Fisheries and Oceans Canada
Pêches et Océans Canada

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September 1, 2005

Your file *Votre référence*
NWB1JER0410/TR/D13

Our file *Notre référence*
NU-00-0068

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Via Electronic Mail
licensing@nwb.nunavut.ca

Dear Ms. Beaulieu:

Subject: Long Lake Dewatering Plan – Jericho Diamond Mine.

Fisheries and Oceans Canada (DFO) would like to thank the Nunavut Water Board for the opportunity to review the Long Lake Dewatering Plan for the Jericho Diamond Mine. Based on a review of the Long Lake Dewatering Plan, as submitted by AMEC Earth & Environmental on behalf of Tahera Diamond Corporation, dated July 2005, DFO offers the following comments/recommendations related to the submitted plan as it relates to the protection of fish and fish habitat:

General Comments:
A Fish Salvage Program has been submitted to DFO for review and a DFO Licence to Fish for Scientific Purposes has been issued to Tahera to allow the salvage to begin. Although progress on the salvage has been slow, it is expected to continue until logistics (ice conditions, etc) prevent further effort. DFO continues to work with Tahera to address this issue. This may include salvaging fish during dewatering activities, in which case the following measures should be undertaken to ensure the water intake structure on the pump is designed to protect fish:

- Extraction of water via intake is properly screened to prevent the entrainment of fish. Refer to the *Freshwater Intake End-of-Pipe Fish Screen Guideline* (DFO 1995), which is available upon request.

- Ensure that the holes in the screen are small enough that no fish of any size can pass through the screen and into the intake.

- The rate of water withdrawal should be such that fish do not become impinged on the screen.

- Make certain that the fish guard or screen is properly maintained, in a good state of repair, and is not removable except for renewal or repair.

- During the time in which a renewal or repair is being conducted, the entrance of the water intake should be closed in order to prevent the passage of fish into the intake.

Specific Comments:

- **Section 2.1** – Table 2.1 identifies the breakdown of the volume of water to be pumped from Long Lake, which totals 148 300 m^3. Of this portion, 135 000 m^3 will be the volume to be extracted from Long Lake, to allow the lake level to be lowered by 2 metres. However, the No Net Loss Plan (Mainstream, 2005) indicates that a volume of 100 000 m^3 will be discharged from Long Lake over an approximate 50 day period. Please explain the discrepancy and if the 148 300 m^3 value is the true value, does this increase the risk of erosion in Stream C3?

- **Section 2.2** – It is indicated that the maximum recorded freshet flows in Stream C3 are 0.045 m^3/s, and so using a similar dewatering rate will not cause erosion. Freshet flows typically last for a limited period (much less then 50 days) of time and therefore the stream would be able to naturally readjust to any minor erosion problems. Should dewatering occur over a much longer period, the potential risk of erosion would increase. Please provide a comparison of the length of time for the maximum recorded freshet flow in Stream C3 and the dewatering period, and the rationale/evidence that supports the conclusion that this difference would not result in erosion in Stream C3.

- **Section 2.3** – DFO agrees that rock and grass banks/substrate are not symptomatic of an eroding bank, however under sufficient high flows for an extended period of time, these banks could be susceptible to erosion. Typically, these banks are embedded in finer material, which could be erodable under extended periods of high flows. Once erosion starts, it may be difficult to control, particularly if dewatering continues at the proposed rate. Please provide a description of the underlying materials and how this concern will be mitigated to prevent erosion of the bank materials, both during and after dewatering.

- **Section 2.4** – DFO does not agree that the use of silt curtain stretched across the stream will reduce sediment in the channel. First, silt curtains are designed for low flow scenarios, such as runoff, and not flowing water in a watercourse. Secondly, any sediment in the water will quickly plug the silt curtain thereby creating a barrier to water movement. As a result, the water will simply find alternate pathways around the silt curtain rendering the silt curtain useless. This could lead to erosion around the silt curtains as the water finds a new path. Furthermore, the maintenance necessary for the use of silt curtains (when used in this manner) is extremely high and ill-suited for the circumstance. DFO suggests that other means to control sediment be considered, and that representative drawings and a maintenance schedule of the proposed sediment control measures be provided for review.

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- **Section 3.1** – The phrase "*appreciably cause erosion*" is a subjective evaluation. Please provide a more objective means of evaluating erosion.

- **Section 3.2**:
  - DFO suggests that inspection not wait until erosion is evident, but rather identify where it may develop (or where it is developing) so that mitigative measures can be implemented to prevent it. Furthermore, it may be necessary to consider other means of mitigating erosion, i.e. reducing the pumping rate, using alternate flow paths, etc. Please provide the triggers for action and the approach to implementing a range of mitigation measures depending on the circumstances.

  - Although not expressly stated, it is assumed that the material for rock armouring will not be taken from the pathway of the discharge, including Stream C3 or any other waterbodies/watercourse. Please confirm if this is the case.

  - The turbidity testing suggested in the Plan implies that pumping could occur at least for one week before high TSS level have been detected. DFO suggests that a correlation between turbidity testing and the lab analysis of TSS be developed early during the dewatering activities, to allow for a quicker means of detecting potentially elevated levels of TSS.

Please be advised that a contravention of subsection 35(1) of the *Fisheries Act* could result from any change to the proposed plan or from failure to properly implement the conditions of the *Fisheries Act* Authorization. If these plans have changed, we should be consulted to determine if further review is required.

If there are any questions concerning the above, or if my understanding of the proposal is either incorrect, incomplete, or if there are changes to the proposed works or undertakings, please contact me directly by telephone at 867-979-8011, or by fax at 867-979-8039.

Yours sincerely,

Original Signed By:

Derrick Moggy
Habitat Management Biologist
Fisheries and Oceans Canada – Eastern Arctic Area

c.c.: Greg Missal – Benachee Resources Inc./Tahera Diamond Corporation