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

3 February 2006

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
Email: licensing@nwb.nunavut.ca

Via Email

Re: NWB2KIK0405 – De Beers Canada Exploration Inc. – Kikerk/Knife Lake Project – Licence Renewal –Type B

On behalf of Environment Canada (EC), I have reviewed 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*.

De Beers Canada Exploration Inc. (De Beers Canada) is applying for a Type B licence renewal for water use and waste disposal associated with exploratory drilling and trenching activities in their Kikerk/Knife Lake Project. The proponent has prospected and explored the Kikerk Lake area with the goal of locating diamond bearing kimberlite deposits since 1993. This area is within latitudes of 66˚30'N and 67˚30'N and longitudes of 113˚04'W and 113˚20'W. A temporary camp capable of accommodating 20 people will be established near the Tree River, having a coordinate of 67˚00'20"N, 113˚09'01"W. The communities closest to this location are Kugluktuk, 140 km to the northwest and Bathurst Inlet, 200 km to the east.

The 2006 exploration program will comprise of diamond drilling (land and ice-based) and trenching operations. Trenching will be conducted in three separate areas to the north and east of the Knife Lake kimberlite body, resulting in the extraction of a 300 tonne sample. The 2007 exploration program may be expanded to include bulk sampling activities through the use of a large diameter drilling rig.

The proponent has requested a daily freshwater consumption limit of 60 m^3 to support its exploration program. The camp will use 10 m^3 of freshwater from Tree River and diamond drilling operations will use 50 m^3 of freshwater from Knife Lake. Sewage will either be incinerated or deposited into pit privies that will be treated with lime. Camp gray water will be discharged into a covered sump. All sumps and pit privies will be back-filled when no longer in use. Combustible wastes will be incinerated and non-combustible wastes will be packaged and flown off-site for proper disposal or recycling (e.g., steel drums). Hazardous waste products will be placed in labeled containers and transported to an approved treatment facility.

The project's spill contingency plan provides a chain of command for spill response coordination, response procedures on various environmental media (i.e., land, water, snow, and ice), a contact list, and an inventory of spill response equipment. A spill kit will be made available at the camp,

each drill site, the fuel cache, and at the heavy equipment shelter that will be established near the trenching worksites. De Beers Canada will document and report all spills to the 24-hour Spill Report Line at (867) 920-8130.

The proponent anticipates that the following hazardous materials and corresponding volumes will be required in its 2006 exploration program:

DIESEL – 200 x 205 L drums
JET B – 100 x 205 L drums
GASOLINE – 6 x 205 L drums
PROPANE – 25 x 45 kg tanks
ACETYLENE – 4 x 45 kg tanks
VARIOUS LUBRICANTS AND HOUSE-HOLD CLEANING PRODUCTS – 500 L

Environment Canada strongly recommends that all drill water be discharged into sumps positioned above the high water mark of any water body or natural drainage course. These sumps shall be designed such that their contents will not enter any water body frequented by fish.

Environment Canada recommends that all drill cuttings and sludge be properly disposed of upon completion of drilling activities. This waste material should be bagged and removed from the project area to an approved waste treatment facility or buried in sumps.

Environment Canada recommends that De Beers Canada provide additional information regarding its planned trenching operations. In particular, Environment Canada requests that the distance of trenches from nearby water bodies and natural drainage areas as well as their dimensions be submitted for review. It is suggested that the trenched areas be contoured to match the surrounding landscape upon completion of the field season.

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

- Environment Canada 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 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 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).

- Land based drilling should not occur within 30 m of the high water mark of any water body. Drilling wastes from land based drilling should 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

- All fuel caches shall be located above the high water mark of any water body. Furthermore, 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.

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, CWS 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).

- If activities are permitted to occur during the breeding season, CWS 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 until nesting is completed (i.e., the young have left the vicinity of the nest).

- In order to reduce disturbance to nesting birds, CWS recommends that aircraft used in conducting project activities maintain a flight altitude of at least 610 m during horizontal (point to point) flight.

- 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 1,000 m and minimum horizontal distance of 1,500 m from any observed concentrations (flocks / groups) of birds.

- The Canadian Wildlife Service 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.

- 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, 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	**Category of Concern**	**Schedule of SARA**
Barren-ground Caribou (Dolphin and Union Population)	Special Concern	Pending
Grizzly Bear	Special Concern	Pending
Wolverine (Western Population)	Special Concern	Pending
Peregrine Falcon (subspecies tundrius)	Special Concern	Schedule 3
Short-eared Owl	Special Concern	Schedule 3

Impacts to these species could be disturbance and attraction to operations.

Environment Canada recommends:

- The primary mitigation measure for each species 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 proponents should develop monitoring plans for each species in accordance with any applicable status reports, recovery strategies, action plans, and management plans and in consultation with Government of Nunavut and Environment Canada.

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 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.

Sincerely,

David W. Abernethy
Environmental Assessment Technician

cc. Colette Spagnuolo – Environmental Assessment / Contaminated Sites Specialist, Environment Canada, Iqaluit
Myra Robertson – Environmental Assessment Coordinator – Canadian Wildlife Service, Yellowknife