Management, Eastern Arctic Area on, or before, December 31 of each year, according to the schedule in section 5.2.
- 7. Any deviation from the approved plans, the construction schedule, mitigation, compensation and/or monitoring measures stated above must be discussed with, and approved in writing by the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area prior to implementing.
- 8. All mitigation, compensation and monitoring measures shall be implemented to the satisfaction of the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area.
- 9. Written notification of the commencement of works or undertakings shall be provided to the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area, by e-mail to NunavutHabitat@dfo-mpo.gc.ca or fax at (867) 979-8039 not less than 10 days prior to the initiation of said works or undertakings.

The holder of this authorization is hereby authorized under the authority of section 35(2) of the *Fisheries Act*, R.S.C., 1985, c.F. 14, to carry out the work or undertaking described herein. This authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.


Failure to comply with any condition of this authorization may result in charges being laid under the Fisheries Act.

This authorization form shall be held on site and work crews shall be made familiar with the conditions therein.

Date of Issuance:

Aug 03/07

Approved by:



Title:

Robert Lambe
Regional Director General, Central and Arctic Region
Fisheries and Oceans Canada