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RE: 1BR-RAD – Indian and Northern Affairs Canada – Radio Island Remediation Project – Licence Application – Type B

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*.

Project Description

Indian and Northern Affairs Canada (INAC) plans to conduct a contaminated site remediation project on Radio Island in the summer of 2006. Although project activities are anticipated to occur between June 15 and September 15 2006, a licence from June 2006 to December 2007 has been requested in case two work seasons are required. Radio Island is located southeast of Baffin Island near the entrance of Frobisher Bay and has a coordinate of 61˚18'N, 64˚52'W. The community nearest to this site is Iqaluit, which is 340 km northeast. Radio Island has a length of 1 km, width of 0.5 km, and is composed of Canadian Shield Bedrock. The island was formerly used for the operation of a navigational aid and weather station by the Canadian Department of Transport from 1929 to 1961. Indian and Northern Affairs Canada will award a contract for the clean-up of soil and debris contaminated with high levels of heavy metal, particularly lead in the project area.

Radio Island is accessible by helicopter and sea-lift. Recovered contaminated soils and hazardous wastes will be shipped to an approved southern disposal facility in accordance with the Transportation of Dangerous Good Act (TDGA). Landfills will not be established on the island due to the lack of borrow sources. The proponent has determined that there is approximately 1,290 m^3 of soil contaminated with heavy metals in the project area, of which 400 m^3 are contaminated with petroleum hydrocarbons. In addition, there are approximately 10 m^3 of soils classified as dangerous waste under the TDGA (have a leachable lead concentration greater than 5.0 mg/L), 15 m^3 of hazardous waste, and 200 m^3 of non-hazardous waste. Contaminated surface water with dissolved copper and zinc concentrations which exceed CCME Guidelines for the Protection of Aquatic Life will be treated on-site as part of this site remediation project. This water (approximately 100,000 L) is contained within a man-made pond and will be pumped through specially designed media to remove metals prior to being discharged into a natural drainage course. The volumes of waste material were determined by environmental site

assessments practiced by the Environmental Sciences Group of the Royal Military College in 1996 and by Earth Tech Canada in 2005. Their assessment results noted that there is no PCB waste on-site as defined by the *Canadian Environmental Protection Act*.

A temporary camp capable of accommodating 25 people will be constructed to facilitate site remediation activities. Potable water will be supplied in commercial bottles and approximately 150 L of non-potable water will be consumed per person on a daily basis. The non-potable water will be acquired from a man-made pond and from Resolution Island's Lower Lake if necessary (pumped into storage tanks and delivered by helicopter). Prior to completing remediation activities, the man-made pond's dam will be removed. Sewage will be collected and back-hauled from the project area for proper disposal and all gray water will be discharged onto the land after being subjected to a portable treatment unit.

Combustible wastes will be incinerated on-site in an approved incinerator. Non-combustible wastes, including empty fuel drums, will be brought to an appropriate disposal facility. Waste oil and hazardous wastes will be consolidated and delivered to an approved treatment facility.

A fuel cache will be established on an even ground surface that is located at least 30 m from the camp and nearby natural drainage areas or water bodies. Liquid fuels will be stored in 205 L steel drums and placed on pallets within an area that is surrounded by a 0.5 m berm and lined with a hydrocarbon resistant material. The proponent anticipates having 61,500 L of diesel (300 drums), 13,325 L of gasoline (65 drums), and twenty (20) 50 lb tanks of oxy-acetylene made available to support its Radio Island Remediation Project.

The successful contactor will devise a site specific spill contingency plan for this project. Indian and Northern Affairs Canada has devised a preliminary contingency plan and indicated the type of information that it expects to be provided in the final Plan (e.g., emergency equipment and materials). All hazardous material spills will be reported and documented through the 24-hour Spill Report Line at (867) 921-8130. Furthermore, applicable federal and territorial regulations and guidelines will be followed for the disposal of recovered spill materials.

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

- 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.

- It is indicated in the Supplemental Questionnaire, Item 38, that no long term monitoring has been planned for this site because all of the non-hazardous, hazardous, and contaminated soil will be removed for proper disposal. However, the ESG Site Investigation Report (2001) indicates that not all of the contaminants were delineated during the investigation that was completed in 2001. EC recommends that INAC submit a report at the end of the proposed clean-up program which confirms the removal of all contaminants. Depending on the results of confirmatory sampling, EC recommends that the need for post closure monitoring be re-evaluated.

- Section 7.4 of the Remediation Plan indicates that contaminated surface water will be filtered through media specifically designed for metals, and then analyzed prior to discharge to the land. However, no information is given regarding the discharge criteria that will be used. EC recommends that the water be tested against the 1999 CCME guidelines for Freshwater

Aquatic Life prior to discharge. The proponent shall ensure that any water which is suitable for discharge after treatment be directed in a manner that is not conducive to soil erosion.

- Environment Canada recommends that preventative measures, such as the use of tarps or similar devices, be employed during lead paint removal at the Main House to prevent further contamination of surrounding soils and water.

- INAC shall ensure that the contractor chosen to carry-out the site remediation project has a Marine Spill Contingency Plan in place prior to operation. This Plan should include conditions for loading hazardous materials onto the ship for off-site disposal. EC recommends that the terms/conditions employed at Resolution Island be applied to this licence.

- The Site Investigation report submitted by Earth Tech. Canada Inc. indicates that three soil samples were analyzed for leachable lead content to determine their classification as either hazardous or non-hazardous materials (requiring disposal in a Class 1 or Class 2 landfill respectively). The RI13, RI19, and RI22 samples were selected for analysis because they were considered to represent significant lead concentrations in high, medium, and low representations. While EC understands why RI13 was included in the test (concentration of 115,000 mg/kg), it is unclear why RI19 and RI22 were included (concentrations of 196 mg/kg and 458 mg/kg), as other samples had significantly higher lead concentrations. For example, RI15 had a lead concentration of 14,000 mg/kg and RI29 had a concentration of 2,780 mg/kg. In order to ensure compliance with all applicable legislation, EC recommends that INAC confirm the leachable lead content of all highly contaminated lead samples prior to their packaging, shipment and ultimate disposal.

- Environment Canada recommends that erosion control measures be implemented at any gray water discharge points.

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

- Frobisher Bay (including the area of Resolution Island and Radio Island) has been identified as a Key Marine Habitat Site for migratory birds (M.L. Mallory and A.J. Fontaine. 2004. Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories. Canadian Wildlife Service Occasional Paper No. 109). Seabirds congregate and feed in open water areas south of Resolution Island from early May to October. These birds should be avoided to prevent disturbance.

- Environment Canada recommends that aircraft used in conducting project activities maintain a vertical distance of 1,000 m and minimum horizontal distance of 1,500 m from any observed concentrations (flocks / groups) of birds.

- Section 6 (a) of the Migratory Birds Regulations states that no one shall disturb or destroy the nests or eggs of migratory birds. In the Environmental Screening Report (page 35) it states that “Nests will be identified and flagged. Depending upon the situation and species, the area will either be protected and left undisturbed until the nest is abandoned following breeding season, or it will be moved in a manner that will ensure the viability of the eggs/nestlings.” If active nests (i.e., nests containing eggs or young) are encountered, the nest should be avoided until nesting is complete (i.e., the young have left the vicinity of the nest). An active

nest should NOT be moved. Moving an active nest would be a violation of the Migratory Bird Regulations and would likely result in the abandonment of the nest by the parents.

- About 50,000 pairs of Murres nest on Hantzsh Island (just north of Resolution Island). This area has been designated as an International Biological Programme Site and a Canadian Important Bird Area. These seabirds are sensitive to disturbance during nesting, particularly from aircraft flying near the cliffs where the birds nest. Aircraft and boats travelling to/from Iqaluit and the project site should avoid the nesting cliffs.

- 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 waters or any area frequented by migratory birds. Given the importance of the marine area to migratory birds, the spill contingency plan should ensure that it outlines how migratory birds would be protected in the event of a spill (particularly in the water).

- 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 that may occur in the project area	Category of Concern	Schedule of SARA
Ivory Gull	Special Concern	Schedule 1
Harlequin Duck	Special Concern	Schedule 1
Polar Bear	Special Concern	Pending

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, Environment Canada 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 proponents should develop monitoring plans for each species in accordance with any applicable status reports, recovery strategies, action plans, and management plans and in consultation with Government of Nunavut and Environment Canada.

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.

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