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Department of Environment

Ministère de l'Environnement

April 23, 2008

Leslie Payette
Manager Environmental Administration
Nunavut Impact Review Board

via Email to: lpayette@nirb.ca

RE: NIRB FILE #08EN037 – Uruvan Minerals Inc. – Garry Lake Uranium Exploration Project

Dear Ms. Payette:

The Government of Nunavut, Department of Environment (DOE) has reviewed the Garry Lake project proposal from the Uruvan Minerals Incorporated for conducting uranium exploration and camp operation within the Beverly Caribou Protected Area. Based on DOE's mandate under the *Wildlife Act* and the *Environmental Protection Act*, we have the following comments and recommendations to make regarding wildlife, spill contingency planning, abandonment & restoration, and land use planning.

1. 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.

1.1. Caribou

The project is located within the calving grounds of the Beverly barren-ground caribou herd. Recent research has strengthened the information basis for concerns about how caribou responses to human activities on calving and post-calving areas can accumulate to the level to affect caribou. Barren-ground

P. O. Box 1000, Stn. 1360
Iqaluit, Nu X0A 0H0

PH: (867) 975-7735
FX: (867) 975-7739

caribou require a relatively uninterrupted feeding cycle that includes feeding, ruminating (chewing their cud), resting, feeding and so on during the plant growing season to regain sufficient body reserves to become pregnant and to maximize their condition before the winter. Caribou cows must intensively feed in early June when the calves are born until the end of the plant growing season (mid and late August). It is during these post-calving and late summer periods that the caribou have to nurse calves as well as put on fat to become pregnant and to survive the coming winter. Bulls must put on enough fat to get through the rut as well as the winter. When the caribou feeding/fattening 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 cumulative disturbances between May and 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. Nunavut's caribou herds are currently cycling down. During declines and times of low number, caribou are especially vulnerable to disturbance caused by exploration activities. For these reasons, protecting caribou calving and post-calving areas is important to caribou persistence.

Based on these considerations and the sensitivity of the area, the DOE recommends that if NIRB decides to approve operations in 2008 that the following conditions apply:

- Between **May 15** and **July 15**, DOE recommends that **no** activities occur within the Beverly Caribou Protected Area for the Beverly caribou herd.

- During these months GN Conservation Officers will be inspecting this site and others within, or close to caribou calving and post-calving grounds.

At all other times within the calving areas:

- When caribou are in sight of the operation, the proponent shall suspend all blasting, over-flights of aircraft, geophysics surveys 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 interfere with migration such as airborne geophysics surveys or movement of equipment or personnel until the caribou have passed.

- The proponent must not construct a camp, cache fuel, conduct blasting or drilling operations, operate ground, air or water based mobile equipment, including geophysics surveys within 10km of a 'designated and/or recognized caribou crossing'.

1.2. 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.

1.3. 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 renest. <u>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).</u>

- 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.

1.4. 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.

1.5. 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.

1.6. DOE Contact (Wildlife Division)

Manager, Wildlife
-Dan Shewchuck, (867) 857-2828, dshewchuk@gov.nu.ca

Biologist, Kivalliq Region
-Mitch Campbell, (867) 857-2828, mcampbell@gov.nu.ca

2. Spill Contingency Plan

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

- The name, job title and **24 hour telephone number** for the persons responsible for activating the contingency plan. 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.

- A **site map** that is intended 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.

- A description of the **type and amount of chemicals** normally stored on site.

- Chemicals should be stored in a safe and chemically-compatible manner a minimum of 90 feet from all bodies of water. Material safety data sheets (MSDS) should be provided for each chemical and be posted in a central location; accessible by all camp personnel. Camp personnel should be conversant in the handling of these chemicals as well as able to deal with any accidents or spills.

- Hazardous materials stored on-site should be marked so they will be visible under all conditions, in all seasons. This recommendation is intended to help prevent possible injuries to camp personnel and/or damage to the containers. Additinally, all hazardous materials should be removed from the site upon completion of the activity. The proponent is referred to DoE's *Environmental Guideline for the General Management of Hazardous Waste.*

- A more detailed description of the training provided to employees to respond to a spill. A sound training program is necessary when dealing with an emergency situation.

- Please be advised that the telephone numbers for the DOE is (867) 975-7700 for general inquiry and (867) 975-7748 for the Manager Pollution Control and Air Quality.

- An inventory and the location of response and clean up equipment available to implement the plan, should be discussed. This includes your equipment as well as any to be used by another person responding to the spill on your behalf. Although there is mentioning of spill kits (large and small), there is no mention of what the spill kits contain; the spill kits should contain as a minimum booms, absorbent pads/sheets, disposable gloves, and sorbent.

3. Abandonment and Restoration

Uranium Drilling

- Drill cuttings with a uranium concentration greater than 0.05% should be disposed of down the drill holes and sealed. Additionally, the drill holes should be sealed by cementing at least the upper 15 meters of bedrocks or the entire depth of the holes; whichever is less. If groundwater (e.g. artesian well) is encountered the entire length of the hole should be cemented (grouted).

- 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.

Contaminated Soils

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. The proponent is referred to DOE's *Environmental Guideline for Site Remediation.*

Incineration

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

For a camp of greater than 10 but less than 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. 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. 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 as part of the annual report.

Final Inspections

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.

4. Land Use/Uranium

There is a concern that the issuing of permits relating to exploration for uranium may lead to an expectation that further development of these projects will be permitted. The DOE is aware that Nunavut Planning Commission has determined low level exploration for Uranium to be in conformity with the Keewatin Regional Land Use Plan but believes the proponent should be aware of the following provisions in the plan:

3.5 - Uranium development shall not take place until NPC, NIRB, NWB and the NWMB have reviewed all of the issues relevant to uranium exploration and mining. Any review of uranium exploration and mining shall pay particular attention to questions concerning health and environmental protection. (A) (CR)

3.6 – Any future proposal to mine uranium must be approved by the people of the region.

The DOE thanks NIRB for the opportunity to provide comments on the Garry Lake project proposal from Uruvan Minerals Inc. Please contact us if you have further questions.

Yours sincerely,

Original signed by

Froeydis Reinhart
Coordinator/Scientist, 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