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2006-Dec-12

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via email

RE: NWB 2BE-KAZ/GA – Pacific Ridge Exploration Ltd. – Kazan Falls Project

On behalf of Environment Canada (EC), I have reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities for the enforcement of the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Pacific Ridge Exploration Ltd has submitted an application for an amendment license for water use and waste disposal associated with exploratory drilling and camp operations for the Kazan Falls Project. The reason for the amendment is to increase the amount of water required for drilling operations and camp usage as well as to extend the licensing period. Water usage will increase from 21.5m³ to ≤100m³/day.

Environment Canada recommends that the terms and conditions applied to Pacific Ridge Exploration Ltd's current water license be carried over to this amendment.

The following conditions should also be applied throughout all stages of the project:

- The proponent shall not deposit, nor permit the deposit of any fuel, drill cuttings, chemicals, wastes or sediment into any water body. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- The proponent has indicated that drilling additives will be used in association with this project. Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* has recently listed CaCl as a toxic substance. The proponent shall therefore ensure that if CaCl is used as a drill additive, all sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body.
- The application indicates that on-ice drilling is to occur. Drilling additives or muds 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. Further, for "on-ice" drilling

where drill additives are not being used, return water released must be non-toxic, and not result in an increase in total suspended solids in the immediate receiving waters above the Canadian Council of Ministers for the Environment Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100mg/L).

- Environment Canada recommends that if artesian flow is encountered, the drill holes be immediately plugged and permanently sealed
- Any sumps created for the disposal of drill wastes shall be located above the high water mark of any water body.
- Any new sumps created for the Kazan Falls Project shall be located above the high water mark of any water body and in such a manner as to prevent the contents from entering any water body frequented by fish. Further, all sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape.
- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
- All fuel caches shall be located above the high water mark of any water body. Further, EC recommends the use of secondary containment, such as self-supporting insta-berms, when storing barreled fuel on location.
- Drip pans, or other similar preventative measures, should be used when refuelling equipment on site.
- **All spills** must be documented and reported to the NWT Spill Response Line at (867) 920-8130.

With respect to incineration and waste management activities, Environment Canada recommends the following:

Environment Canada recognizes that timely disposal of camp waste - specifically food waste - is of critical importance to minimize safety risks associated with wildlife attraction. Timely disposal is usually achieved through burning. However, burning of waste products releases numerous contaminants to the air, many of them persistent, bioaccumulative and toxic (e.g. polycyclic aromatic hydrocarbons - PAH's - heavy metals, chlorinated organics – dioxins and furans). These contaminants can result in serious impacts to human and wildlife health through direct inhalation and they can also be deposited to land and water, where they bioaccumulate through food chains affecting wildlife and country foods. Therefore, burning should only be considered after all other alternatives for waste disposal have been explored.

A variety of incineration devices are available and selection of the most appropriate will depend on considerations of technical and economical feasibility for each situation. Installation of an incineration device capable of meeting the emission limits established under the Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions is required (both the Government of Canada and the Government of the Nunavut are signatories to these Standards and are required to implement them according to their respective jurisdictional responsibility). The proponent should review the incineration options available and provide justification for the selected device to the regulatory authority.

If burning is the only alternative available, the proponent should ensure that the waste is burned in a device that promotes efficient combustion and reduction of emissions, and that the amount of waste burned is reduced as much as possible.

- Food waste and other combustible garbage should be incinerated daily.
- Used absorbent materials, oily or greasy rags, and equipment servicing wastes (such as used engine oil, antifreeze, hydraulic oil, lead acid batteries, brake fluid and other lubricants) should be safely stored and transported in sealed containers and safely transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.

The use of appropriate waste incineration technology should be combined with 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 Plan Waste 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 ensure appropriate training is provided to the personnel operating and maintaining the incinerator.

The objective should be to ensure that only food waste and food-contaminated waste is burned (the use of paper, cardboard and clean wood as supplementary fuel is acceptable).

If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4639 or by email at cindy.parker@ec.gc.ca.

Yours truly,

Original signed by

Cindy Parker
Environmental Assessment Technician

cc: (Colette Spagnuolo, Environmental Assessment & Contaminated Sites Specialist, Environment Canada, Iqaluit)