



**Environment Canada** **Environnement Canada**

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*Via Email*

**Re: NWB2EDE – Tri Origin Exploration Ltd. – Edehon Lake Project – Type B Licence Application**

On behalf of Environment Canada (EC), I have reviewed 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*.

Tri Origin Exploration Ltd. is applying for a Type B licence for water use and waste disposal associated with exploratory drilling operations for their Edehon Lake Project. The Edehon Lake Property is within latitudes of 60°25'57.9"N and 60°34'36.2"N and longitudes of 97°12'12.9"W and 97°47'4.1"W. The Hamlet of Arviat is the closest community to this area, 191 km northwest. The proponent will not establish an exploration camp. Project personnel will stay in Arviat or at a Nueltin Lake fishing lodge and visit the project area by helicopter. Exploration activities will consist of diamond drilling, regional geological mapping, and sampling operations with the aim of analyzing the quality of lead zinc and gold deposits.

Drilling operations will require the use of freshwater from sources nearby the selected drill sites. The proponent anticipates that drilling operations will require 85 m<sup>3</sup> of freshwater on a daily basis. The cuttings and gray water produced from drilling operations will be directed to sumps positioned at least 31 m from the normal high water mark of any water body.

Fuel used to support the Edehon Lake Project will be flown to and from the project area by helicopter when needed. Fuel products will be supplied by an Arviat distributor and all liquid fuel products will be stored in 205 L steel drums. The proponent anticipates that its project activities will require 1,640 L of diesel (8 drums), 820 L of gasoline (4 drums), 1,640 L of Jet A aviation fuel (8 drums), and one 100 lb propane tank. Empty drums and excess fuel will be returned to the Arviat distributor prior to the seasonal shutdown of project activities.

The proponent has provided a Spill Contingency Plan and an Abandonment and Restoration Plan for review. According to the submitted questionnaire, at least two spill response kits will be made available in this exploration project. One kit will be kept alongside the drill rig and another will be stored in the helicopter for emergency preparedness when refueling.



Environment Canada strongly recommends that the proponent devise a site specific Spill Contingency Plan for this exploration project. Such a Plan should present a clear chain of command to follow when responding to hazardous material spills, a list of emergency contacts, spill response measures on different forms of environmental media (i.e., land, water, snow, and ice), the content and storage locations of spill response kits, and a description of any other equipment that will be made available to clean-up a spill. This plan should clearly indicate that all spills will be documented and reported to the 24-hour spill response line at (867) 920-8130. Furthermore, Jimmie Noble, Environment Canada's Environmental Protection Officer based in Iqaluit should be listed as an emergency contact. Noble can be reached by office telephone (867) 975-4644, cell phone (867) 975-1925, and secure fax-line (867) 975-4594.

The Edehon Lake Project's Abandonment and Restoration Plan indicates that accumulations of drill cuttings from settling ponds and extraction cyclones will be spread thinly (raked) to assist in the recovery of vegetation at sumps. The proponent shall ensure that no drill cuttings or sludge are directed to natural water bodies. Environment Canada recommends that any cuttings and sludge resulting from drilling operations be either buried within sumps or bagged and removed from the project area for proper disposal. All sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape. Reseeding activities should use vegetation species that are native to the project area and appropriate for the rehabilitation of scarred ground surfaces.

Environment Canada reminds the proponent that all permits and approvals are required prior to the commencement of any work.

Environment Canada recommends that the following conditions be applied throughout all stages of the project:

#### GENERAL

- The proponent shall not deposit, nor permit the deposit of any fuel, 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.

#### DRILLING

- Environment Canada would like to inform the proponent that CaCl is considered to be a toxic substance under the Canadian Environmental Protection Act. 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.
- Land based drilling should not occur within 30 m of the high water mark of any water body. Drilling wastes from land-based drilling shall be disposed of in a sump such that the contents do not enter any water body.

#### FUEL STORAGE / SPILL CONTINGENCY – HAZARDOUS MATERIALS

- 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 rather than relying on natural depressions.
- Drip pans, or other similar preventative measures, shall be used when refueling equipment on site.



## MIGRATORY BIRDS

- Environment Canada recommends that all activities be conducted outside the migratory bird breeding season, which extends from approximately 15 May to 1 August. These dates are approximate, and if active nests (i.e., nests containing eggs or young) are encountered outside of these dates, the proponent should avoid the area until nesting is complete (i.e., the young have left the nest). Paragraph 6(a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds.

The Canadian Wildlife Service (CWS) of Environment Canada has reviewed the above-mentioned submission and makes the following comments and recommendations pursuant to the *Migratory Birds Convention Act* (the *Act*) and *Migratory Birds Regulations* (the *Regulations*), and the *Species at Risk Act* (SARA).

- Section 35 of the *Migratory Birds Regulations* states that **no person shall deposit or permit to be deposited, oil, oil wastes, or any other substance harmful to migratory birds in any water or any area frequented by migratory birds.**
- In order to reduce disturbance to resting, feeding, or moulting birds, CWS recommends that aircraft used in conducting project activities maintain a vertical distance of 1000 m and minimum horizontal distance of 1500 m from any observed concentrations (flocks / groups) of birds.
- All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require awareness on the part of the proponents' representatives (including contractors) conducting operations in the field. Environment Canada recommends that all field operations staff be made aware of the proponents' commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.
- Implementation of these measures may help to reduce or eliminate some effects of the project on migratory birds, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act* (the *Act*) and *Migratory Birds Regulations* (the *Regulations*). The proponent must ensure they remain in compliance with the *Act* and *Regulations* during all phases and in all undertakings related to the project.

The following comments are pursuant to the *Species at Risk Act* (SARA), which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, EC asks that species listed on other Schedules of SARA and under consideration for listing also be included in this type of assessment.

Species at Risk	Category of Concern	Schedule of SARA
Grizzly Bear	Special Concern	Pending
Wolverine (Western Population)	Special Concern	Pending
Peregrine Falcon (subspecies)	Special Concern	Schedule 3



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Short-eared Owl	Special Concern	Schedule 3

Impacts to these species could be disturbance and attraction to operations.

Environment Canada recommends:

- The primary mitigation measure for each species should be avoidance. The proponent should avoid contact with or disturbance to each species.
- The proponent should consult with the Government of the Nunavut and appropriate status reports, recovery strategies, action plans, and management plans to identify other appropriate mitigation measures to minimize effects to these species from the project.
- The proponent should develop monitoring plans for each species in accordance with any applicable status reports, recovery strategies, action plans, and management plans posted on the Species at Risk Public Registry and in consultation with Government of Nunavut and Environment Canada. Monitoring plans should record the locations and frequency of observing species of special concern and note any actions taken to avoid contact or cause disturbance to the species, its residence, and its critical habitat.

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 if you have any questions or comments with regards to the foregoing at (867) 975-4631 or by email via [david.abernethy@ec.gc.ca](mailto:david.abernethy@ec.gc.ca).

Sincerely,

David W. Abernethy  
Environmental Assessment Technician

cc. Colette Spagnuolo – Environmental Assessment / Contaminated Sites Specialist, Environment Canada, Iqaluit  
Myra Robertson – Environmental Assessment Coordinator, Canadian Wildlife Service, Yellowknife