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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYIT
OFFICE DES EAUX DU NUNAVUT

File No.: 3AM-GRA1015

September 14, 2012

Mr. Arlen Foster
Civil / Environmental Engineering
Stantec Architecture Ltd.
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Dept. of Community & Government Services
Government of Nunavut
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Subject: Licence No. 3AM-GRA1015, Government of Nunavut Community and Government Services, Hamlet of Rankin Inlet, Kivalliq Region, Nunavut: Submission of an Amendment Application

Dear Mr. Foster,

The Nunavut Water Board (“NWB” or “Board”) received a Water Licence Amendment Application (“Application”) dated August 14, 2012, that was submitted by Stantec Architecture Ltd (“Stantec”) on behalf of the Government of Nunavut, Community and Government Services (“GN-CGS”).

The Amendment Application is for the construction and operation of a new intake and overland pipeline from Lower Landing Lake outlet/river to seasonally replenish Nipissar Lake.

The following documents are included within the Amendment Application:

- Completed Amendment Application form;
- Cover Letter Amendment;
- Cover Letter Summaries in English and Inuktitut;
- GN-CGS Authorization Letter for Stantec;
- “Design of Pipeline System to Augment Natural Replenishment of Nipissar Lake Rankin Inlet, Nunavut, Canada” (“Design Report”) completed by FSC Architects & Engineers (“FSC”) dated December 15, 2010; and
- Design Drawings C1, C8, C9, C10 and C11, FSC Project No. 2010 0570.

The Board noted that the FSC Design Report was previously submitted to the Board for review on April 27, 2011 as a requirement of Part C, Item 8 of the Licence which states that:

The Licensee shall submit to the Board for review by December 31, 2010, a Sustainability Assessment Report for Nipissar Lake. The Report shall include and address the following:

- a. Findings of the water use audit and leak detection survey;
- b. Detailed assessment of current and projected water volumes to be withdrawn from Nipissar Lake against total annual recharge (i.e. Water Balance);
- c. Evaluation of impacts on Nipissar Lake due to current water taking and future needs;
- d. Recommendations, including remedial engineering of the facilities and alternative water sources as required to address impacts on Nipissar Lake and
- e. A schedule to address the recommendation of the report that is consistent with the conservation and utilization of waters and provides for the optimum benefit from those waters for the residents of Nunavut.

The NWB reviewed the Design Report and a letter was sent to the Licensee on September 8, 2011 (see attached). The Board determined at the time, that this Design Report only partially fulfills the requirements of Part C, Item 8 and that Items 8(a, b and c) were not addressed or addressed partially. The information required by these items are needed to be addressed to more accurately estimate the Hamlet's annual water use in the future and provide details on possible shortfall of water at Nipissar Lake. These issues are needed in order to assess the selection of a suitable water source intended to augment the natural replenishment of Nipissar Lake.

The concerns previously expressed in NWB's letter of September 8, 2011 that require a response are as follows:

- If the water consummation trends continue the required water to be made up into Nipissar Lake could be considerably more than the proposed pumping requirement.
- The Section 3.1 Design Calculations is based on the assumption of *water demand rate in 2030 to be 344 LCPD resulting in consumption in 2030 to be $4649 \times 344 \times 365 / 1000 = 583,713\text{m}^3/\text{year}$.*
From the FSC 2009 report, the average Water resupply to Nipissar Lake is $311,789\text{m}^3/\text{year}$. Required Water to be made up into Nipissar Lake from Lower Landing Lake is $583,713 - 311,789 = 271,924\text{m}^3/\text{year}$.
The Design report indicates that *the highest pumping requirement in 2030 is to be $484,029\text{m}^3/\text{year}$.*

However, the amount of water allowed for under the current licence 3AM-GRA1015, is $850,000\text{m}^3/\text{year}$ and the Hamlet's projected population in 2015 was estimated by GN to be 2676, which gives 870 LCPD. In addition, the 2011 Annual Report submitted to the Board on March 31, 2012 indicates that $925,340\text{m}^3$ water was used in 2011 against $850,000\text{m}^3$ authorized.

Based on the volume of water used in 2011, the shortfall of water at Nipissar Lake would be:

$$925,340 - 311,789 \text{ (natural replenishment)} = \mathbf{613,551\text{m}^3/\text{year}}$$

This value is much higher than the highest pumping requirement proposed.

The Board requires clarification on the above as it is needed to determine the accuracy of water use projections.

- No information has been provided regarding the water source to be used to replenish Nipissar Lake. No information is provided with respect to the possible impacts that the withdrawal of water at these rates from Lower Landing Lake will likely have on the source and downstream in the long term. The Board needs to know that the new water source has sufficient capacity to transfer the volumes required without any impacts to its integrity. Clarification on these issues would also be required to be provided to the Board in order to consider the Application to be complete.

The Board requires the additional information in order to assess the impacts to the supplemental water source and associated downstream impacts.

Based on this initial review of your submission, the Board has determined that there are information deficiencies with the Application which prevent the Board from considering the Application complete. The Licensee is advised that until adequate responses are received to the above noted questions, the Board will not accept the application or distribute for public review and comment, as the information is insufficient to enable reviewers and the Board to consider the requested Amendment.

Should you have any questions, please feel free to contact the undersigned at (867) 360-6338 Ext. 30 or k.kharatyan@nunavutwaterboard.org, at your earliest convenience.

Yours truly,

Original signed by:

Karén Kharatyan
Technical Advisor

Attachment: NWB September 8, 2011 Review Letter with respect to the “Design of Pipeline System to Augment Natural Replenishment of Nipissar Lake Rankin Inlet, Nunavut, Canada”.