March 7, 2019

Keith Morrison
Technical Advisor II
Nunavut Impact Review Board
P.O Box 1360
Cambridge Bay, NU   X0B 0C0

Sent VIA Email: info@nirb.ca

RE: Notice of Screening for the City of Iqaluit's "Apex River Drinking Water Supply" project proposal (19UN013)

Dear Keith Morrison,

On behalf of the Government of Nunavut (GN), I would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments on the City of Iqaluit's "Apex River Drinking Water Supply" proposal. The GN reviewed the proposed project and has prepared several comments for your consideration (see Appendix).

Should you have any concerns with our comments, please contact me by phone at 867-975-7808 or by email at cspencer@gov.nu.ca.

Qujannamiik,

[Original Signed By]

Chris Spencer
Avatiliriniq Coordinator
Government of Nunavut

Appendix

GN-01: Archaeological Resources	
Department	Culture and Heritage
Organization	Government of Nunavut
Subject/Topic	Archaeological Resources
References	NIRB Notice of Screening

CONCERNS

A search of the Nunavut Archaeological Site Database indicates that there are no recorded archaeological sites near the proposed project route. This however does not preclude the presence of unrecorded sites or cultural features as the area has not been the object of systematic archaeological surveys.

The proponent is proposing the laying of flexible hose(s) or pipe(s) overland from the Niaquanguk (Apex) River to the Lake Geraldine Reservoir for water withdrawal.

SUGGESTIONS AND RECOMMENDATIONS

On the basis that the area proposed for development has not been the object of an archaeological survey, the Department of Culture and Heritage recommends that:

1. A qualified archaeologist applies for a Class 2 permit in order to conduct an archaeological field assessment of the projected waterline route, including a 50 meter buffer zone on both sides of the route.
2. The proponent confines activities within the limits of the assessed route.
3. No activities be conducted in the vicinity (50 m buffer zone) of any archaeological/historical sites. If archaeological sites or features are encountered, activities should immediately be interrupted and moved away from this location. Each site encountered needs to be recorded and reported to the Government of Nunavut Territorial Archaeology Office.

All archaeological and palaeontological sites in Nunavut are protected by law. The applicant must understand that it is their responsibility to ensure that no heritage resource sites are disturbed in the course of their activities. No person shall alter, or otherwise disturb an archaeological site, or remove any artifact from an archaeological site. Moreover, the building of inuksuit is not recommended.

GN-02: Water Withdrawal	
Department	Environment/ Health/ Nunavut Research Institute
Organization	Government of Nunavut
Subject/Topic	Iqaluit's Apex River Drinking Water Supply
References	• Bakaic, M, and Medeiros, A.S. (2016). Vulnerability of northern water supply lakes to changing climate and demand. Arctic Science, 3:1–16 • Bakaic, M. et al. (2018). Hydrologic monitoring tools for freshwater municipal planning in the Arctic: the case of Iqaluit, Nunavut, Canada. Environmental Science and Pollution Research, 25:32913–32925 • City of Iqaluit (2019) - 3AM-IQA1626 NWB Application for Amendment – Supporting Submission • Golder Associates (2013) – Lake Geraldine Water Balance Assessment • Golder Associates (2018) – Supplementary Lake Geraldine Water Balance Modelling • Golder Associates (2018) – Technical Addendum to Supplementary Lake Geraldine Water Balance Modelling • Golder Associates (2018) – Technical Addendum to Supplementary Lake Geraldine Water Balance Modelling – September Update • NIRB Application for Screening #125429 – City of Iqaluit – Apex River Drinking Water Supply

CONCERNS

Section 4.3 of City of Iqaluit (2019) does not contain a proper assessment of residual effects of the proposed water withdrawal from the Niaqunguk River. To fully understand the potential impacts of the City's proposed water withdrawal from this system, an assessment of potential residual effects to water quality, quantity, and the aquatic ecosystem of the Niaqunguk River must be conducted.

Given available research on the water balance in the Niaqunguk River and modeling of drawdown in Lake Geraldine, it is difficult to assess whether the proposal at hand will be able to prevent potentially critical low water levels in the reservoir by end of winter (Bakaic and Medeiros (2016), Bakaic et al. (2018), and Golder Associates (2013 and 2018)).

There is a Water Survey of Canada station gauge downstream of the proposed withdrawal site (National Hydrometric Program Site 10UH002) on the Niaqunguk River (City of Iqaluit (2019); Table 1). Water withdrawal upstream of the Niaqunguk River will affect the flow and water levels measured at this downstream gauge; natural flow data to which a variety of

organizations and/or members of the public may rely on. Although it is stated that a new gauge (Station ID: Hydro 1) will be installed upstream of the pumping location, it is not clear how the data from this new gauge will be used or shared in order to compensate for the loss of natural flow data from the existing downstream gauge (City of Iqaluit (2019); Table 1).

Bakaic et al. (2018) suggest a longer-term unsustainability of Lake Geraldine as the only reservoir of potable water for the City of Iqaluit given future population and economic growth. The City of Iqaluit's alternative water source considerations do not address Lake Geraldine's size as the limiting factor in how much water is available to the city by the end of each winter (City of Iqaluit (2019); Section 3.0). This has the potential to exacerbate existing public concern around the city's water supply management.

The NIRB Application for Screening #125429 record of Community Involvement & Regional Benefits indicates the Iqaluit Amaruq Hunters and Trappers Associate (HTA) was contacted by the City of Iqaluit in November 2018. This record does not document of what was discussed or whether the HTA raised concerns about the Project proposal (NIRB Application for Screening #125429).

SUGGESTIONS AND RECOMMENDATIONS

1. The Government of Nunavut (GN) recommends that a clear assessment of residual effects be included in the proposal to allow for a proper assessment of the potential impacts of the Project. If the City of Iqaluit believes that there will be no residual effects, this position should be justified with applicable references to monitoring data and/or research that clearly supports this position.
2. The GN requests that the City of Iqaluit provide a written overview describing its long term solution to the City of Iqaluit's water shortage. If a single solution has yet to be identified, the GN requests that the City of Iqaluit provide an overview of various options, including the creation of an additional reservoir.
3. The GN recommends that the City of Iqaluit address the results presented by Bakaic and Medeiros (2016) and Bakaic et al. (2018) in their proposal, and explain how the predictions of that research relates to the findings of Golder Associates (2018 and 2013).
4. The GN recommends that the City of Iqaluit coordinate with the Water Survey of Canada to ensure that the data from the new gauge upstream of the withdrawal site is publically available and can be used to compensate for the loss of natural flow data at the existing gauge downstream of the withdrawal site.
5. The GN recommends that the City of Iqaluit provide an explanation as to why approval is being sought until 2026. The NIRB should consider whether this is necessary or if a shorter period is more appropriate so that alternative water sources can be considered.

ADDITIONAL COMMENTS

Although the proposal states that it is not known whether the resident Arctic char population is part of a commercial recreational aboriginal (CRA) fishery, the city should be in a position to confirm this with the HTA and other local organizations prior to receiving approval. Although the Niaqunguk River itself may not be an important CRA fishery area, the fish captured in Stantec's sampling may be part of a resident population in one of the headwater lakes in this watershed,

and it should be verified whether any of these lakes are a CRA fishery area.