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Your file / Votre référence
EA0809-001

Our file / Notre référence
07-HCAA-CA6-00126

October 5th, 2012

Mackenzie Valley Environmental Impact Review Board
#200 Scotia Centre
5102-50th Avenue
Yellowknife, NT
X1A 2N7

Via e-mail to:
aehrlich@reviewboard.ca

RE: Fisheries and Oceans Canada – Final Statements for Giant Mine Remediation Project.

The Department of Fisheries and Oceans (DFO) participated in the environmental assessment for the Giant Mine Remediation Project as a regulator for the works related to Baker Creek, the historic foreshore tailings and the diffuser and outfall, as well as an expert advisor to the Review Board on potential physical impacts of the project on fish and fish habitat. Please find attached DFO's final statements for your consideration which summarizes our analysis and recommendations put forward in our technical submission as well in our hearing presentations.

We trust that our comments and recommendations will be helpful to the Board in their deliberations. If you have any questions, please do not hesitate to contact Sarah Olivier at (867) 669-4919, or email at Sarah.Olivier@dfo-mpo.gc.ca.

Sincerely,

Larry Dow
A/ Area Director
Western Arctic Area
Fisheries and Oceans Canada

cc Bev Ross, Fisheries and Oceans
Julie Dahl, Fisheries and Oceans Canada
Morag McPherson, Fisheries and Oceans Canada
Rick Walbourne, Fisheries and Oceans Canada
Kelly Burke, Fisheries and Oceans Canada

**Fisheries and Oceans Canada
Final Statements
Mackenzie Valley Review Board
Giant Mine Remediation Project
October 5th, 2012**

Fisheries and Oceans Canada (DFO) participated in the environmental assessment for the Giant Mine Remediation Project as a regulator for the works related to Baker Creek, the historic foreshore tailings and the diffuser and outfall, as well as an expert advisor to the Review Board on potential physical impacts of the project on fish and fish habitat. The following is a summary of DFO's analysis and recommendations put forward in our technical submission as well as our hearing presentations based upon our departmental mandate under the *Fisheries Act*, specifically related to the management of fish and fish habitat. DFO is also a science-based expert support department within the Federal Contaminated Sites Action Plan (FCSAP) program.

DFO participated in all stages of this environmental assessment ranging from the identification of issues at the Scoping sessions to providing input into areas of the Terms of Reference related to DFO's mandate and regulatory requirements. Information on our mandate and role were provided in our Technical Submission as well as Information Requests (Round 1 and response to YKDFN IR #26). In addition, DFO provided the Review Board with our review comments on both the Developer's assessment report and the Human Health and Ecological Risk Assessment for Giant Mine.

DFO's review and recommendations, as presented in our technical submission and hearing presentations, remain the following:

Baker Creek Remediation

The proposed re-routing of portions of Baker Creek and potential removal or covering of sediments will disrupt the currently functioning fish habitat and will require ss.35(2) *Fisheries Act* Authorization. Baker Creek has been heavily altered over time as a result of mining operations at the Giant Mine site and must be stabilized both physically and chemically in order to meet the stated objectives of the remediation plan. Overall, the remediation project is expected to result in a gradual increase in numbers and diversity of fish and native vegetation present in the drainage area of the creek, as well as an improvement in the overall health of the Baker Creek aquatic system.

***Recommendation#1:* DFO recommends the completion of a sediment assessment and the development of associated remedial options to assist in selecting final remediation plans for reaches 0, 2, 5 and 6 of Baker Creek. DFO will require this information in order to determine the overall scale of the HADD for Baker Creek.**

***Recommendation #2:* DFO recommends that the restoration plan (habitat compensation) and design that will achieve the offsetting of fish habitat for Baker Creek be developed as part of the overall remediation design for the creek. The**

restoration plan and channel designs must be submitted to DFO for approval as a requirement of the *Fisheries Act* Authorization.

Recommendation #3: DFO recommends the development of an EMP for the remediation and restoration of Baker Creek that outlines the required mitigation measures and monitoring plans. The mitigation measures and monitoring plan will be a requirement of the *Fisheries Act* Authorization. The plan should include details on:

- mitigation measures to be implemented to manage and minimize downstream impacts to fish and fish habitat during remediation;
- how the mitigation measures will be monitored; and,
- a monitoring plan to evaluate the restoration of Baker Creek as functioning fish habitat.

Recommendation #4: DFO recommends that the commitments made to engage the public and aboriginal groups on the Baker Creek remediation options and restoration plan (as outlined in The Consultation and Engagement Plan, response to Round 1 RB_IR_18 and YKDFN IR 13) be completed prior to finalizing the remediation options, channel designs and fish habitat restoration plan. DFO will use the results of the public and aboriginal engagement when developing its regulatory tool (Authorization).

Recommendation #5: DFO recommends that the final designs of any future Baker Creek channel realignments and in-stream habitat features be developed with a clear understanding of potential seasonal base flows to minimize the potential for channel barriers and impacts to fish passage. The habitat restoration plan and supporting channel designs must be submitted to DFO for approval as a requirement of the *Fisheries Act* Authorization.

Outfall and Diffuser

Additional details on the proposed outfall and diffuser need to be provided to DFO in order to conduct a site specific review and make a determination pursuant to the *Fisheries Act* related to potential impacts and the extent of the physical disturbances in these areas. In terms of the potential impacts from the operation of the diffuser in relation to water quality objectives, Environment Canada administers section s.36 of the *Fisheries Act* and the application of the Metal Mining Effluent Regulations. It is also DFO's expectations that any water being discharged out of the diffuser must meet water quality limits, as set out in a water license, and would include conditions and standards that would ensure that no significant impacts will occur in the aquatic environment.

Recommendation #6: DFO recommends the completion of the fish habitat assessment in Yellowknife Bay along the proposed route of the outfall and at the location of the diffuser.

Recommendation #7: DFO recommends the development of an EMP which outlines the mitigation and monitoring measures for the construction and operation of the proposed outfall and diffuser in Yellowknife Bay to ensure adverse physical impacts to fish and fish habitat are avoided.

Recommendation #8: DFO will require the final design and associated mitigation measures for the outfall and diffuser to inform a review pursuant to the habitat provisions of the *Fisheries Act*.

Historic Foreshore Tailings

The final cover design and footprint, as well as construction details, have not been put forward for the proposed remediation of the historic foreshore tailings in Yellowknife Bay. A site specific review is still required and additional details need to be provided in order for DFO to make a determination under ss.35(2) of the *Fisheries Act* on construction and footprint of potential physical disturbance to the area.

Recommendation #9: DFO recommends the completion of a fish habitat assessment in Yellowknife Bay in the area of the historic tailings, including the extent of the proposed tailings cover.

Recommendation #10: DFO recommends the development of an EMP that outlines measures to mitigate adverse impacts to fish and fish habitat during construction of the cover for the historic foreshore tailings area and to monitor to ensure that the cover is functioning as intended.

Recommendation #11: DFO requests the final design and mitigation measures for the submerged tailings cover be provided to inform a review pursuant to the habitat provisions of the *Fisheries Act*.

Monitoring

A fish habitat monitoring plan for the restoration effort on Baker Creek will be a requirement for the *Fisheries Act* Authorization. Monitoring associated with the Baker Creek restoration will not only provide information to allow for an assessment of the recovery and productivity of fish habitat in the creek, it will also provide information to evaluate the success of the stated remediation goals/objectives “to restore Baker Creek to a condition that is as productive as possible, given the constraints of hydrology and climate” (DAR Section 1.2.1) and “physically stabilize the creek and improve both the quantity and quality of habitat” (DAR Section 6.1.2).

Recommendation #12: DFO recommends that a fish habitat or restoration monitoring program be developed for the Baker Creek remediation and restoration and be incorporated into the overall monitoring framework and EMPs for the Giant Mine remediation. This monitoring plan must be submitted

to DFO for approval as a requirement of the *Fisheries Act* Authorization. DFO recommends that this monitoring program:

- clearly state the objectives, performance criteria and goals for the habitat restoration, which are well defined, quantitative and measureable;
- use appropriate scientific method and experimental designs (e.g. before-after-control-impact), include reference sites, baseline data and replicates to measure habitat productivity;
- include measures of both habitat quantity and quality using a range of physical and biotic attributes; and, have a sufficient frequency and duration to detect and measure ecological recovery over time

Recommendation#13: DFO recommends that GMRT develop and implement an Aquatic Effects Monitoring Program (AEMP) in accordance with the June 2009 “Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories” to monitor and detect change in the aquatic ecosystems associated with the Giant Mine Remediation Project. A multitrophic approach should be used. The AEMP should be within an adaptive management framework, where thresholds, triggers and management actions are identified.