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Department of Environment

Ministère de l'Environnement

July 25, 2008

Richard Dwyer
Manager of Licensing
Nunavut Water Board

via Email to: licensingadmin@nunavutwaterboard.org

RE: NWB File No. 2BE-NAD0608 – Commander Resources Ltd. – Nadluarjuk Lake Project

Dear Mr. Dwyer:

The Government of Nunavut, Department of Environment (DOE) has reviewed the Nadluarjuk Lake water license renewal application from Commander Resources Ltd. for conducting gold exploration southwest of Clyde River. Based on the *Environmental Protection Act* and the *Wildlife Act*, DOE has the following comments to make regarding wildlife, spill contingency planning, and abandonment and restoration.

A. Wildlife

1. Caribou

This proposed project is largely within the Dewar Calving Area for caribou calving as well as post-calving and fall and spring migration corridors. Note that the Dewar Calving Area is delineated by DOE *Critical Wildlife Areas Regulations*. Initial studies by Elliott and Elliott (1974) indicated that between six and nine thousand caribou occupied these main calving areas in south Baffin. In fact, the proponent indicates that caribou herds, have been seen from their camp. Caribou in these northern regions appear to occur in small herds, and this is indeed what was reported by the proponent. Studies reported caribou may only occur in small herds and even in the most dense areas at 1 caribou per square mile (Elliott and Elliott, 1974). The proponent has done no impact or environmental studies yet caribou were still observed.

Recent research has strengthened our understanding of how caribou responses to human activities on calving and post-calving areas can accumulate and affect caribou. Caribou requires a relatively uninterrupted feeding/fattening cycle - when this cycle is significantly interrupted, calf production may decrease, calf mortality may increase and female and male condition may drop affecting future breeding cycles. DOE cautions that disturbances between the calving and post-calving periods (May - August) will likely have a negative impact. Air or ground disturbances disrupt caribou behaviour. Road construction and use also is a conservation risk because it increases access to and disturbance of sensitive calving and post-calving areas. Caribou herds are currently cycling down throughout Nunavut. During declines and times of low number, caribou are especially vulnerable to disturbance caused by exploration and development activities.

Based on the considerations above, DOE recommends that if the operation is approved, the following conditions apply:

Between May and August

- Prior to significant operational movements (e.g. before moving drill rigs), the proponent should undertake high altitude (>300 m) aerial reconnaissance with the assistance of an

independent wildlife monitor, to determine whether caribou cows and calves are present within a 20km radius of the camp or drill sites, or if caribou are migrating close by. If caribou are observed the monitor will instruct the proponent to suspend any activities within 10 km of the sightings.

- At the end of each month, the proponent will submit a daily logbook of caribou reconnaissance to DOE, also detailing when and how, these measures have been implemented. The time when caribou are present in the project area can be corroborated with GN caribou satellite collar data.
- The proponent must not construct a camp, cache fuel, conduct blasting or drilling operations, operate ground, air or water based mobile equipment within 10km of a 'designated and/or recognized caribou crossing'.
- During these months DOE Conservation Officers will be inspecting this site and others within, or close to caribou calving and post-calving grounds.

At all other times

- When caribou cows with calves are present, the proponent shall suspend all blasting, over-flights of aircraft with an altitude of less than 610 metres above ground level and operation of ATV's and snowmobiles and any other ground based or water based mobile equipment.
- During caribou migration, the proponent shall cease activities likely to block, divert or interfere with migration such as airborne geophysics surveys or movement of equipment or personnel until the caribou have passed.

Initial findings to date have raised concerns about negative impacts of roads on caribou, and DOE is working to compile more data to support these initial findings. Please be advised there may be stringent recommendations in future years regarding establishment of permanent roads within or/and near caribou crossings, areas of caribou calving and post-calving, and caribou migrating corridors.

Literature Cited:

Elliott, R.C. and C.E. Elliott, 1974. Observations of the Distribution and Migration of Caribou on Southern Baffin Island, July 4 - August 1974. Game Management Service, Government of the NWT.

Elliott, R.C. and C.E. Elliott, 1974. Baffin Island Caribou Surveys, Progress Report 10 June - 17 July, 1974: Summary.

2. Human-carnivores conflicts

It is likely that during operations the proponent will encounter grizzly bears, polar bears, wolves, foxes and wolverines. The proponent is advised to minimize odors that potentially attract carnivores through timely camp housekeeping and bear-proof storage of food and food waste. Should the proponent experiences any interaction with carnivores, they are advised to contact the local Conservation Officer. All camp members should be fully aware and trained in the human - bear/wolf/fox/wolverine encounter avoidance plans especially in avoidance of any feeding (advertently or inadvertently by leaving food out) of these species. The proponent must discourage food conditioning of all wildlife species, negative reinforcement is encouraged.

The proponent should take all possible measures to avoid wildlife encounters, specifically bears. These measures include use of an alarmed trip wire around the site perimeter and wildlife monitors. DOE requests that wildlife monitors working for the proponent carry shot guns and have cracker shells, rubber bullets, and bean bag rounds available to use as deterrents. The proponent 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.

3. Raptor Nesting Areas

Raptor nests occur throughout Nunavut, and most of the prospecting areas likely contain at least a few nest sites. The proponent should not 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 by avoiding 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):

- 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).
- 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).

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.

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, 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. 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

DOE requests the proponent records and reports wildlife observations near the project area annually to a Regional Wildlife Biologist at the end of the operational season. This information 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 and the applicant 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 important 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 Contact (Wildlife Division)

Regional Manager, Wildlife

-Seeglook Akeeagok, (867) 975-7800, sakeeagok@gov.nu.ca

Biologist, Baffin Region

-Debbie Jenkins, (867) 899-8876, pondbiologist@qiniq.com

B. 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*, DOE has the following comments and recommendations to make:

- Please be advised that the telephone number for DOE is (867) 975-7700.
- A 24 hour telephone number for the persons responsible for activating the contingency plan should be provided. This ensures the employee discovering the spill can activate a response and provides a 24 hour point of contact for the authority investigating the spill.
- For further information, the proponent is also referred to DoE's *Environmental Guidelines for Site Remediation* and *A Guide to Spill Contingency Planning and Reporting*.
- If fuel is stored on site it should be located, whenever practical, in a natural depression a minimum distance of 90 feet from all streams, and 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.

C. ABANDONMENT AND RESTORATION:

The proponent has indicated that a diamond drill program will take place as part of its exploration activities. DOE has the following comments and recommendations to make:

- Drill holes should be backfilled or capped at the end of project. The sumps should only be used for inert drilling fluids, not any other materials or substances. The sumps should be properly closed out at the end of a project.
- If hydrocarbon based drill additives are being used the use of a filtration system aimed towards reduction of harmful substances to the environment is recommended. Drill additives such as rod grease and linseed soap should be safely stored in containers that have been specifically designed for the storage of hydrocarbons and safely transported to a facility that is authorized for the treatment and disposal of industrial wastes. The waste must be stored in a manner that minimizes the risk of spills and further ensures that the container can be periodically inspected for leaks or potential leaks.

- Drilling additives 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.

Incineration

The proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, forced-air incinerator is recommended. The proponent shall make determined efforts to achieve compliance with the *Canada-wide Standards for Dioxins and Furans* and the *Canada-wide Standard for Mercury Emissions*. 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. The Waste Management Strategy should consider and include:

- Purchasing policies that focus on reduced packaging,
- On-site diversion and segregation programs (i.e. the separation of non-food waste items suitable for storage and subsequent transport and disposal or recycling).
- If incineration is required, ensure diligent operation and maintenance of the incineration device and provide appropriate training to the personnel operating and maintaining the incinerator.

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. Under no circumstance should hazardous wastes be managed through burning or incineration. The efforts made to achieve compliance shall be reported annually.

The DOE thanks NWB for the opportunity to provide comments on the project proposal from Commander Resources Ltd. Please contact us if you have further questions.

Yours sincerely,

Original signed by

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