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RE: NWB 2BE-HIG0506 High Lake Project – Type "B" water license renewal

On behalf of Environment Canada (EC), I have reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities for the enforcement of the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

Wolfden Resources Inc is applying for a type "B" water license for water use and waste disposal associated with exploratory drilling and camp operations for the High Lake Project. The High Lake project is located in the Kitikmeot region of Nunavut, approximately 550 km north-northeast of Yellowknife, NWT. The closest population center is Kugluktuk, located 175 km west-northwest of the property. The property is approximately 45 km south of the Coronation Gulf, and is bordered on its eastern edge by the Kennarctic River.

The campsite is located on the southwest shore of High Lake It consists of 16 canvas tents, and 6 temporary plywood clad structures and is designed to accommodate 35 people. No further expansion of the camp is planned for this season. Exploration activities include:

- Transport to site and storage of fuel for operations.
- Transport of drill core to camp for logging, sampling, and storage.
- Land based drilling totaling approximately 20,000 m
- Geophysical surveys

Environment Canada recommends that the following conditions be applied throughout all stages of the project:

General

- The proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes or sediment into any water body. According to the *Fisheries Act*, Section 36(3), the deposition 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, is prohibited.
- Any sumps created for the disposal of camp sewage, grey water and drill cuttings shall be located above the high water mark of any water body and in such a manner as to prevent the contents from entering any water body frequented by fish. The proponent should not relay on low-lying natural depressions for the disposal of waste in order to prevent run-off into nearby water bodies.

- Sumps should be checked daily to ensure there is no erosion or leaching into the surrounding environment. Further, all sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape.

Waste management

- Installation of an incineration device capable of meeting the emission limits established under the *Canada-wide Standards (CWS) for Dioxins and Furans* and the *CWS for Mercury Emissions* is required (both the Government of Canada and the Government of Nunavut are signatories to these Standards and are required to implement them according to their respective jurisdictional responsibility). Further, EC recommends that only clean wood (i.e. wood that has not been treated or painted with a chemical coating) should be burned.
- EC recommends the use of appropriate waste incineration technology be combined with a comprehensive waste management strategy (especially waste segregation) that is designed to reduce and control the volumes of wastes produced, transported, and disposed of**.**

  The Waste Management Plan Waste should consider and include:
  - Purchasing policies that focus on reduced packaging,
  - On-site diversion and segregation programs (i.e. the separation of non-food waste items suitable for storage and subsequent transport and disposal or recycling).
  - If incineration is required, ensure diligent operation and maintenance of the incineration device and ensure appropriate training is provided to the personnel operating and maintaining the incinerator.

The objective should be to ensure that only food waste and food-contaminated waste is burned (the use of paper, cardboard and clean wood as supplementary fuel is acceptable).

Drilling

- EC recommends that only non-toxic, biodegradable drill additives be used. If hydrocarbon based drill additives are being used, EC strongly recommends the use of a filtration system aimed towards reduction of harmful substances to the environment. Drill additives such as rod grease, linseed soap and 550 x polymers shall be cleaned up around drill site and properly managed. The proponent should not relay on low-lying natural depressions for the disposal of drill cuttings and drill water. Drilling wastes from land based drilling should be disposed of in a properly constructed sump such that the contents do not enter any water body.
- Land based drilling should not occur within 30 m of the high water mark of any water body.
- Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* has listed CaCl as a toxic substance. The proponent shall therefore ensure that if CaCl is used as a drill additive, all sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body.
- Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or demonstrated to be non-toxic.
- For “on-ice” drilling, return water released must be non-toxic, and not result in an increase in total suspended solids in the immediate receiving waters above the Canadian Council of Ministers for the Environment Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100mg/L).
- If an artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed.

Fuel Storage/Spill Contingency Plan

- All fuel caches shall be located above the high water mark of any water body. Further, EC recommends the use of secondary containment or a surface liner (drip pans, fold-a-tanks, etc) be placed under all container or vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel or hazardous substance transfers. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario).
- Appropriate spill response equipment and clean-up materials (absorbents, containment devices, etc) must be on hand during any transfer of fuel or hazardous substances and at vehicle-maintenance areas. In addition, a spill kit should be located at each fuel cache and at each drill site.
- Transfer operations should be attended by trained personnel at all times.
- Decanting of snow or water from the berm area should proceed only if the appropriate chemical analysis has determined the contents meet the requirements of Section 36.3 of the *Fisheries Act*.
- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
- Wolfden Resources *2006 Spill Contingency Plan* should be up-dated to include EC's Environmental Enforcement Officer, Jimmy Noble as the contact person in the event of a spill. Mr. Noble can be reached at 867-975-4664 or by pager at 867-975-1925.
- All releases of harmful substances, regardless of quantity, are immediately reportable where the release:
    - is near or into a water body;
    - is near or into a designated sensitive environment or sensitive wildlife habitat;
    - poses an imminent threat to human health or safety; or
    - poses an imminent threat to a listed species at risk or its critical habitat.

The Canadian Wildlife Service (CWS) of Environment Canada has reviewed the above-mentioned submission and makes the following comments and recommendations pursuant to the *Migratory Birds Convention Act* (the *Act*) and *Migratory Birds Regulations* (the *Regulations)*, and the *Species at Risk Act* (SARA).

- Section 6 (a) of the Migratory Birds Regulations states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, EC recommends that all activities in which there is a risk of disturbing or destroying nests or eggs be conducted outside the migratory bird breeding season, which extends from approximately May 15 to July 31. These dates are approximate, and if active nests (i.e. nests containing eggs or young) are encountered outside of these dates the proponent should avoid the area until nesting is complete (i.e. the young have left the vicinity of the nest).

- For activities permitted to occur during the breeding season, EC recommends that the proponent confirm there are no active nests (i.e. nests containing eggs or young) in the vicinity of their operations before activities commence. If active nests of migratory birds are discovered, the proponent should halt all activities in the nesting area until nesting is completed (i.e. the young have left the vicinity of the nest).

- In order to reduce disturbance to nesting birds, EC recommends that aircraft used in conducting project activities maintain a flight altitude of at least 610 m during horizontal (point to point) flight unless safety or cloud ceiling do not permit.

- In order to reduce disturbance to resting, feeding, or moulting birds, EC recommends that aircraft used in conducting project activities maintain a vertical distance of 1000 m and minimum horizontal distance of 1500 m from any observed concentrations (flocks / groups) of birds**.**

- EC recommends that camp waste be made inaccessible to wildlife at all times. Camp waste can attract predators of migratory birds (e.g., foxes and ravens) to an area if not disposed of properly.

- Section 35 of the Migratory Birds Regulations states that no person shall deposit or permit to be deposited, oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds.

- 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 proponents' representatives (including contractors) conducting operations in the field. Environment Canada recommends that all field operations staff be made aware of the proponents' commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.

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

The following comments are pursuant to the Species at Risk Act (SARA), which came into full effect on June 1, 2004. Section 79 (2) of 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 section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, Environment Canada 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.

Species at Risk that may be encountered	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility [1]
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Peregrine Falcon (subspecies tundrius)	Special Concern	Schedule 3	Government of Nunavut
Grizzly Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western Population)	Special Concern	Pending	Government of Nunavut

[1] Environment Canada 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.

Impacts could be disturbance and attraction to operations.

Environment Canada recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. Refer to species status reports and other information on the Species at Risk registry at 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.
- The proponent should record the locations and frequency of any observations of Species at Risk and note any actions taken to avoid contact or disturbance to the species.

- For species under the responsibility of 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.

If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at cindy.parker@ec.gc.ca.

Yours truly,

Original signed by

Cindy Parker
Environmental Assessment Specialist

cc: (Carey Ogilvie, Manager Environment Canada, EPOD, Yellowknife, NWT)