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NWB File: 2BE-IHE----

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Via email: licensing@nunavutwaterboard.org

Attention: Ms. Beaulieu

RE: 121217: 2BE-IHE---Renewal Distribution Review

Environment Canada (EC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned new water license application. The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act 1999*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act.*

Qulliq Energy Corporation (QEC, the proponent) is applying for a new Type B water license in support of a feasibility study and the environmental review process for its Iqaluit Hydro-electric Project. The Project consists of two potential hydro-electric sties: Armshow River South and Jaynes Inlet. QEC is planning on completing engineering investigations and supplemental environmental baseline studies at the two sites and along the proposed transmission line corridor to Iqaluit in 2013 and potentially in 2014. Proposed activities include water use and waste disposal activities for geotechnical drilling and camp operation.

Based on a review of the license application and supporting materials, EC provides the following comments for the NWB's consideration:

General

- Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. The definition of deleterious substance (Subsection 34(1) of the *Fisheries Act*) includes "*any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.*" Subsection 36(3) makes no allowance for a mixing or dilution zone at the point of deposit.
- All sumps, spill basins and fuel caches should be located in such a manner as to ensure that their contents do not enter any water body and are to be backfilled and re-contoured to their pre-disturbance condition when they are no longer required.
- All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require

awareness on the part of the proponent's representatives (including contractors) conducting operations in the field. EC recommends that all field operations staff be made aware of the proponent's commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.

Waste Disposal

- The burning of waste products releases numerous contaminants to the air, many of them persistent, bio-accumulative and toxic (e.g. polycyclic aromatic hydrocarbons (PAH's) heavy metals, chlorinated organics – dioxins and furans). These contaminants can result in harmful impacts to human and wildlife health through direct inhalation and they can also be deposited to land and water, where they bio-accumulate through food chains affecting wildlife and country foods. Therefore, burning should only be considered after all other alternatives for waste disposal have been explored and the devices used for incineration meet the emission limits established under the CCME Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions, available at:
  http://www.ccme.ca/ourwork/environment.html?category_id=108
  For reference, below is a link to the Nunavut Environmental Guideline for the Burning and Incineration of Solid Waste:
  http://env.gov.nu.ca/sites/default/files/guideline_-_burning_and_incineration_of_solid_waste_2012.pdf
- The proponent states that sewage waste may be incinerated. Raw sewage has a high moisture content and low heat content that will increase operating costs dramatically and can lead to poor incinerator performance. Raw sewage should only be burned in incineration equipment designed for this type of waste. If the proponent decides to pursue sewage sludge incineration, it should provide the Board with the design specifications of the incinerator and a letter from the manufacturer stating that this equipment is suitable for burning this type of waste.
- The proponent states that non-combustible and hazardous waste will be shipped off-site for disposal. EC suggests that confirmation and authorization be obtained from the intended community landfill (i.e. Iqaluit) prior to shipment.

Spill Contingency Plan

- Refuelling shall not take place below the high water mark of any water body and shall be done in such a manner as to prevent any hydrocarbons from entering any water body frequented by fish. Secondary containment or a surface liner (drip pans, etc.) should be used when refuelling any equipment on site and should also be used at all fuel drum locations. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario). EC recommends the use of secondary containment, such as self-supporting insta-berms, for storage of all barreled fuel rather than relying on natural depressions to contain spills.
- A spill kit, including shovels, barrels, absorbents, etc., should be readily available at all locations where fuel is being stored or transferred and accompany boats, ATVs and snowmobiles in order to provide immediate response in the event of a spill and should accommodate 110% of the capacity of the largest fuel storage container.
- Please note that according to the Aboriginal Affairs and Northern Development Canada's (AANDC) "Guidelines for Spill Contingency Planning" (April 2007), available at http://www.aadnc-aandc.gc.ca/eng/1100100024236/1100100024253, all releases of harmful substances, **regardless of quantity** are to be reported to the NWT / NU 24-hour Spill Line, (867) 920-8130, if the release is near or into a water body, is near or into a designated sensitive environment or sensitive wildlife habitat, poses imminent threat to human health or safety, poses imminent threat to a listed species at risk or its critical habitat, or is uncontrollable.

Wildlife and Species at Risk

- Subsection 6(a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. If active nests are encountered during project activities, the nesting area should be avoided until nesting is complete (i.e., the young have left the

vicinity of the nest). The proponent should consult the fact sheet "Planning Ahead to Reduce Risks to Migratory Bird Nests" available at: http://www.ec.gc.ca/paom-itmb/

- EC recommends that food, domestic wastes, and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) be made inaccessible to wildlife at all times. Such items can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.
- Section 5.1 of the *Migratory Birds Convention Act* prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- In order to reduce aircraft disturbance to migratory birds, EC recommends the following, safety permitting:
  - Fly at times when few birds are present (e.g., early spring, late fall, winter).
  - If flights cannot be scheduled when few birds are present, plan flight paths that minimize flights over habitat likely to have birds and maintain a minimum flight altitude of 650 m (2100 feet).
  - Minimize flights during periods when birds are particularly sensitive to disturbance such as migration, nesting, and moulting.
  - Plan flight paths to avoid known concentrations of birds (e.g., bird colonies, moulting areas) by a lateral distance of at least 1.5 km. If avoidance is not possible, maintain a minimum flight altitude of 1100 m (3500 feet) over areas where birds are known to concentrate.
  - Avoid the seaward side of seabird colonies and areas used by flocks of migrating waterfowl by 3 km.
  - Avoid excessive hovering or circling over areas likely to have birds.
  - Inform pilots of these recommendations and areas known to have birds.
- Subsection 79(2) of the *Species at Risk Act* (SARA), states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This subsection applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, EC suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner. The Table below lists species that may be encountered in the project area that have been assessed by COSEWIC as well as their current listing on Schedules 1-3 of SARA (and designation if different from that of COSEWIC). Project impacts could include species disturbance, attraction to operations and destruction of habitat.

Terrestrial Species at Risk potentially within project area [1]	**COSEWIC Designation**	**Schedule of SARA**	**Government Organization with Primary Management Responsibility** [2]
Peregrine Falcon	Special Concern (*anatum-tundrius* complex[3])	Schedule 1	Government of Nunavut
Polar Bear	Special Concern	Pending	Government of Nunavut
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	EC
Red Knot (*rufa* subspecies)	Endangered	Schedule 1	EC
Wolverine (Western population)	Special Concern	Pending	Government of Nunavut

[1] The Department of Fisheries and Oceans has responsibility for aquatic species.

[2] EC has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the *Migratory Birds Convention Act* (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Thus, for species within their responsibility, the

Territorial Government is best suited to provide detailed advice and information on potential adverse effects, mitigation measures, and monitoring.

[3] The *anatum* and *tundrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern, and was added to Schedule 1 of SARA in July 2012.

- For any Species at Risk that could be encountered or affected by the project, the proponent should note any potential adverse effects of the project to the species, its habitat, and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the Species at Risk registry at http://www.sararegistry.gc.ca for information on specific species.
- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.
- For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
- Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans.

- Harlequin Ducks spend most of the year in coastal marine environments, but they move inland each spring to breed along fast-flowing turbulent streams. Their nests are usually built on the ground along the stream banks. Harlequin Ducks are tolerant of moderate levels of disturbance, but they will abandon a site when the disturbance becomes chronic. Disturbance events can include boating and chronic human presence. If a Harlequin Duck nest or a hen with ducklings is encountered, the proponent should avoid activities in the area until nesting is complete and the brood has moved beyond the range of disturbance.
- EC notes that the Red Knot (*rufa* subspcies) (a shorebird) was designated as Endangered by COSEWIC in April 2007. The Red Knot (*rufa* subspecies) breeding range overlaps with the location of the proposed project area. Although the major threats to Red Knot relate to habitat degradation in the wintering areas and decreases in food resources during spring migration, the proponent should ensure that extra precautions are taken to avoid any disturbance to the Red Knot or its habitat during the breeding season. Red Knots nest on barren habitats (often less than 5% vegetation) such as windswept ridges, slopes or plateaus. Nest sites are usually in dry, south-facing locations, and may be located near wetlands or lake edges, where the young are led after hatching. Nests are simple scrapes on the ground in small patches of vegetation. Nesting will occur in June with hatching in early July. If an active Red Knot nest is encountered during project activities, or observations of Red Knot in the area suggest that a nest could be nearby, the proponent should avoid all activities in the area until nesting is complete (i.e., likely only resume activities in the area until after mid-July).
- The Canadian Wildlife Service of EC is interested in observations of birds, especially observations of birds identified as Species at Risk (e.g., Harlequin Duck and Red Knot) or of species occurring outside their known ranges. Proponents are encouraged to submit their observations to eBird Canada (http://ebird.org/content/canada). Observations submitted to eBird are immediately available to anyone interested in birds in the north. Observations can also be sent to the NWT/NU Bird Checklist program:

  NWT/NU Bird Checklist Survey
  Canadian Wildlife Service, Environment Canada
  5019 - 52 Street, 4th Floor
  P.O. Box 2310

Yellowknife NT, X1A 2P7
Phone: 867.669.4771
Email: NWTChecklist@ec.gc.ca

Please contact the Canadian Wildlife Service for blank checklist forms.

- Implementation of these measures may help to reduce or eliminate some effects of the project on migratory birds and Species at Risk, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act, Migratory Birds Regulations,* and the *Species at Risk Act*. The proponent must ensure they remain in compliance during all phases and in all undertakings related to the project.

If there are any changes to the project EC should be notified, as further review may be necessary. Please do not hesitate to contact the undersigned with any questions or comments at (867) 975-4631 or Paula.C.Smith@ec.gc.ca.

Regards,

Paula C. Smith
A/Senior Environmental Assessment Coordinator

cc: Carey Ogilvie, Head, EA-North, EA and Marine Programs Division, EC
James Hodson, Environmental Assessment Coordinator, CWS