

From: [Steve Lines](#)
To: ["Phyllis Beaulieu"; "Paul Clow"](#)
Subject: RE: Water License
Date: Wednesday, May 19, 2010 9:40:41 AM

Hi Paul:

You are referring to condition of Part 3, Item B.

The Licensee shall file an application for Licence renewal one (1) year prior to the expiry of this Licence. In addition to the application, the Licensee shall include:

- a. Complete water balance for Lake Geraldine prepared by an Engineer; and
- b. Assessment of recharge needs for long term water demands.

For background on this condition, I've looked at the NWB's decision (Pg 11-12):

The December 31, 1999 license issued by the Board required the applicant to submit a detailed hydrological assessment on the Lake Geraldine watershed. **The licensee failed to meet this requirement.** At the hearing, the Town of Iqaluit told the Board that it was planning to retain a consultant in March 2001 to assess the ability of Lake Geraldine to meet Iqaluit's needs, to identify alternative water sources and, if Lake Geraldine's capacity was adequate, to plan for additional storage facility at the current water treatment plant. At the hearing, the Town said that it was prepared to submit such report to the Board, by no later than December 31, 2001.

In their joint submission, DFO, DIAND and EC again recommended the inclusion of this study as a water licence condition, and recommended that it include the hydrological assessment of Lake Geraldine and realistic predictions of future growth and water use as well as an assessment of the potential effects of water drawdown on fish populations in Lake Geraldine. Health noted that at this time the source and quality of the water was acceptable, but it also supported DFO, DIAND and EC's recommendation.

I've spoken with my engineer partner, Karlette Tunaley, and generally the expectation for water balance/hydrological assessment is a full analysis of inputs and outputs that affect the water level data that you have. The water level data can be used to calculate lake volumes if you know the lake's bathymetry.

However, an assessment of the kind requested would normally include consideration of the drainage area feeding into the Lake, stream flows into the lake, precipitation, evaporation, evapotranspiration.

Typically, this requires knowledge of factors such as climate data, topography, soils, ground cover, permafrost.

Comparing the hydrological assessment with the projected demand for water in the community, parties will be able to assess whether Lake Geraldine is able to support the demand while keeping environmental impacts to acceptable levels.

I hope this helps. Let me know if there's anything else we can clarify.

Regards
Steve Lines

Stephen Lines M.Sc., P.Biol., DEIA
Tunaley, Lines & Associates

From: Phyllis Beaulieu [mailto:licensing@nunavutwaterboard.org]

Sent: Tuesday, May 18, 2010 1:04 PM
To: Paul Clow
Cc: Steve Lines
Subject: RE: Water License

Hi Paul – nice to see that your email is working again. I am forwarding your query over to Steve for a response, as he's the technical advisor assigned to this file.

Regards,

From: Paul Clow [mailto:p.clow@city.iqaluit.nu.ca]
Sent: Tuesday, May 18, 2010 12:56 PM
To: Phyllis Beaulieu
Subject: Water License

Hi Phyllis,

Under General Conditions of the Water License it states that the Licensee should submit a renewal application one year prior to expiry of the current water license along with a complete water balance for Lake Geraldine prepared by an engineer and an assessment of recharge needs for long term demand. I have found on the Environment Canada website the level of water at the dam for everyday since 2007. Would this data be sufficient for the water balance of Lake Geraldine? Also, what exactly is the NWB looking for, for the assessment of recharge needs for long term demand.

Thank you,

Paul Clow
Project Officer
Engineering Department

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