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Department of Environment

Ministère de l'Environnement

September 19, 2008

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board

via Email to: licensing@nunavutwaterboard.org

RE: NWB FILE # 2BM-ULU0008 – Zinifex Canada Inc. – Ulu Project

Dear Ms. Beaulieu:

The Government of Nunavut, Department of Environment (DOE) has reviewed the water license renewal application from Zinifex Canada Inc. for the Ulu Project, and has the following comments and recommendations to make based on the *Environmental Protection Act* and the *Wildlife Act* regarding spill contingency, abandonment & restoration, and wildlife.

1. Spill Contingency Plan

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:

- The DOE contact numbers are inaccurate and should be updated (Appendix 1 of the Spill Contingency Plan). The correct numbers are (867) 975-7700 for general reception or (867) 975-7748 for the Manager of Pollution Control.
- It is unclear if the contact information includes a 24-hour contact number. The 24 hour number for the persons responsible for activating the contingency plan is required as 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.
- The DOE monitors the movement of hazardous wastes, from generators, carriers to receivers of the wastes, through the use of a tracking document known as a Waste Manifest. A Waste Manifest must accompany all movements, and all parties must register with DOE by contacting Robert Eno at (867)975-7748 or reno@gov.nu.ca.

2. Abandonment & Restoration Plan

INCINERATION

For a camp of greater than 50 people (over 50 people or greater than 4410 person days/yr), the proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, controlled-air flow incinerator is recommended. Both the Government of Canada and the Government of the Nunavut are signatories to the *Canada-Wide Standards for Dioxins and Furans* and the *Canada-Wide Standard for Mercury Emissions*, and are required to implement them according to their respective jurisdictional responsibility. Installation of an incineration device capable of meeting the emission limits established under these standards is required. Compliance with the Standards shall be demonstrated with an initial stack test upon commission of the incinerator at site, the results of which shall be submitted to the Nunavut Impact Review Board, Environment Canada, and Government of Nunavut-Department of Environment. During the course of operations, 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. Determined efforts shall include but not be limited to appropriate record

management, including maintenance reports, operator training logs, and the submission of an annual report that outlines the efforts made to achieve compliance with the Standards.

3. Wildlife

The project is located in an area where caribou, carnivores (i.e., grizzly bears) and raptors may be encountered. To prevent and minimize project related impacts on wildlife, it is important that the proponent is aware of the types of wildlife species, their distribution and their abundance in the project area, prior to the start of the project. 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.

1. Caribou

This project is located in the Bathurst caribou herd calving area. Recent research has strengthened understanding of how caribou responses to human activities on calving and post-calving areas can accumulate and affect caribou. Barren-ground caribou require 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 outlined in the rationale above and the sensitivity of the area, the DOE recommends that if NIRB approves the operation, 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.

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 bearproof 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 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 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 re-nest. 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)

(Kit. Region)
Manager, Wildlife
-Dustin Fredlund, (867) 982-7441, dfredlund@gov.nu.ca
Conservation Officer, Kitikmeot Region
-Allen Niptanatiak (867) 982-7451, kugwildlife2@qiniq.com
Regional Biologist
-Mathieu Dumond, (867) 982-7444, mdumond@gov.nu.ca

We thank the NWB for the opportunity to provide comments on the Zinifex Canada Inc.'s water license renewal application. Please contact us if you have further questions.

Yours sincerely,

Original signed by

Froeydis Reinhart
Scientist/Coordinator, Environmental Assessment
Department of Environment
Government of Nunavut
P.O. Box 1000, Stn. 1360
Iqaluit, Nu X0A 0H0
PH: (867) 975-7735
FX: (867) 975-7739
EM: freinhart@gov.nu.ca