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NWB file: 2BE-TUK----

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Via email iporter@nunavutwaterboard.org

RE: Advanced Explorations Inc. – Tuktu Project Area – New – Type “B”

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 the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Advanced Exploration Inc. (AEI) has applied for a Type “B” water license from the Nunavut Water Board (NWB) for their Tuktu iron ore exploration project proposal. The Tuktu project is located approximately 70 km northwest of the community of Hall Beach. Project activities will include air and ground geophysical surveys, ground mapping, geological sampling, diamond drilling and environmental baseline studies. The project is proposed to occur from April 2010 to March 2012, with field operations expected to occur from April to October of each field season. A crew of approximately 20 people will be employed during project operations. Project personnel will stay at the existing camp at Roche Bay during the establishment of the Tuktu camp, located at 68°57'54"N, 82°56'58"W.

EC provides the following comments and recommendations for the NWB's consideration:

General

- The proponent shall not deposit, nor permit the deposit of chemicals, sediment, wastes, or fuels associated with the project 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 deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- The proponent shall not erect camps or store materials on the surface ice of lakes or streams, except that which is for immediate use.
- All sumps, spill basins, and fuel caches should be located in such a manner as to ensure that their contents do not enter any water body, are to backfilled, and re-contoured to match the surrounding landscape when they are no longer required.

- No disturbance of the stream bed or banks of any definable watercourse should be permitted.
- Suitable erosion control measures should be implemented at all stream/lake crossings.

Drilling:

- Chemical additives or drilling muds used in connection with this drilling program shall be disposed of such that they do not enter any waterbody either by surface or ground water flows.
- Regardless of the type of drilling conducted, the following conditions will apply:
 - Drilling wastes from land-based drilling should be disposed of in a sump such that they do not enter any body of water.
 - For lake-based winter drilling the proponent may refer to the Interim Guidelines for On-Ice drilling. Return water released to the lake must be non-toxic. Return water release must not result in an increase in total suspended solids in the waters of the lake that exceeds Canadian Council of Ministers of the Environment (CCME) Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10 mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100 mg/L).
 - Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated, contained such that they do not enter the water, or are demonstrated to be non-toxic.
- The proponent should be aware that the Canadian Environmental Protection Act lists calcium chloride (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.

Waste Disposal

- 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 (odour free to prevent animal attraction) and safely transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.
- In the application, it is stated that sewage will be “incinerated, ashes stored in drums, put on sealift, sent to a licensed disposal facility.” Raw sewage should not be burned in batch incinerators that are typically used in the north. Raw sewage should only be burned in incineration equipment designed for this type of waste. If AEI decides to pursue sewage sludge incineration, it should provide the Board with the design specifications of the incinerator and a letter from the manufacturer stating that this equipment is suitable for burning this type of waste.
- EC recommends the use of an approved incinerator for the disposal of combustible camp wastes. The proponent is considering onsite incineration a waste disposal option. EC has developed a Technical Document for Batch Waste Incineration, and is available at the following web link:

<http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=F53EDE13-1>

The technical document provides information on appropriate incineration technologies, best management and operational practices, monitoring and reporting. This information should be incorporated into an incineration management plan for the camp. EC would like the opportunity to review this plan prior to implementation.

Fuel/Spill Contingency:

- Decanting of snow or water from the berm area should proceed only if the appropriate chemical analysis has determined that the contents will not violate the requirements of Section 36.3 of the *Fisheries Act*, such as contact with hydrocarbons.
- Figures 2 and 3 in the Spill Contingency Plan should be updated to include locations of all spill kits on site.

Wildlife:

- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, EC recommends that all activities in which there is a risk of disturbing or destroying nests or eggs be conducted outside the migratory bird breeding season, which extends from approximately May 15 to July 31. These dates are approximate, and if 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 vicinity of the nest).
- For activities permitted to occur during the breeding season, EC recommends that the proponent confirm there are no active nests (i.e., nests containing eggs or young) in the vicinity of their operations before activities commence. If active nests of migratory birds are discovered, the proponent should halt all activities in the nesting area until nesting is completed (i.e., the young have left the vicinity of the nest).
- EC recommends that food, domestic wastes, and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) be made inaccessible to wildlife at all times. Such items can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.
- Section 5.1 of the *Migratory Birds Convention Act* prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- 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 suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

Terrestrial Species at Risk potentially within project area ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Red Knot (islandica subspecies)	Special Concern	Pending	EC
Peregrine Falcon (<i>anatum-tundrius</i> complex ³)	Special Concern	Schedule 1 (<i>anatum</i>) Schedule 3 (<i>tundrius</i>)	Government of Nunavut
Wolverine (Western Population)	Special Concern	Pending	Government of Nunavut

Polar Bear	Special Concern	Pending	Government of Nunavut
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¹ The Department of Fisheries and Oceans has responsibility for aquatic species.

² EC has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the *Migratory Birds Convention Act* (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Thus, for species within their responsibility, the Territorial Government is best suited to provide detailed advice and information on potential adverse effects, mitigation measures, and monitoring.

³ The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundruis* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern.

EC recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the Species at Risk registry at www.sararegistry.gc.ca for information on specific species.
- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested
- For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
- Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans.
- 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. EC 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 and Species at Risk, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, and the *Species at Risk Act*. The proponent must ensure they remain in compliance during all phases and in all undertakings related to the project.

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) 975-4631 or by email at Paula.C.Smith@ec.gc.ca.

Yours truly,



Paula C. Smith
Environmental Assessment Coordinator

cc: Carey Ogilvie (Head, Environmental Assessment-North, EPO, Yellowknife, NT)
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