
Shanley Thompson

March 07, 2018

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

Re: Notice of Screening for Qulliq Energy Corporation (QEC) project proposal “Iqaluit Power Plant Bulk Fuel Storage Upgrade”,

Dear Ms. Thompson,

I have reviewed the proposal by Qulliq Energy Corporation to upgrade their bulk fuel storage in Iqaluit. The hydrostatic testing of their unit requires 5.71 million litres of water from a nearby source in order for certification and operation of the unit.

Since 2006 I have been monitoring aquatic systems locally in Iqaluit, including the two ponds identified as potential water sources for this activity. My current research program examines both the quantity and quality of freshwater resources in Nunavut, and much of my work over the last decade has been based in Iqaluit. My research group has published several water resource assessments for the territory, and we consider ourselves experts on issues of water quantity for northern freshwater systems.

In reviewing the proposed withdrawal from both ponds (Pond 1: 63.750355, -68.495793; Pond 2: 63.759957, -68.522982), as well as the comments by Indigenous and Northern Affairs Canada, and the Department of Fisheries and Oceans Canada, I offer my expert opinion on this proposal.

The planned withdrawal of 5.71 million litres of water over a 25-day period commencing in late summer / early fall (project proponent indicated August – Oct) by QEC should not have a significant effect on the identified water sources **given the proponent addresses the following criteria:**

1. The extraction of water should not exceed 10% of the total volume of either of these two sources during the period of withdrawal with consideration given to inputs and output during this period.
2. The extraction of water should follow a procedure to minimize suspension of sediment during the withdrawal period.
3. The water extracted should be returned to the original sources prior to the freeze period for these systems.
4. Water should be tested prior to and after use for standard analytical procedures to ensure that the withdrawal and use do not diminish water quality that could influence either ecosystem.

As such, I **recommend the following procedures:**

1. QEC should seek to use both of these ponds as a water source as to not disrupt

ecosystem functioning in either one single entity by exceeding a 10% threshold in either system. The water quality for both is similar such that neither sources should be significantly different prohibiting the return of mixed water to both sources.

2. Freshwater extraction from Pond 1 (63.750355, -68.495793) should not exceed 3600m³ during the 25 day withdrawal period.
3. Freshwater extraction from Pond 2 (63.759957, -68.522982) should not exceed 2100m³ during the 25 day withdrawal period.
4. Water from both of these systems should be returned to both of these ecosystems prior to the freeze period.
5. Efforts to minimize turbidity during collection, as well as upon returning waters to their original sources should be minimized.
6. Water should be tested for conductivity, pH, total suspended solids (TSS), dissolved oxygen, total phosphorus, and total nitrogen prior to withdrawal, as well as subsequently prior to discharge. These data should be made available to the public following this exercise.

The two aquatic systems are typical shallow pond ecosystems with respect to the Iqaluit vicinity. The water quality for both ponds is reflective of the peri-urban influence due to their proximity to housing developments in Iqaluit. Neither system is exceptional in their freshwater habitat or freshwater biota such that a 10% withdrawal from either source will have a significant impact on ecosystem functioning. Due to the close proximity of both systems to housing developments there will be undoubtable public concern over the reduction of surface area in these systems, following the above recommendations should minimize those concerns. Turbidity may be an issue due to the extraction process. Likewise, re-suspension of sediments from the ponds will occur upon return of water, especially in the early fall period. All efforts to reduce turbidity during withdrawal and subsequent discharge should be made. Water should not be allowed to spill over in either system upon return due to the proximity of the likely freeze period in October.

I am happy to address any other concerns over this project proposal or subsequent follow-up during the Nunavut Impact Review Board screening process.

Sincerely,



Andrew S. Medeiros