Oct. 6, 2007

Sylvia Novoligak
Environmental Administrator
Nunavut Impact Review Board

via Email to: snovoligak@nirb.nunavut.ca

RE: NIRB FILE # 07EN067 – GOLDEN BULL RESOURCES LTD. – SLAVE LAKE MINERAL EXPLORATION PROJECT PROPOSAL

Dear Ms. Novoligak:

The Government of Nunavut, Department of Environment (DOE) has reviewed the project proposal from the Golden Bull Resources Ltd. for all non-diamond mineral exploration, approximately 210 km southeast of Kugluktuk. The DOE believes the project will not result in significant adverse effect on the environment 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, air quality, spill contingency, and abandonment & restoration.

A. WILDLIFE

The project is located in an area where caribou, musk-oxen, grizzly bears, wolves, and raptors may be encountered. The 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 the DOE advises the proponent to implement.

1. Caribou

- During the period of May 15 to July 15 when caribou are 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-

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terrain vehicles) outside the immediate vicinity of the camp. Furthermore, following July 15 if caribou are observed calving or post-calving in the area, all activities should also be suspended.

- 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.

- 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.

- Low-level overflights of less 610 m above ground should be avoided when one encounters concentrations of caribou.

2. 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. Additionally, the proponent should contact the Regional Biologist in Kugluktuk to identify areas which should be avoided.

3. Carnivore-People Conflict

The project is located in an area where carnivores such as grizzly bears and wolves may be encountered. Proper food handling and garbage disposal procedures should be followed to reduce the likelihood that carnivores will be attracted to the project site. 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-wildlife conflicts. Any bear sighting/interaction or defense kills should be reported as soon as possible to the nearest Conservation Officer or the Regional Wildlife Biologist.

4. 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, the DOE recommends 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.

5. Recording Wildlife Observations and Critical Habitat

The DOE requests the proponent reports wildlife observations near the project area annually to a Regional Wildlife Biologist and the nearest Conservation Officer at the end of the operational season. This will inform workers the kinds of wildlife present on site, prepare them for wildlife encounter, and allow them to modify activities accordingly to avoid wildlife. Additionally, this will assist the government with collection of wildlife data. The reports 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 as well as any young observed. For example, observations of wolves and their young during the summer will be an indicator of denning in the proximity.

6. 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

B. AIR QUALITY

The Government of Nunavut is a signatory to the *Canada-Wide Standards for Dioxins and Furans*, and the *Canada-Wide Standards for Mercury Emissions*. The DOE therefore has the following comments to make.

For camps of 10 to 50 people, the proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, forced-air incinerator is recommended. Burning of wastes in a burn barrel as indicated in the project proposal as one of the options on page 3 of the NWB Water License Application is unacceptable. The proponent shall make determined efforts to achieve compliance with the CWS. Efforts should include the implementation of a comprehensive waste management strategy (especially waste segregation) that is designed to reduce and control the volumes of wastes produced, transported, and disposed of.

Waste wood treated with preservatives such as creosote, pentachlorophenol or heavy metal solutions should not be burned. Additionally, plastics, electrical wire, asbestos and building demolition wastes (except clean wood) are wastes likely to produce dioxins and furans when burned and should be excluded from incineration. Finally, if waste oil is to be incinerated as indicated on page 3 of the NWB Water License Application, the proponent should ensure emission meets the CWS standards.

C. SPILL CONTINGENCY PLAN

Based on the DOE's *Spill Contingency Planning and Reporting Regulations, and Spill Reporting in Nunavut: a Guide to the New Regulations*, the DOE has the following comments to make:

- Names and quantity (in volumes or weights) of both fuel and chemicals such as drill additives to be used on site should be provided in the spill plan.

- To prevent spreading in the event of a spill, fuel stored in drums 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.

- All fuel storage containers should be situated in a manner that allows easy access and removal of containers in the event of leaks or spills. Large fuel caches in excess of 20 drums should be inspected daily.

- Page 8 of the *Fuel 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.

- Site maps should be included in the spill plan once camp layout is decided as the maps are intended to illustrate the facilities relationship to other areas that may be affected by the spill. The maps 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.

- 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 the DOE with Robert Eno at reno@gov.nu.ca or at (867)975-7748. This procedure is not stated in the spill plan.

D. ABANDONMENT & RESTORATION

To ensure proper reclamation of the project site, the DOE recommends the following:

- Page 8 of the *Abandonment and Decommissioning Plan* stated that "any contaminated soil will be bagged and removed for proper disposal in a landfill, or aerated on tarps." If the proponent intends to dispose of the contaminated soil in a landfill, the landfill has to be approved to accept the soil. However, if the proponent intends to treat the soil on site, the soil has to be treated to an approved standard before disposal; one is recommended to refer to the DOE's *Environmental Guideline for Site Remediation* for guidance.

- Drill sumps should only be used for inert drilling fluids, not any other materials or substances. If hydrocarbon based drill additives such as rod grease are used, the use of a filtration system aimed towards reduction of harmful substances to the environment, is recommended.

- It is unclear if uranium will be one of the target mineral for this exploration project. If this is the case, the DOE recommends the following be carried out:

    - Drill cuttings with a uranium concentration greater than 0.05% should be disposed of down the drill holes and sealed.

    - Drill holes that encounter uranium mineralization with a content greater than 1.0 % over a length of more than 1 meter with a meter-percent concentration greater than 5.0 should be sealed by cementing over the entire mineralization zone and beyond (this should be at least 10 meters above or below each mineralization zone).

- Core storage areas should be located at least 100 meters from the high waterline of all water bodies.

- Gamma radiation levels of a long-term core storage area should not be greater than 1.0 µSv, and should never exceed 2.5 µSv.

The DOE thanks the NIRB for the opportunity to provide comments on the Slave Lake mineral exploration project proposal. Please contact us if you have further questions.

Yours sincerely,

Original signed by

Helen Yeh
Environmental Assessment Coordinator
Department of Environment
Government of Nunavut