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**RE: 2BE-MIP – Stornoway Diamond Corp. – MIP Project – New Licence Application**

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*.

Project Description

Stornoway Diamond Corp. is applying for a Type B water licence for water use and waste disposal associated with exploratory drilling and camp operations for its MIP Project. The proponent has requested a two year licence and anticipates having 5 week exploration seasons on an annual basis. The proponent's project activities are designed to locate economic mineral concentrations in the central Baffin region in an area that is approximately 200 km northwest of Iqaluit. A temporary camp capable of accommodating 10 people will be established west of Amadjuak Lake with the possible coordinates of 65˚10'W, 72˚14'N or 65˚07'W, 72˚07'N. This camp will be serviced by Twin Otter aircraft for the movement of personnel, supplies, and equipment. A helicopter will be stationed at the camp throughout the project's exploration seasons to transport field and drilling crews to their work/sampling areas and provide a means of emergency support.

The proponent has requested permission to consume a 15,400 L of fresh water on a daily basis from sources within its project area. Of this amount, approximately 400 L will be used for domestic purposes and the remainder will be used to operate a drill rig. Gray water and sewage will be directed to sumps and pits which will be backfilled or made inaccessible to wildlife upon completion of each exploration season. Drill cuttings from ice and land-based drilling will be placed within sumps positioned at least 50 m from nearby water sources. These sumps will be backfilled before the end of each exploration season. Drill water will be re-circulated and pumped subjected to a filtration system prior to disposal.

Combustible wastes will be incinerated in a modified burn barrel and the remaining ashes will be raked to separate non-combustible items before being buried in the project area. Non-combustible wastes, waste-oil, and scrap metal will be delivered to an approved disposal facility.

Fuel products will be stored in cache positioned at a safe distance from camp accommodations and at least 100 m for nearby water sources. Liquid fuels will be contained within 205 L steel drums. The proponent anticipates having 2,050 L of JET B fuel (10 drums), 1,845 L of diesel (9 drums), two (2) 45 kg tanks of propane, and several cases of engine oil made available to support its exploration activities.

The MIP Project has a site-specific Spill Contingency Plan and an Abandonment and Restoration (A&R) Plan.

Environment Canada Comments

Environment Canada requests that the proponents revise its A&R Plan's seasonal closure procedures for drilling sites so that they are consistent with the information submitted in the water licence' supplementary questionnaire. The A&R Plan states that "All drill sumps (if used) will be back-filled, burying the cuttings and sludge if appropriate" whereas the questionnaire states that "Drill cuttings will be pumped to sumps and backfilled upon completion. Any on-ice cuttings will be scraped clean and removed to an on-land sump." Environment Canada recommends that all drill wastes, i.e., drill cuttings and sludge, either be buried within a sump or removed from the project area for proper disposal. The proponent shall ensure that drilling wastes are properly contained and cannot enter any water body frequented by fish.

Environment Canada recommends that waste water produced from drilling activities be directed to a sump or natural depression that is contoured in a manner which prevents its contents from entering any water body.

Environment Canada strongly recommends that the proponent accept the standard practice of delivering soils contaminated by petroleum products to an approved disposal facility. Environment Canada considers that this is the most appropriate means of preventing additional contamination of soils and water sources. The proponent's Spill Contingency Plan states that contaminated soils will be excavated by hand, incinerated to remove hydrocarbons, and returned to their natural site. Should the proponent decide to incinerate any contaminated soils on site, it must ensure that an approved incinerator capable of incinerating hydrocarbons is used and that EC's Iqaluit Enforcement Officer is contacted before initiating any incineration activity.

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* 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 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 of 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).
- 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.
- EC recommends the use of an approved incinerator for the disposal of combustible wastes.
- EC recommends that plastic materials which will not attract wildlife to the project's camp be treated as non-combustible waste. The burning of plastic material results in harmful air pollution and should be avoided whenever possible.
- 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. 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.
- The proponent shall ensure that any hazardous materials, including waste oil, receive proper treatment and disposal at an approved facility.
- EC recommends that its Environmental Enforcement Officer, Jimmie Noble, be included in the project's Spill Contingency Plan contact list. Noble can be reached by office cell phone (867) 975-1925 and secure fax-line (867) 975-4594 in addition his office telephone (867) 975-4644.

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).

- Also, please note that 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.

- 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 1000 m and minimum horizontal distance of 1500 m from any observed concentrations (flocks / groups) of 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 | Category of Concern | Schedule of SARA |
|---|---|---|
| Wolverine (Western Population) | Special Concern | Pending |
| Peregrine Falcon (subspecies tundris) | 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 of Environment Canada, Yellowknife