



**Environment Environnement
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28 May 2010

EC file: 4703 001 067
NWB file: 2BE-QAM0813

Richard Dwyer
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Via email: licensingadmin@nunavutwaterboard.org

RE: Qamanarrjuk Project Cameco Corp. Uranium Exploration Plan

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*.

Cameco Corporation (Cameco) has provided the Nunavut Water Board with an Exploration Plan which was a requirement under Part F, Item 1 of water license 2BE-QAM0813 to apply to their Turqavik and Aberdeen exploration projects. These projects are located approximately 100 km west of Baker Lake. The plan discusses the uranium-related safety and environmental procedures to be undertaken at both project sites and relates to a summer field program from May to October 2010 with the intent to employ similar practices as the project extends into subsequent years.

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

Drilling

- EC recommends that the proponent follow safety guidelines such as Radiation Protection Guidelines for Uranium Exploration, and the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM).
- 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.
- Drilling wastes that have no indication of radioactive materials from land-based drilling activities could be disposed of in a sump such that they do not enter any body of water. Land based drilling should not occur within 30 m of the high water mark of any water body.
- If an artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed.
- 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

- EC recommends hazardous waste tracking, or “manifesting”. This should be implemented to ensure proper use, storage, and management of hazardous materials. Manifests provide detailed information to first responders in the event of an accident and serve as a tool for confirming that shipments of dangerous or hazardous waste are properly handled, transported, and disposed of.

Wildlife and Species at Risk

- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. If active nests are encountered during project activities, the nesting area should be avoided until nesting is complete (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
- An order to reduce aircraft disturbance to migratory birds, Environment Canada recommends the following:
 - Fly at times when few birds are present (e.g., early spring, late fall, winter)
 - If flights cannot be scheduled when few birds are present, plan flight paths that minimize flights over habitat likely to have birds and maintain a minimum flight altitude of 650 m (2100 feet).
 - Minimize flights during periods when birds are particularly sensitive to disturbance such as migration, nesting, and moulting.
 - Plan flight paths to avoid known concentrations of birds (e.g., bird colonies, moulting areas) by a lateral distance of at least 1.5 km. If avoidance is not possible, maintain a minimum flight altitude of 1100 m (3500 feet) over areas where birds are known to concentrate.
 - Avoid the seaward side of seabird colonies and areas used by flocks of migrating waterfowl by 3 km.
 - Avoid excessive hovering or circling over areas likely to have birds.
 - Inform pilots of these recommendations and areas known to have birds.
- 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, Environment Canada 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

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

¹The Department of Fisheries and Oceans has responsibility for aquatic species.

²Environment Canada 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.

Impacts could be disturbance, attraction to operations, and destruction of habitat.

Environment Canada 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. 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 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.

Previous comments submitted on behalf of EC by C. Spagnuolo and J. Klassen, dated 5 May 2006 and 8 May 2007, respectively, would still apply to this 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)
Ron Bujold (Environmental Assessment Technician, EPO, Yellowknife, NT)

References

Health Canada. 2000. Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM). 47 pp.
<http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/norm-mrn/index-eng.php>

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<http://www.labour.gov.sk.ca/Default.aspx?DN=25dcd65-129a-4928-9f72-9431733643da>