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Department of Environment

Ministère de l'Environnement

May 1, 07

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board

via Email to: licensing@nunavutwaterboard.org

RE: NWB2BE-BAR – INDICATOR MINERALS INC. – BARROW PROJECT

Dear Ms. Beaulieu:

The Government of Nunavut, Department of Environment (DOE) has reviewed the water license application from the Indicator Minerals Inc. for the Barrow project for conducting diamond exploration approximately 10 km south of Kugaaruk. The DOE believes the project will not result in significant adverse effects although the potential for negative environmental impacts exists. Based on the *Environmental Protection Act* and the *Wildlife Act*, the DOE has the following comments to make regarding wildlife, spill contingency, and abandonment & restoration.

1. WIDLIFE

The project is located in an area where bears, musk-oxen, caribou, furbearers and raptors may be encountered. DOE therefore asks the proponent records all wildlife observations in a 'wildlife log', and maps the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests. The timing of critical life history events (i.e., calving, mating, denning and nesting) should also be identified. Additionally, the proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites; the log and maps will be a useful tool to achieve this. Below are wildlife specific recommendations that DOE advises the proponent to implement.

Caribou

1. During the period of May 15 to July 15 when caribou is observed calving in the area, the proponent should suspend all operations, particularly blasting, low-altitude overflights by aircraft, and the use of snowmobiles and ATV's (all-terrain vehicles) outside the immediate vicinity of the camp. All personnel

should remain quietly in camp or should be removed from the site who are not required for the maintenance and protection of the camp facilities and equipment. The proponent may resume activities prior to July 15 if the caribou cows have ceased to use the area for calving or post-calving.

2. During migration of caribou, the proponent shall not locate and operate so as to block or cause substantial diversion to migrating caribou. The proponent shall cease activities that may interfere with migration, such as airborne geophysics surveys or movement of equipment, until the migrating caribou have passed.

3. The proponent shall not construct any camp, cache any fuel or conduct blasting within 10 km, or conduct any diamond drilling operation within 5 km, of important caribou crossings.

4. Low-level overflights should be avoided, and should maintain an altitude of at least 610 m above ground level when one encounters concentrations of caribou.

Furbearers

Foxes, wolves and wolverine may occur in the project area, and may be observed at camps and drill sites where they have access to human food. This is a potential concern as potential human-wolf, wolverine, and fox encounters can result in injury or death to either the animal or the human(s). All possible efforts to avoid human-wildlife encounters must be made. The proponent must plan to

- avoid human-wildlife conflict
- have a deterrent strategy
- have a human safety strategy
- have a waste management strategy

- All camp members should be fully aware and trained in the human-wildlife encounter avoidance plans and be aware that feeding of wildlife is prohibited.
- The proponent must discourage food conditioning of all wildlife species negative reinforcement is encouraged.
- Also, if a defense kill does occur, the proponent must record the location of the carcass. If required, specimens such as the skull must be submitted to the Conservation Officer as soon as possible.

Raptor Nesting Areas

Raptor nests occur throughout Nunavut, and most of the prospecting areas likely contain at least a few nest sites. Take care not to disturb nesting raptors from 15 April to 1 September by staying at least 1.5 km away from them when in transit by aircraft, and to avoid approaching them closely while on foot.

The following is a list of general precautions that must be considered when conducting prospecting activities near Peregrine Falcon, Gyrfalcon, and other raptor nests (most of these precautions will also apply to all nesting bird species):

1) Disturbance is most harmful early in the nesting period (May and June for Peregrine Falcon and Gyrfalcon, similar for Rough-legged Hawk):
Raptors will attempt to maximize their chances of successfully raising young. If they decide early in the breeding period that their nest is at risk, they may abandon it. If nests are disturbed at this stage of nesting, there may not be sufficient time to renest. All disturbances to nests during the early part of the nesting cycle must be avoided (avoid nest sites from late May through to mid-July).

2) Individuals show variability in their response to disturbance:
Different birds will show different responses to varying levels of disturbance. This may result from the general health of the bird, weather conditions, previous life experiences, and adaptability. Therefore, treat all nest sites with equal precaution, regardless of the response of the bird. Do not disturb raptor nests during conditions of poor weather (rain, snow, high winds).

3) Approaching the nest site near the time of fledgling (where chicks fly away from the nest) often leads to premature nest departure:
During the last few weeks of nesting, severe disturbance at the nest often causes young raptors to jump out of the nest. This can cause death from exposure, predation, starvation, or trauma from the fall itself. All activity within 100m of a nest site during the latter part of the nest stage (10-20 August for peregrine falcons in this region) must be avoided.

Further details on raptor nests and disturbance mitigation can be obtained from the Wildlife Officer in communities closest to the area of interest, or from regional biologists.

Human-Bear Conflicts

The operation is in an area where bears may be encountered. Proper food handling and garbage disposal procedures should be followed to reduce the likelihood that bears will be attracted to the operation. Careful planning and attention to details of camp design and maintenance will decrease the attraction of bears to a camp. The use of an electric fence around the camp site is advised and the proponent should also consider the use of the on site helicopter as a means of deterring bears.

The applicant should follow procedures outlined in the "Safety in Bear Country Manual", and should contact the Regional Biologist or the Wildlife Manager indicated below for information and advice on measures which should be taken to minimize the possibility of bear-people conflicts. The proponent is advised to

insure that all staff on site receives the appropriate training in minimizing human-bear conflicts. Any bear sighting or interaction should be reported as soon as possible to the nearest Conservation Officer or the Regional Wildlife Biologist.

Aircraft Disturbance

Aircraft activities have been shown to affect wildlife such as caribou, muskoxen and birds in behaviour, development and reproductive success as well as subject the wildlife to adverse weather conditions and accidental damage or injury. However, by raising flight altitudes, studies have shown that it will alleviate some of the negative effects. Therefore, we recommend that the following protection measures are taken to reduce aircraft disturbance on wildlife.

Unless there is a specific requirement for low level flights, aircraft activities should maintain a minimum altitude of 610 meters above ground level in places where there are occurrences of wildlife. In areas where there are observed large concentrations of birds, flight level is restricted to 1,000 meters vertical distance and 1,500 meters horizontal distance from the birds. These guidelines are provided as a general standard, and exceptions may arise on a case-by-case basis. As a good practice, it is recommended to avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.

Recording Wildlife Observations and Critical Habitat

The DOE recommends the proponent documents any wildlife observations (i.e., bears, caribou, muskoxen, foxes, wolves and raptors) in the general vicinity of their operation so workers are aware of the kinds of wildlife present on site, and are prepared to modify activities accordingly to avoid wildlife. It is contrary to the *Wildlife Act* to harass wildlife in any manner.

The DOE requests the proponent reports these observations annually to a Regional Wildlife Biologist and the nearest Conservation Officer at the end of the operational season to assist the government with collection of wildlife data. Documentation should include location (i.e., latitude and longitude), species, number of animals, a description of the animal activity, and a description of the gender and age of animals if possible. It is useful to record the presence and number of animals and youngs observed. For example, observations of wolves and their youngs in the summer can mean they are denning in the proximity.

DOE Contacts (Wildlife Division)

Manager, Wildlife
- Dustin Fredlund, (867) 982-7441, talwildlife3@qiniq.com

Conservation Officer, Kitikmeot Region
- Allen Niptanatiak (867) 982-7451, kugwildlife2@qiniq.com

Regional Biologist
- Mathieu Dumond, (867) 982-7444, mdumond@gov.nu.ca

2. SPILL CONTINGENCY:

Based on the DOE *Spill Contingency Planning and Reporting Regulations, Contingency Planning and Spill Reporting in Nunavut: a Guide to the New Regulations*, and *Guideline for the General Management of Hazardous Waste in Nunavut*, we have the following comments and recommendations to make:

- Page 8 of the *Spill Contingency Plan* stated that the proponent would "contact the 24-Hour Spill Line, Receive instructions from the appropriate contact agencies listed in Section 5.4 regarding collection of the contaminated soil or vegetation, its removal and site cleanup-restoration." Regulators such as the DOE do not provide disposal instructions for spilled and/or contaminated materials. It is the proponent's responsibility to develop a complete plan which addresses the steps to be taken from the start of the spill, up to and including the final clean up and disposal. The regulators can review the final plan to assess its adequacy and provide advice at that time. Regulatory bodies can, and have, provided information and advice in emergency situations, however, these agencies should not be included in a spill plan as routine advisors.

- A description of the type and amount of fuels and chemicals such as drill additives stored on site should be provided in the spill plan. To prevent spreading in the event of a spill, fuel and chemicals should be located, whenever practical, in a natural depression a minimum distance of 90 feet from all streams, preferably in an area of low permeability.

- A site map should be provided to illustrate the facilities relationship to other areas that may be affected by the spill. The map should be to scale and be large enough to include the location of your facility, nearby buildings or facilities, roads, culverts, drainage patters, and any nearby bodies of water.

- An inventory of response and clean up equipment available to implement the spill plan should be provided. This includes your equipment as well as any to be used by another person responding to the spill on your behalf.

- The DOE monitors the movement of hazardous wastes from generators, carriers to receivers, through a tracking document (Waste Manifest). A Waste Manifest must accompany all movements, and all parties must register at DOE with Robert Eno at reno@gov.nu.ca or (867) 975-7748.

- The NWT-Nunavut spill report form has been updated, and can be obtained from the Spill Line. The proponent is advised to enter spill information electronically in the form so the information is legible to regulators inspecting spills.

3. ABANDONMENT & RESTORATION

Based on the DOE's *Guideline for Contaminated Site Remediation,* we recommend the following:

- It is important that drill additives used be non-toxic and biodegradable, and that sumps be used for disposal of only inert drilling cuttings, not any other substances. Drill cuttings contains hydrocarbon based drill additives such as rod grease and linseed soap as indicated in the license application, should be transported to a facility that is approved for the treatment and disposal of industrial wastes.

- Soil contaminated by fuel (e.g., soils under an old storage tank) should be treated on site or removed to an approved disposal site, and replaced with new soil. Soils in the vicinity of fuel and/or chemical storage should be tested and disposed off if necessary.

- Final inspections of the entire site should be conducted by the proponent and lead agency to make sure that all areas of the site have been reclaimed as much as possible to its previous condition. Soil samples and pictures before and after the project would make this process easy on the proponent and leading agencies involved in determining areas of concern.

The DOE thanks the NWB for giving us the opportunity to review and provide comments on the Barrow project water license application. Please contact us if you have any further questions or comments.

Yours sincerely,

Original signed by

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