**NIRB File No.: 13UN006**
NWB File No.: 4AH-IHP----

July 15, 2013

To: Iqaluit Hydroelectric Distribution List

*Sent via email*

**Re: Commencement of the NIRB's Review of Qulliq Energy Corporation's "Iqaluit Hydroelectric" project proposal**

Dear Parties:

On February 25, 2013 the Nunavut Impact Review Board (NIRB or Board) received Qulliq Energy Corporation's (QEC; the Proponent) "Iqaluit Hydroelectric" project proposal (the Project) directly from the QEC. On March 19, 2013 the NIRB received a referral to screen the Project from the Nunavut Water Board (NWB, File No. 4AH-IHP----). The NIRB notes that a conformity determination from the Nunavut Planning Commission was not required for this file as the proposed project is located in an area which does not currently have an approved land use plan in place. The NIRB screened the "Iqaluit Hydroelectric" project in accordance with Part 4 of Article 12 of the Nunavut Land Claims Agreement (NLCA) and on April 29, 2013 issued a Screening Decision Report to the Minister of Aboriginal Affairs and Northern Development (the Minister) recommending a review under Part 5 or 6 of Article 12 of the NLCA.

On July 5, 2013, the NIRB received the enclosed correspondence from the Minister, referring the "Iqaluit Hydroelectric" project to the Board for a review of the ecosystemic and socio-economic impacts pursuant to Part 5 of Article 12 of the NLCA.

The project description and all information pertaining to the NIRB's Review of QEC's "Iqaluit Hydroelectric" project proposal can be accessed from the NIRB's online public registry using the following link:

http://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/13UN006-QEC%20IQALUIT%20HYDRO/2-REVIEW/.

## *DRAFT* SCOPE FOR THE ASSESSMENT

The NIRB's review process is designed to carry out the Board's functions as described in Section 12.2.2 of the NLCA and further, in accordance with Section 12.5.5 of the NLCA. This will involve at a minimum, the following:

- Review the ecosystemic and socio-economic impacts of the proposed Project;
- Gauge and define the extent the impacts will have on the region and communities; and
- Determine from its review, whether the project proposal should proceed, and if so, under what terms and conditions and report its determination to the Minister.

The first step in the NIRB's Review process is to **scope** the project proposal and identify those components and activities of the proposed "Iqaluit Hydroelectric" project that have the potential to interact with the biophysical and socio-economic environment through each project stage, including site preparation, construction, operation, modification/maintenance, decommissioning, abandonment and restoration. This process aims to identify those project interactions which might impact on components of the biophysical and/or socio-economic environment and for which there is public concern. Scoping is a process that identifies significant issues related to the proposed project which require more detailed study and analysis through the NIRB's review of the proposal.

Based on the "Iqaluit Hydroelectric" project description as submitted to the NIRB on February 25, 2013, the NIRB has developed the enclosed *Draft* Scope for the assessment of the Project. The NIRB is now soliciting input from the Proponent and interested parties, including territorial and federal government departments, designated Inuit organizations, members of the public, and other interested parties, to determine:

- Which project components and activities will be included in the Review;
- The temporal (time-related) and spatial (physical) boundaries of the project undergoing Review;
- The issues and concerns to be considered in the Review; and
- Any other requirements for the assessment and Review of the project.

By copy of this letter, the NIRB requests that responsible authorities, agencies with jurisdictional responsibility for aspects of the proposed project and other interested parties review the enclosed *Draft* Scope and provide comments to the Board for consideration on or before **August 6, 2013.**

## PUBLIC SCOPING SESSIONS

The NIRB scoping process requires the development of a public participation and awareness program intended to engage the public during the early stages of the Review process to facilitate meaningful consultation with those communities potentially affected by the "Iqaluit Hydroelectric" project. The NIRB will host community scoping sessions to consult with the public and interested parties regarding Valued Ecosystem Components (VECs) and Valued Socio-Economic Components (VSECs) that should be addressed by the Proponent's *Draft* Environmental Impact Statement (EIS).

The objectives of these public scoping sessions will be to:

- Inform the public of the proposed Iqaluit Hydroelectric project under Review;
- Explain the steps of the NIRB's Review process, including how members of the public can become involved and participate effectively; and
- Work with members of the public to identify Valued Ecosystem Components (VECs) and Valued Socio-Economic Components (VSECs) that should be considered in the NIRB's Review of the Project.

## EIS Guidelines Development

Section 12.5.2 of the NLCA directs the NIRB to issue Guidelines to the Proponent for its preparation of an Environmental Impact Statement (EIS). An EIS is a detailed document prepared by the Proponent in accordance with the EIS Guidelines issued by the NIRB which identifies, predicts, evaluates, and communicates information about the ecosystemic and socio-economic impacts of a project proposal. An EIS also provides for the identification and development of mitigation measures – those provisions or measures which are designed to control, reduce, or eliminate potentially adverse impacts of an activity or the project.

The NIRB will draw on information obtained during the scoping of this Project in the development of its EIS Guidelines, and will also offer opportunity for public comment into their development. At the completion of this iterative process the NIRB will issue the EIS Guidelines to the Proponent for its preparation of an EIS for the Project.

Section 12.5.2 of the NLCA contains a list of information to be included, where appropriate, in an EIS (NIRB's 10 Minimum EIS Requirements) and grants the NIRB authority to add "*any other matters that NIRB considers relevant*." For more information on the preparation of Environmental Impact Statements and a list of requirements that Proponents must comply with, please see the NIRB's *Guide 7 – The Preparation of Environmental Impact Statements* (available at http://ftp.nirb.ca/04-GUIDES/02-OLD%20GUIDES/).

## Overview of Next Steps

The following provides an overview of the next steps in the NIRB's Review of QEC's proposed "Iqaluit Hydroelectric" project:

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| **July 15, 2013** | NIRB distributes the *Draft* Scope for 21 day public comment period |
| **August 6, 2013** | NIRB receives parties' comments regarding the *Draft* Scope and revises the document |
| **August 16, 2013** | NIRB releases a *Revised Draft* Scope and *Draft* EIS Guidelines for 30 day public comment period |
| **September 2013** | NIRB community scoping meetings |

For the information of parties, the NIRB has enclosed a more detailed Review process map and anticipated timeline for the Board's Review of QEC's "Iqaluit Hydroelectric" project. Please note that this timeline is subject to change based on project-specific circumstances, the input received from parties, and the NIRB's discretion.

Again, the NIRB invites interested parties to submit comments on the *Draft* Scope (Appendix A) for QEC's proposed Iqaluit Hydroelectric Project to our office by **3:00 p.m. MT on Monday August 6, 2013**.

Please direct all comment submissions to the NIRB via fax to **(867) 983-2594** or via email at info@nirb.ca.

If you have any questions regarding the NIRB's Review of the Iqaluit Hydroelectric Project, please contact Jaswir Dhillon, Technical Advisor, at jdhillon@nirb.ca or by phone at (867) 983-4609.

Sincerely,

Ryan Barry
Executive Director
Nunavut Impact Review Board

cc: Cal Clark, Qulliq Energy Corporation
Dave Hohnstein, Nunavut Water Board
Bernie MacIsaac, Qikiqtani Inuit Association
Jean Daniel Blouin, Government of Nunavut
Jeff Mercer, Aboriginal Affairs and Northern Development Canada
Tracey McCaie, Aboriginal Affairs and Northern Development Canada
Elizabeth Patreau, Fisheries and Oceans Canada
Rob Johnstone, Natural Resources Canada
John Clarke, Natural Resources Canada
Meighan Andrews, Transport Canada
John Hussey, City of Iqaluit

Attached: Appendix A: *Draft* Scope List for the NIRB's Assessment of the Iqaluit Hydroelectric Project

Enclosure (2): Minister of Aboriginal Affairs and Northern Development Canada's Decision Re: *Qulliq Energy Corporation's Iqaluit Hydroelectric Project* (July 5, 2013)
Process Map for the NIRB's Review of the Iqaluit Hydroelectric Project

## APPENDIX A
### *DRAFT* SCOPE LIST FOR THE NIRB'S ASSESSMENT OF THE IQALUIT HYDROELECTRIC PROJECT

The Nunavut Impact Review Board (NIRB or the Board) has prepared a *draft* Scope List for its Review of Qulliq Energy Corporation's (QEC or the Proponent) proposed "Iqaluit Hydroelectric" project. The scoping process aims to identify the potential impacts of a proposed project as well as the valued components of the physical and social environment. The scope list includes the physical works and activities for all stages of the project, identifies components of the ecosystemic and socio-economic environments, and provides a list of the Valued Ecosystem Components (VECs) and Valued Socio-Economic Components (VSECs) which the Proponent will be required to discuss within its Environmental Impact Statement.

The scope of the NIRB's assessment is based on the requirements of Section 12.5.2 of the Nunavut Land Claims Agreement (NLCA), the NIRB's 10 Minimum Environmental Impact Statement (EIS) Requirements, and the project proposal submitted to the NIRB on February 25, 2013.

### *1) Project Description, including the purpose and need for the Project*

The scope of the project proposal includes all physical works, activities, and/or undertakings, as submitted to the NIRB by QEC for the "Iqaluit Hydroelectric" project on February 25, 2013, and encompasses the life of the project.

#### *a. Project Proposal Summary*

The "Iqaluit Hydroelectric" project (the Project) is a proposed hydroelectric development located approximately 30 to 60 kilometres southwest of the City of Iqaluit within the Qikiqtani region (South Baffin). The Project includes the construction of two hydroelectric facilities at the Jaynes Inlet and Armshow South sites, rated at a maximum of 14.6 Megawatts (MW) and 8.8 MW, respectively.

QEC has proposed a two phased development, beginning with the construction of the Jaynes Inlet hydroelectric facility followed by the development of the Armshow South site.

QEC's proposal indicates that Project construction would take approximately three (3) years at each site, with operational life anticipated at 40 years and through maintenance and appropriate retrofits, the facilities are expected to continue to operate indefinitely. As such, no timeline for closure was provided within the proposal. Major maintenance and inspection for the facilities and ancillary infrastructure associated with the Project have been proposed to occur every 10-15 years. Ancillary infrastructure includes barge landings, airstrips, access roads and transmission lines to connect the facilities with the City of Iqaluit.

The project proposal indicated that up to 90 employees would be required during the construction phase, including staff from the QEC, as well as engineering, procurement and construction management contractors and a general construction contractor. The operations

phase would require one or two full-time caretakers, with operations to likely be managed remotely from QEC headquarters in Iqaluit. Annual maintenance inspections would be conducted by a team of specialists, including dam safety, structural, mechanical and electrical engineers. Major maintenance and refurbishments would involve teams of engineers and technicians and would likely be carried out over a one month period.

### *b. Project Components*

#### *i) Jaynes Inlet*

Construction, operation and decommissioning of a 10 to 14.6 MW storage hydroelectric facility which would consist of:

- 30 metres (m) high reservoir at the outlet of the upper lake;
- Concrete gravity buttress and intake structure;
- 5.7 kilometre (km) long surface penstock;
- Powerhouse with two Pelton turbines (each rated at 5 to 7.5 MW). The powerhouse would have a gate that opens for the discharge of water to the stream during the open water season;
- 3.2 km long tailrace to discharge water from the powerhouse to the lower lake during the winter. The tailrace outfall structure would be fitted with an energy diffuser;
- Permanent operator accommodation facility, workshop and accommodation facilities for maintenance crews; and
- Access road from powerhouse to barge landing.

#### *ii) Armshow South*

Construction, operation and decommissioning of a 6 to 8.8 MW storage hydroelectric facility which would consist of:

- 25 m high dam at the outlet of upper lake;
- 5.96 km long surface penstock;
- Powerhouse with two Pelton turbines (each rated at 3 to 4.4 MW). The powerhouse would have a gate that opens for the discharge of water to the stream during the open water season;
- 0.6 km long tailrace to discharge water from the powerhouse to the lower lake during the winter. The tailrace outfall structure would be fitted with an energy diffuser;
- Permanent operator accommodation facility, workshop and accommodation facilities for maintenance crews; and
- Access road from powerhouse to barge landing.

#### *iii) Ancillary Infrastructure and Additional Details*

- Construction, operation and decommissioning of barge landing sites at both of the Jaynes Inlet and Armshow South locations;
- Shipment of equipment, materials and fuel during construction phase (open water season)

- Development and decommissioning of laydown areas to store equipment and materials at both of the Jaynes Inlet and Armshow South sites;
- Development and decommissioning of access roads to support construction and operation at the Jaynes Inlet and Armshow South sites;
- Equipment proposed to be brought onsite for the construction phase includes helicopters, snowmobiles for personnel transportation, rock coring drills, dozers, loaders, boom and haul trucks and crushers;
- Construction, operation and decommissioning of a temporary 75-person camp at or near the coast of Jaynes Inlet and the Bay of Two Rivers during the construction phase at the Jaynes Inlet and Armshow South sites, respectively. The temporary camp would include:
    - Storage of approximately 550,000 liters (L) of fuel each construction season. Diesel (400,000 L) and gasoline (100,000 L) would be stored in double-walled iso-containers while aviation fuel (41,000 L) would be stored in drums;
    - Disposal of sewage (15 cubic metres per day ($m^3$/day)) using a packaged sewage treatment plant;
    - Disposal of greywater (6 $m^3$/day) and drilling brine (1 $m^3$/day) through a sump which will then be treated in the sewage treatment plant or stored in a container and shipped off-site; and
    - Management of solid waste through incineration in a camp incinerator and/or transportation to Iqaluit for disposal.
- Water utilization at the Jaynes Inlet and Armshow South hydroelectric dams is expected to be 765,000 $m^3$/day;
- Construction, operation and decommissioning of a 69 kV transmission line approximately 84 km long, to run from the powerhouse at Jaynes Inlet to a substation adjacent to the QEC main diesel generating plant in Iqaluit. The transmission line would cross the Armshow River near the powerhouse at Armshow South and would tie in to the line at the proposed Jaynes Inlet site which would connect on to Iqaluit; and
- Possible construction, operation and decommissioning of one airstrip at each of the Jaynes Inlet and Armshow South sites to facilitate access by fixed wing aircraft during the construction and operation phases of the project.

**iv) Abandonment, Decommissioning and Reclamation**

If/when the Project must be decommissioned, QEC has proposed that:
- All aboveground components would be dismantled and removed;
- Intake(s) would be plugged;
- Dam infrastructure would be removed and disturbed areas returned to pre-development state;
- The decommissioning of the powerhouse would involve:
    - Removal of electrical and mechanical equipment;
    - Dismantling of the structure; and
    - Disposal or recycling of the metal and other construction materials.
- All waste materials to be disposed of either on-site in a landfill or in a facility off-site; and

- Some below-ground components such as concrete foundations may be left in place in order to minimize site disturbance if these components do not pose a risk to the environment or land users.

### *2. Anticipated ecosystemic and socio-economic impacts of the Project*

The assessment of the potential for ecosystemic and socio-economic impacts by the proposed project components and activities as outlined in the section above must refer to the factors listed below. The scope of potential impacts caused by the project components, activities, and undertakings to environmental and socio-economic factors shall take into account the appropriate temporal and spatial boundaries and draw upon relevant information from scientific sources and traditional knowledge.

**a.** Air quality;
**b.** Climate and meteorology including climate change;
**c.** Noise and vibration;
**d.** Terrestrial environment, including:
  i) Terrestrial ecology;
  ii) Landforms and soils; and
  iii) Permafrost and ground stability.
**e.** Geological features including discussion of geology and geochemistry;
**f.** Hydrological features (including water quality) and discussion of hydrogeology;
**g.** Groundwater and surface water quality;
**h.** Freshwater aquatic environment, including:
  i) Aquatic ecology
  ii) Freshwater
  iii) Sediment quality
  iv) Aquatic biota including representative fish as defined in the *Fisheries Act*, aquatic macrophytes, benthic invertebrates and other aquatic organisms
  v) Habitat including fish habitat as defined in the *Fisheries Act*
  vi) Commercial, recreational and Aboriginal fisheries as defined in the *Fisheries Act*
**i.** Terrestrial vegetation;
**j.** Terrestrial wildlife and wildlife habitat, including:
  i) Representative terrestrial mammals to include caribou, caribou habitat migration and behaviour, muskoxen, wolverine, grizzly bears, polar bears, wolves and less conspicuous species that may be exposed to contaminants (include species at risk); and
  ii) Wildlife migration routes and crossings.
**k.** Birds and bird habitat, including:
  i) Raptors;
  ii) Migratory birds; and
  iii) Seabirds.
**l.** Marine environment, including:
  i) Marine ecology
  ii) Marine water
  iii) Sediment quality
  iv) Marine biota including fish and benthic flora and fauna

v) Marine habitat
vi) Marine wildlife
vii) Commercial, recreational and Aboriginal fisheries as defined in the *Fisheries Act*

**m.** Socio-economic factors, including:
i) Economic development opportunities;
ii) Employment;
iii) Education and training;
iv) Contracting and business opportunities;
v) Population demographics; and
vi) Benefits and revenues (tax, royalties, etc.).

**n.** Traditional activity & knowledge including:
i) Land use;
ii) Food security;
iii) Language; and
iv) Cultural and commercial harvesting.

**o.** Non-traditional land use and resource use;

**p.** Heritage resources such as:
i) Archaeology;
ii) Palaeontology; and
iii) Cultural sites.

**q.** Health and well-being of the community, including:
i) Individual and community wellness; and
ii) Family and community cohesion.

**r.** Community infrastructure and public services;

**s.** Health and safety including employee and public safety;

**t.** Residual and cumulative effects; and

**u.** Transboundary effects.

### *3. Anticipated Effects of the Environment on the Project*

The scope of the assessment will include the potential anticipated effects of the arctic environment on the project throughout the project's life, including the following factors:

**a.** Climate and meteorology including climate change;

**b.** Permafrost;

**c.** Geotechnical hazards including slope movement, differential or thaw settlement, frost heave, and ice scour;

**d.** Subsidence;

**e.** Flooding; and

**f.** Unfavourable geological conditions.

### *4. Steps which the proponent proposes to take including any contingency plans, to avoid and mitigate adverse impacts*

The scope of the assessment will include any contingency plans or risk management plans to avoid and mitigate adverse impacts caused by the proposed project components and activities. These plans must extend, where relevant, through all project phases. These plans

shall take into account the appropriate temporal and spatial boundaries and are expected to draw upon relevant information from scientific sources, best practices and traditional knowledge and are to include, but not be limited to:

- **a.** Emergency and spill response;
- **b.** Hazardous materials management;
- **c.** Accidents and malfunctions;
- **d.** Regulatory requirements; and
- **e.** Mitigation measures.

***5. Steps which the Proponent proposes to take to optimize benefits of the Project, with specific consideration being given to expressed community and regional preferences as to benefits***

The scope of the assessment will include steps which the Proponent proposes to take to optimize benefits of the project, and should include, but not be limited to:

- **a.** Compensation and benefits;
- **b.** Health benefits;
- **c.** Human health and well-being;
- **d.** Employment;
- **e.** Education and training;
- **f.** Land use;
- **g.** Contracting and business opportunities; and
- **h.** Any non-confidential details from an Inuit Impact and Benefit Agreement.

***6) Steps which the Proponent proposes to take to compensate interests adversely affected by the Project***

The scope of the assessment will include the steps which the Proponent proposes to take to compensate interests of parties adversely affected by the Project including all non-confidential process and content details pertaining to any Inuit Impact and Benefit Agreement pursued in connection with the Project.

***7) The monitoring programs proposed by the Proponent to identify and manage ecosystemic and socio-economic interests potentially affected by the Project***

The scope of the assessment will include any programs that will be established to monitor the potential ecosystemic and socio-economic impacts caused by the proposed project components and activities.

***8) The interests in lands, waters and other resources which the Proponent has secured or seeks to secure***

The scope of the Project will include any interests in lands, waters and other resources which the Proponent has secured or seeks to secure based on the proposed works and activities or undertakings that constitute the Iqaluit Hydroelectric project proposal.

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|---|---|
| Nunavut Impact Review Board | Project Certificate |
| Nunavut Water Board | Type 'A' Water Licence |
| Qikiqtani Inuit Association | Right-of ways, Quarry Permits |
| City of Iqaluit | Right-of-Way approval |
| Government of Nunavut – Department of Culture and Heritage | Archaeology Permit(s) and Palaeontology Permit(s) |
| Nunavut Research Institute | Socio-economic & Traditional Knowledge Research Licence, Scientific Research Licence |
| Aboriginal Affairs and Northern Development Canada | Class 'A' Land Use Permit, right-of-ways, Land Lease and Quarry Permits |
| Environment Canada | Compliance to the *Canadian Environmental Protection Act 1999*, the *Migratory Birds Convention Act*, the *Species at Risk Act* and the pollution prevention provisions in the *Fisheries Act* |
| Fisheries and Oceans Canada | Section 35 authorization under the *Fisheries Act* |
| Natural Resources Canada | Licence pursuant to the *Explosives Act* |
| Transport Canada | Approval under the *Navigable Waters Protection Act* and the *Navigable Waters Protection Program* |
| Workers Safety & Compensation Commission | Permit to Store Detonators, Explosives Use Permit |

### *9) Options for implementing the Project*

The scope of the assessment is to include project alternatives including alternatives to individual components/activities, alternate timing and development options, as well as presenting the "no go" option as it pertains to the overall Project.

### *10) Any other relevant matters*

The scope of the assessment will include any other matters that the NIRB considers relevant, including:

- **a.** Impacts of infrastructure previously undeveloped and untested in the Arctic;
- **b.** Traditional knowledge;
- **c.** Statement of consultation principles and practices;
- **d.** Significant effects analysis;
- **e.** Sustainability analysis;
- **f.** Interactions with Valued Ecosystem Components and Valued Socio-Economic Components;
- **g.** Discussion of similar developments in the North; and
- **h.** Long-term lifespan of development.