Environment Canada Environnement Canada

Environmental Protection Branch
Qimugjuk Building 969, P.O. Box 1870
Iqaluit, NU X0A 0H0
Tel: (867) 975-4631
Fax: (867) 975-4645

Our file: 4703 001 032

9 August 2005

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Tel: (867) 360-6338
Fax: (867) 360-6369

*Via Email*

**RE: NWB2HIG0305 – Wolfden Resources Inc. – High Lake Project – Renewal – Type 'B'**

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. has requested that its High Lake Project water licence be renewed by the Nunavut Water Board for the time period of 31 April 2005 to 1 November 2006. The licence is being sought by the proponent to permit the use of fresh water and the disposal of wastes associated with exploration and remote camp operations. Wolfden Resources Inc. obtained the property in 2000 and began its project in 2001. The proponent intends to continue its search for economically viable lead, zinc, and gold deposits by conducting prospecting, geological mapping, geophysical surveys, and diamond drilling in the High Lake area.

The coordinates of the proponent's camp are 67° 22' 42"N, 110° 50' 22"W, located on the southeast shore of High Lake. The camp has been designed to accommodate 35 people but it is anticipated that as many as 38 or as few as 20 people will reside at the camp at any given time. The nearest community is Kugluktuk, located 175 km west north-west of the property area. Wolfden Resources Inc. will operate three diamond drills, with a forecasted fresh water consumption rate of 180,000 litres per day. It is anticipated that 100 litres of fresh water will be consumed by each individual at the High Lake camp on a daily basis.

The proponent's Exploration/Remote Camp Supplementary Information Request states that drilling water will be conserved in a closed circulation system and all cuttings and sludge will be bagged and transported to natural sumps located greater than 50 metres from water sources. Gray water produced from diamond drilling will pass through settling sumps and filter through the ground prior to returning to local water sources. It is estimated that 10% of the fresh water employed in the diamond drilling will be lost at the bit face for cooling purposes.

A key component of Wolfden's 2005 High Lake Project activities is to carryout a geotechnical program which will investigate the foundation of potential dam sites at High Lake (proposed tailings containment facility) and Granite Lake (proposed fresh water supply). Therefore, the proponent is requesting permission to drill in proximity to these water bodies and their associated water courses. Approximately 30 holes will be drilled, each having an expected depth of no more than 20 metres. They will be sealed with a cement-bentonite grout mix upon completion.

Typically, Environment Canada discourages the practice of diamond drilling within 30 metres of the high mark of any water body in order to prevent destabilization of shorelines and the subsequent potential for sedimentation of their littoral zones. However, EC recognizes that this diamond drilling activity is not intended to locate mineral deposits. Further, there are planned mitigation measures to ensure that drill water will not directly enter nearby water sources. None the less, it is recommended that the proponent erect temporary silt curtains and silt fences when carrying out its geotechnical diamond drilling program to prevent sedimentation of water sources. The movement of heavy project equipment onto designated drill sites as well as the drilling of holes may result in surface erosion of ground material nearby productive littoral areas.

Camp gray water will be drained into a series of settling tanks before being pumped into a natural depression. Camp sewage and solid wastes will be incinerated. Collected waste oil and hazardous wastes will be sealed in 45 gallon drums prior to their appropriate disposal in Yellowknife.

Fuels will be stored in three separate caches, all of which are located greater than 30 metres from nearby water sources. The fuel types and volumes which will be employed are as follows:

| | |
|---|---|
| DIESEL | 1,500 x 205 L drums |
| JET-B | 750 x 205 L drums |
| PROPANE | 20 x 100 LB cylinders at any given time |
| GASOLINE | unspecified – will be minimal |

In addition to fuels, the proponent plans to store approximately 1,000 litres of lubricants and drill additives in 20 litre pails within a shed. Wolfden Resources Inc.'s Spill Contingency Plan provides a chain of command for employees to follow in the event of a fuel spill, the procedures to adhere to when responding to such an occurrence, and an inventory of items placed within their spill kits. This document states that there will be six emergency spill kits at the High Lake Project, one for each diamond drill (3), two at the fuel cache area, and one nearby the camp's generator.

Environment Canada reminds the proponent that if temporary fuel caches are established while conducting mineral exploration activities, they must be located above the high water mark of any water body. Further, it is recommended that secondary containment measures, such as self-supporting insta-berms, be used when storing barrelled fuel on location rather than relying on natural depressions.

The period of seasonal occupation stated in the Exploration/Remote Camp Supplementary Information Requests is from 1 March to 1 November 2005. Environment Canada reminds Wolfden Resources Inc. that all permits and approvals are required prior to the commencement of any work.

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, drill cuttings, 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.

DRILLING

- EC would like to inform the proponent that the *Canadian Environmental Protection Act* lists CaCl as a toxic substance. The proponent shall therefore ensure that if CaCl is used as a drill additive, all sumps including those constructed for drilling within 30 metres of the high water mark, 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 muds 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., 10 mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100 mg/L).
- Drilling wastes from the land based drilling shall be disposed of in a sump such that the contents do not enter any water body.
- If an artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed.

CAMPS

- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
- Environment Canada recommends the use of an approved incinerator for the disposal of combustible camp wastes.
- Any sumps, including those created for the disposal of 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. Further, all sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape.

FUEL STORAGE/SPILL CONTINGENCY/HAZARDOUS MATERIALS

- Drip pans, or other similar preventative measures, shall be used when refuelling equipment on site.

MIGRATORY BIRDS

- EC recommends that all activities be conducted outside the migratory bird breeding season, which extends from approximately 1 June to 15 July. 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 nest). Paragraph 6(a) of the *Migratory Birds Regulations* states that no one shall disturb of destroy the nests or eggs of migratory birds.

If there are any changes in the assignment of the water licence, EC should be notified, as further review may be necessary. Please do not hesitate to contact me if you have any questions or comments with regards to the foregoing at (867) 975-4631 or by email via david.abernethy@ec.gc.ca.

Best,

David W. Abernethy

Environmental Assessment Technician