

Iqaluit Hydro-electric Project
Engineering and Environmental Studies – 2013

Qulliq Energy Corporation (QEC) is initiating a feasibility study and the environmental review process for its Iqaluit Hydro-electric Project.

The Project consists of two potential hydro-electric sites: Armshow River South, and Jaynes Inlet. The location of these sites in relation to Iqaluit is shown on Figure 1.

QEC plans to conduct engineering investigations and supplemental baseline studies at the two sites and along the proposed transmission line corridor to Iqaluit in 2013. It is likely that these programs could extend into 2014.

The environmental baseline studies are expected to consist of the following:

- Soils and vegetation surveys
- Terrestrial wildlife surveys
- Hydrology surveys
- Water and sediment quality studies
- Fish/fish habitat surveys

In addition, QEC may carry out site visits with various government and community representatives.

Engineering studies are also required, including geotechnical drilling, testpitting and surface geological and terrain mapping. A drill rig will be mobilized to the area by helicopter. An estimated 15 to 20 drillholes will be advanced at the Armshow River site, and another 15 to 20 drillholes will be advanced at the Jaynes Inlet site. Drill moves will be by helicopter.

Initial drilling will be carried out in April 2013 during ice cover at the outlet of the lakes where embankments (dams) are contemplated, as well as in the lower lake at the Jaynes Inlet site where a buried outfall may be constructed into that lake. During this April program, estimated to be approximately 30 days in duration, emergency shelters will be established at each of the Armshow and Jaynes Inlet sites, but field staff will return to Iqaluit at the end of each day.

A longer field program, approximately 3.5 months in duration (mid-June to late September), is required at each of the sites. To support both the summer environmental and engineering studies, QEC plans to establish a full-service tent camp at the Armshow River site, and two emergency shelter tent camp at the Jaynes Inlet site. A disproportionate amount of environmental baseline studies are required at the Armshow site as the Jaynes Inlet baseline program is more advanced. The Armshow camp will be located on Crown Land near the mouth of the river, and one of each of the two emergency shelters at Jaynes Inlet will be situated on Inuit-Owned Land (IOL). Drilling and helicopter use will require caches of fuel to be established at each camp. Fuel drums will be slung from Iqaluit to the camps by helicopter, and fuel caches established. QEC will give consideration to bulk delivery of drums during the early open water season by barge or boat. Bulk storage of drums will be within lined containment. The camp at Armshow River is expected to be equipped with running water. Greywater will be discharged to a suitable location for overland disposal, and a pit latrine or incinerating toilets will be used. A

small camp incinerator will dispose of combustible materials including food wastes, to minimize potential to attract wildlife. It will be necessary to provide full-time bear monitor supervision at the camp and drill sites.

To support execution of these programs, the following permits and licences will be required:

- Inuit Land Use Licence – to locate a camp, store drums of fuel, and carry out geotechnical drilling and environmental studies
- Federal Land Use Permit – to carry out geotechnical drilling and environmental studies, and store fuel
- Commissioner's Land
- Type B Water Licence – to support water requirements and waste disposal activities for drilling and camp operation

In addition, several research-related permits and licences will be required, as follows:

- Scientific Licence from the Nunavut Research Institute – to carry out non-biological research on the projects
- Licence to Fish for Scientific Purposes – from the Department of Fisheries and Oceans Canada – to conduct fish and fish habitat related studies including the capture of fish and invertebrates
- Wildlife Research Permit – from the Department of Environment, Government of Nunavut – to carry out wildlife surveys on the Project
- Archaeological Permit – from the Department of Culture, Government of Nunavut – to carry out archaeological surveys of the study areas