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*via email*

**RE: 8BC-HIG-Wolfden Resources Inc – High Lake Project Type “B” Water License- Relicensing Program**

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 Resource Inc is applying for a new water license for water use and waste disposal associated with camp use, construction activities and watercourse crossing for the High Lake Relicensing Program. The Relicensing Program includes construction of a new 70-person Weatherhaven tent camp, a 1450m gravel airstrip at Sand Lake, a 30-person temporary camp located at Sand Lake, a 12-km single-lane gravel road between the camp and airstrip, including three watercourse crossings which will be accessible year-round. The construction and operation of four rock and gravel quarries will provide granular material for roadbed and airstrip material and construction aggregate. The Relicensing Program was screened and reviewed by the NIRB and approved subject to 78 terms and conditions on August 11, 2006.

The High Lake property is located in the Kitikmeot region of Nunavut, approximately 550km north-northwest of Yellowknife, NWT. The proposed Weatherhaven camp is located approximately 1 km of the existing 50-person exploration camp at High Lake and approximately 100m from the nearest water body. The camp will be built on a prepared site, occupying an area of about 0.5 ha. Aggregate material for the camp foundation will be sourced from a proposed quarry nearby. Fresh water will be sourced from a small lake located west of the proposed camp.

The construction of the airstrip, camps and access road will be carried out during the spring/summer of 2007. These facilities will be completed and ready for use by late summer 2007, and will remain in use until they are no longer required at the High Lake site. The infrastructure improvements would continue to be used during the future mining phase of High Lake.

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 and grey water 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. Further, all sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape.

### Fuel Storage

In the *Remote Camp Questionnaire* the proponent indicates diesel fuel will be stored in one double-walled 50,000L tank however section 4.1.5 *Fuel Storage* of the Project Description states that Diesel fuel will be stored in a single-walled 55,000L fuel tank. As per NIRB Term & Condition # 19 all fuel shall be stored in accordance with Wolfden's July 18 and 24, 2006 correspondence to NIRB Manager of Environmental Screening, Kevin Buck. Specifically the fuel storage at Sand Lake shall not exceed 500,000 liters and the fuel supply and storage at the Weatherhaven Camp shall not exceed 50,000 liters. All fuel shall be stored in double – wall tanks and/ or in accordance with Regulations made under the Canadian Environmental Protection Act.

- All fuel caches shall be located above the high water mark of any water body. Further, EC recommends the use of secondary containment, such as self-supporting insta-berms, when storing barreled fuel on location rather than relying on natural depressions.
- Environment Canada is proposing to repeal the existing "Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands and Aboriginal Lands Regulations" and replace it with a regulation that has a broader scope of application. The new regulation under the *Canadian Environmental Protection Act* (CEPA) 1999, Part 9 will incorporate mandatory technical requirements (secondary containment, leak detection, corrosion protection, overfill, spill containment) and be more in line with those regulations that already exist in most provincial and territorial jurisdictions. Compliance with the proposed regulations will be mandatory, and EC will conduct inspections to ensure compliance with the regulations. The proponent is encouraged to consult and implement the recommendations found in the 2003 CCME Guidance Document PN 1326 entitled "Environmental Code of Practice for Above Ground and Underground Storage Tank Systems containing Petroleum Product and Allied Petroleum Products". This document provides up to date information regarding best practices for the storage of petroleum products and allied petroleum products
- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
- Drip pans, or other similar **preventative** measures, should be used when refueling equipment on site and included in the proponents Spill Contingency Plan.
- **All spills** shall be documented and reported to the 24 hour Spill Line.

### Waste treatment and disposal

EC has noted inconsistencies in the proponents waste management plan. Wolfden Resources Inc. water application 8BC-HIG and *Remote Camp Questionnaire* indicate that scrap metal, non-combustible waste and waste oil will be transported off-site for proper disposal and recycling. However, section 4.1.4 *Disposal of Solid Wastes* of the High Lake Re-licensing Program Project Description, Wolfden proposes

the use of a small landfill for scrap metal and non-combustible waste and incineration of combustible waste including engine waste oil. EC reminds the proponent of the NIRB Term and Conditions listed under *waste disposal*.

- The Proponent shall keep all non-combustible garbage and debris in a covered metal container until disposed of at an approved facility off site.
- The Proponent shall deposit all scrap metal, discarded machinery and parts, barrels and kegs, at an approved disposal facility off site.
- Used absorbent materials, oily or greasy rags, and equipment servicing wastes (such as **used engine oil**, antifreeze, hydraulic oil, lead acid batteries, brake fluid and other lubricants) should be safely stored in containers that have been specifically designed for the storage of hydrocarbons and safely transported to a facility that is authorized for the treatment and disposal of industrial wastes. The fuel must be stored in a manner that minimizes the risk of spills and further ensures that the container can be periodically inspected for leaks or potential leaks.

It is mentioned that treated domestic and grey water effluent from the camp at Weatherhaven will be discharged to Lake L20, which is a non-fish bearing water body. EC recommends that monitoring of Lake L20, for BOD5, TSS, FC, oil and grease and pH be done during the Relicensing Program of the High Lake Project. EC request clarification regarding whether L20 will be used as the discharge location during the winter when the lake is ice-covered or if effluent will be directed to a holding tank. Oxygen is limited under ice condition elevating potential impacts.

Environment Canada recognizes that timely disposal of camp waste - specifically food waste - is of critical importance to minimize safety risks associated with wildlife attraction. Timely disposal is usually achieved through burning. However, burning of waste products releases numerous contaminants to the air, many of them persistent, bioaccumulative and toxic (e.g. polycyclic aromatic hydrocarbons - PAH's - heavy metals, chlorinated organics – dioxins and furans). These contaminants can result in serious impacts to human and wildlife health through direct inhalation and they can also be deposited to land and water, where they bioaccumulate through food chains affecting wildlife and country foods.

- As per NIRB Term & Condition # 55 the Proponent shall use a CCME compliant incinerator for the disposal of combustible camp wastes. Non-combustible wastes shall be removed from site and disposed of properly at an approved facility off site.
- EC further 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).

## Quarry/Construction

- The proponent shall not deposit, nor permit the deposit of sediment into any water body. It is recommended that an undisturbed buffer zone of at least 100 metres be maintained between the proposed quarry operations and the normal high water mark of any water body.
- The proponent shall ensure that measures to prevent sedimentation of the downstream environment are employed during both the excavation and installation of the fill material used to construct all river and stream crossings.
- The proponent shall ensure that any fill material utilized is clean and free of fines.
- Should water be encountered during excavation, preventative measures should be implemented at the discharge point to minimize erosion and sedimentation. Any water encountered should be discharged above the high water mark of any surrounding water bodies.
- The construction of quarry pits indicates that sediment from run-off will be subject to proper drainage control to *minimize* drainage to fish bearing waters. The Proponent again is reminded of Section 36(3) under the *Fisheries Act*, and is asked to please clarify how grading will prevent the introduction of deleterious substances into the marine environment.
- The Proponent is asked to clarify how run-off from the airstrip will be dealt with and controlled.

## Winter Road

- Proponent should not travel until the ground is sufficiently frozen to provide support and avoid surface damage and rutting.
- Stream crossings shall be located to minimize approach grades. Bank disturbance is to be avoided, and mechanized clearing should not be done immediately adjacent to any watercourse.
- Winter lake/stream crossings shall be constructed entirely of ice and snow materials; stream crossings shall be removed or notched prior to spring break-up.
- Drip pans, or other similar preventative measures, should be used when refueling equipment on site.
- Wolfden Resources Ltd. should ensure that spill kits are located along all transportation routes, and the location of these kits should be indicated on a map. Vehicles used in transporting fuel and chemicals should also be equipped with portable spill kits to allow for the efficient and expeditious response to spills.
- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use provide information regarding spills in transit.

In the Proponent's summary Table 1, it is indicated that the *disturbance of land and marine habitat in event of accidental spill/mishap* requires no mitigation as the *shallow nearshore waters contain only small, mobile fauna (amphipods) because of the presence of landfast ice in winter*. This statement is not showing due diligence on the part of the Proponent, and the Proponent is reminded of Section 36 (3) in the *Fisheries Act*. The Proponent is requested to please indicate how such a spill/mishap will be prevented and mitigated.

## Abandonment and Restoration

It is recommended that the abandonment and restoration plan for the proposed project include:

- Details regarding the removal and disposal of any culverts and bridges at the end of the project.
- Loosening compact soil and flattening side slopes of road will be contoured to match the surrounding landscapes.
- Indicate all sumps will be backfilled upon completion of their project and contoured to match the surrounding landscape.

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, Environment Canada recommends that all activities 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).
- As per NIRB Term & Condition #42, if activities are permitted to occur during the breeding season, Environment Canada 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 area until nesting is completed (i.e. the young have left the vicinity of the nest).
- As per NIRB Term and Condition #44, in order to reduce disturbance to nesting birds, CWS recommends that aircraft used in conducting project activities maintain a flight altitude of at least 1000 m during horizontal (point to point) flight.
- As per NIRB Term and Condition #44, in order to reduce disturbance to resting, feeding, or moulting birds, CWS recommends that aircraft used in conducting project activities maintain a vertical distance of 1500 m and minimum horizontal distance of 1500 m. 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.
- CWS 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. Incineration of camp waste is a recommended option.
- 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, EC asks that species listed on other Schedules of SARA and under consideration for listing also be included in this type of assessment.

Species at Risk that may be encountered	Category of Concern	Schedule of SARA	Government Organization with Expertise on Species
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

Impacts could be disturbance and attraction to operations.

Environment Canada recommends:

- The proponent should identify potential Species at Risk that could be encountered. Refer to the Species at Risk registry at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) for information on specific species.
- If Species at Risk are encountered, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species.
- The proponent should consult with the Government of the Nunavut and appropriate status reports, recovery strategies, action plans, and management plans to identify other appropriate mitigation measures to minimize effects to these species from the project.
- 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.

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) 975-4639 or by email at [cindy.parker@ec.gc.ca](mailto:cindy.parker@ec.gc.ca).

Yours truly,

***Original signed by***

Cindy Parker  
Environmental Assessment Technician

cc: (Colette Spagnuolo, Environmental Assessment & Contaminated Sites Specialist, Environment Canada, Iqaluit)