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March 20, 2013

EC file: 4703 003 041  
NWB file: 1BR-KRK1112

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Via email: [licensing@nunavutwaterboard.org](mailto:licensing@nunavutwaterboard.org)

Attention: Ms. Beaulieu

**RE: 130218: 1BR-KRK1112 Kugaaruk Landfarm Project – Kitikmeot Region – 2012  
Renewal**

Environment Canada (EC) has reviewed the information supporting the water license renewal application submitted to the Nunavut Water Board (NWB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act 1999*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

The Department of Community and Government Services, Government of Nunavut is applying to the NWB to renew water license 1BR-KRK1112 for a period of five years. The license is to support on-going activities for the treatment of petroleum hydrocarbon impacted soil at the Kugaaruk Landfarm Facility.

Based on a review of the proposed amendment and renewal, EC provides the following comments for the NWB's consideration:

**General**

- Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit 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. The definition of deleterious substance (Subsection 34(1) of the *Fisheries Act*) includes “any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.” Subsection 36(3) makes no allowance for a mixing or dilution zone at the point of deposit.
- 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 proponent's representatives (including contractors) conducting operations in the field. EC recommends that all field operations staff be made aware of the

proponent's commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.

- EC has available the *Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils*. Science Applications International Corporation (SAIC Canada), March, 2006. Information in this document addresses design, operation, monitoring, sampling, analytical methods, decommissioning/closure, record keeping and reporting requirements for landfarming projects. It is recommended that the consultant refer to this document as it relates to the future operations of the landfarming project. Please do not hesitate to contact EC to obtain a copy of this document.

### Wildlife and Species at Risk

- Paragraph 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). The proponent should consult the fact sheet "Planning Ahead to Reduce Risks to Migratory Bird Nests" available at: <http://www.ec.gc.ca/paom-itmb/>
- 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.
- Subsection 79(2) of the *Species at Risk Act* (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. The Table below lists species that may be encountered in the project area that have been assessed by COSEWIC as well as their current listing on Schedules 1-3 of SARA (and designation if different from that of COSEWIC). Project impacts could include species disturbance, attraction to operations and destruction of habitat.

Terrestrial Species at Risk potentially within project area <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Peregrine Falcon	Special Concern ( <i>anatum-tundrius</i> complex <sup>3</sup> )	Schedule 1	Government of Nunavut
Polar Bear	Special Concern	Schedule 1	Government of Nunavut

<sup>1</sup> The Department of Fisheries and Oceans has responsibility for aquatic species.

<sup>2</sup> 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.

<sup>3</sup> The *anatum* and *tundrius* 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, and was added to Schedule 1 of SARA in July 2012.

- For any Species at Risk that could be encountered or affected by the project, the proponent should note any potential adverse effects of the project to the species, its habitat, and/or its residence. All direct, indirect, and cumulative effects should be

considered. Refer to species status reports and other information on the Species at Risk registry at <http://www.sararegistry.gc.ca> for more 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.
- 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.

Advice regarding landfarm operations provided on behalf of EC on April 23, 1010 regarding the previous renewal application would still apply (as attached). If there are any changes to the project EC should be notified, as further review may be necessary. Please do not hesitate to contact the undersigned at (867) 975-4631 or [Paula.C.Smith@ec.gc.ca](mailto:Paula.C.Smith@ec.gc.ca).

Regards,



Paula C. Smith  
Environmental Assessment Coordinator

cc: Carey Ogilvie, Head, EA-North, EA and Marine Programs, EC

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23 April 2010

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EC file: 4703 003 041  
NWB file: 8BR-KRK0609

*via e-mail: [licensing@nunavutwaterboard.org](mailto:licensing@nunavutwaterboard.org)*

**RE: 8BR-KRK0609 Renewal Type “B” – GN-CGS- Kitikmeot Region – Request for review and comments**

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*.

The Government of Nunavut’s Department of Community and Government Services is proposing to continue activities associated with a landfarm in the hamlet of Kugaaruk. The landfarm was developed in response to a 2001 soil contamination study of the hamlet’s bulk fuel storage facility area to treat 3,500 m<sup>3</sup> of sandy gravel for hydrocarbon contamination. The landfarm has been in operation since 2005, and is planned to continue until 2013. Project activities will include the continued operation of the landfarm and associated activities of treatment, monitoring, and disposal of contaminated soil.

EC provides the following comments and recommendations for the Nunavut Water Board’s consideration:

- EC has available the Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils. Science Applications International Corporation (SAIC Canada), March, 2006. Information in this document addresses design, operation, monitoring, sampling, analytical methods, decommissioning/closure, record keeping and reporting requirements for landfarming projects. It is recommended that the consultant refer to this document as it relates to the future operations of the landfarming project.
- As indicated in the project summary, it is expected that one more year of treatment will reduce the contaminant level in the soil to the point where the soil can be removed. Soil testing is planned in 2010 to confirm the contaminant levels. Given that the bioremediation process (micro-organism activity) may have peaked it may be necessary to consider nutrient amendment for the last treatment year(s). Ensuring that micro-organisms have nutritional requirements in the optimal range will increase the treatment efficiency in the end range of the bioremediation process. PH maintenance, moisture content monitoring, and microbial population density monitoring are

additional operations that should be considered as part of the operation and maintenance plan. The Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils document contains additional information on nutrient amendment including optimal nutrient requirements.

- Water in the retention cell was pumped out in 2008 and 2009 without completing water quality analysis. For the remainder of the project it is recommended that water sampling and the necessary water treatment occur before water is discharged from the retention cell. This intent is indicated in the Kugaaruk Landfarm Facility Operations and Maintenance 2010 document. It is also recommended that the area where the un-tested water was discharged be sampled for soil and groundwater contamination annually and after the project life. It is noted that the Kugaaruk Landfarm Facility Operations and Maintenance document intends to carry out ongoing site monitoring during the life of the project and two years after.

Comments previously submitted by EC, as attached, would also still apply to this file. 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)  
Jody Klassen (Head, Contaminated Sites, EPO, Edmonton, AB)  
Ron Bujold (Environmental Assessment Technician, EPO, Yellowknife, NT)