Environment Canada Environnement Canada

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Our File No.: 4715 000 001
August 28, 2009 Your File No.: 3BC-BAF0409

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0 *Via Email at licensingadmin@nunavutwaterboard.*org

Dear Phyllis Beaulieu,

RE: NWB 3BC-BAF0409 – Department of National Defence – BAF-3 Project Renewal Type "B"

Environment Canada (EC) has reviewed the information submitted with the above-mentioned application. The following requested specialist advice has been provided pursuant to EC's mandated responsibilities arising from the *Canadian Environmental Protection Act* (CEPA), Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

It is our understanding that the North Warning System Office, National Defence Headquarters (Department of National Defence) (the proponent) is applying to the Nunavut Water Board (NWB) to renew their water license (NWB6BAF0409 –Type "B" NWB, February 17th, 2004) (herein known as "the water license") for water use and water disposal associated activities at the BAF-3 North Warning System Long Range Radar Station.

Brief Summary of the Project:

BAF-3 is located near the southern end of Brevoort Island, off the east coast of Baffin Island, Nunavut. BAF-3 is a Long Range Radar Site for the North Warning System. The station is visited by staff on scheduled quarterly preventive and corrective maintenance trips and on an as needed basis. During the months of May to September, the site may have an average of 14 to 30 personnel due to seasonal project activity, including the clean-up and remediation of a fuel spill from 2007, and occasional Third Party visitors (Summary of Project, 2009).

BAF-3's facilities include site buildings with their integral mechanical and electrical systems, power generation system, fuel tanks, radar, antennas, satellite ground terminals, weather equipment, and roads (Exploration/Remote Camp Supplementary Questionnaire, 2009).

This review is of the documents submitted to the NWB for the renewal of the water license, as found on the NWB's ftp website (website address provided with application referenced above).

On October 15, 2004, EC reviewed the Nasittuq Corporation's application for a water license in order to allow for the Shepard Bay Auxiliary Radar Station. As a result of the review, EC proposed several recommendations and asked a number of questions. As such, the comments below largely stem from our October 15, 2004 letter. EC believes they are important to stress

again in order to ensure our mandated responsibilities as outlined above are met, and the environment protected.

Comments and Recommendations:

General

1. 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.

2. Meeting the requirements of the *Fisheries Act* is mandatory, irrespective of any other regulatory or permitting system. Section 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 legal definition of deleterious substance provided in section 34(1) of the *Fisheries Act*, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat.

The report titled *"Water License Application – Supplementary Information for Hydrocarbon-Impacted Soil Storage and Landfarm Treatment Facilities, BAF-3, Brevoort Island, NU" (Jacques Whitford, Sept 25, 2008),* discusses how the contaminated soil from the 2007 fuel spill will be treated through the use of a landfarm. This document states the landfarm is being completed, but as of this date, EC is unsure if the landfarm is now fully operational. Detailed plans to appropriately operate and maintain this landfarm to minimize spills and environmental damage have not been provided to EC for review. As such, recommendation numbers 3-7 following are provided based on the information submitted. Please note that these recommendations are not intended to serve as a comprehensive set of operational specifications.

3. An appropriate operation and maintenance plan should incorporate the following requirements:
    - Regular inspection and maintenance protocols for the landfarm to ensure its effectiveness;
    - Appropriate methodology for sampling, treating, and releasing leachate and/or pond water from the landfarm;
    - Effective procedures for snow removal /treatment prior to spring melt;
    - Prior to the placement of contaminated soil in the land treatment facility, the contaminated soil in question should be characterized with respect to the quality and level of contamination and a treatability study carried out to determine the feasibility of remediating the contaminated soil to an acceptable level that meets the appropriate criteria as set forth in Canadian Councils of Ministers of the Environment (CCME) Canadian Soils Quality Guidelines (CSQG);
    - A detailed set of operations procedures should be prepared which identifies the recommended frequency and methods of tillage, microbial population density,

moisture content of soil depth of piles/windrows, and the type and application rate of any land treatment amendments, i.e. water, air, lime, nutrients, or inoculum which may be required; and

- A health and safety plan should be developed which addresses both the site workers and, where applicable, nearby inhabitants.

4. The proponent should consider installing a geofabric overtop of the liner material as extra protection from tears and punctures from rocks, branches, and equipment. This approach has been undertaken recently in Nunavut at other landfarm operations and would provide extra insurance that no contaminants would seep beneath the liner.

5. EC recommends that a condition of the license be that the soil will only be used for commercial/industrial uses after remediation unless confirmatory sampling indicates that the soil is remediated to residential or parkland criteria.

6. The soil to be remediated is contaminated with hydrocarbons, but the proponent is advised that depending on the original source of contamination there may be co-contaminants in the soil which may impact the remediation objective. Hydrocarbon contamination from jet fuels for example can contain lead, and gasoline and diesel fuels may result in other heavy metal contamination. EC recommends analyzing the soil for Total Petroleum Hydrocarbon (TPH), benzene, toluene, ethylbenzene, and xylenes BTEX, the CCME fraction F1-F4 hydrocarbon content, and total heavy metals.

   Table 1 below describes contaminants of potential concern (COPCs) related to contaminant sources/activities.

Table 1: Recommended Analyses Based on Suspected Soil Contamination

Contaminant Source	Parameters Analyzed								
	CWS – PHC Fractions	BTEX	TPH (calculated)	Lead	Total Heavy Metals	Chromium/ Cadmium	PCBs	Phenols	PAHs
Unleaded Gasoline	■	■	■		■				
Leaded Gasoline, Aviation Gasoline	■	■	■	■	■				
Fuel Oil, Diesel, Kerosene, Jet Fuel, Mineral Oil/Spirits, Motor Oil	■	■	■		■				■
Petroleum Solvents	■		■				■		
Crude Oils, Hydraulic Fluids	■		■	■	■				■
Waste Petroleum Products	■	■	■	■	■	■	■	■	■

7. The current plan does not provide details regarding record keeping for the landfarm. Accurate records should be maintained by the owner/operator which contain the following information:
    - A detailed description of the size and location of the land treatment facility;
    - Quantitative and qualitative data on the soil treated at the site;
    - Monitoring data as set forth above;
    - The final destination of the treated soil and its intended use.

Fuel / Spill Contingency

8. EC would like to take this opportunity to remind DND of the new regulations for Storage Tank System for Petroleum and Allied Petroleum Products which came into force on June 12, 2008. These regulations apply to all outside aboveground, underground and partially buried storage tank systems containing petroleum and allied petroleum products, except above-ground storage tank systems that have a capacity of 2,500 L or less and that are connected to a heating appliance or emergency generator. Further information on these regulations can be found at www.ec.gc.ca/st-rs.

9. Given the large amount of fuel to be stored on site, EC recommends the use of secondary containment with an impervious liner, such as self-supporting insta-berms, for storage of all barreled fuel rather than relying on natural depressions to contain spills.

10. All fuel storage areas should be located above the high water mark and in such a manner as to prevent the contents from entering any waterbody frequented by fish.

11. A supply of spill kits, shovels, barrels, sorbents, pumps, etc. should be consistently maintained and readily available at sites where fuel is being stored or transferred.

12. Any substances listed on schedule 1 of CEPA (List of Toxic Substances) are required to have an Environmental Emergency Plan (EEP). If the proponent has identified that any of these substances will be a part of the project, then it is suggested that an EEP be submitted for review. Note that an EEP, if applicable, should include reporting contacts in the case of an emergency or spill. The phone number for EC – Environmental Protections, Emergencies is (866) 845-6057. See point 14 for other reporting requirements.

13. Secondary containment or a surface liner (drip pans, fold-a-tanks, etc.) should be placed under all containers or vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel or hazardous substance transfers. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario).

14. Please note that any spill of fuel or hazardous/deleterious materials, adjacent to or into a water body, **regardless of quantity** must be reported immediately to the NWT/NU 24-hour Spill Line, **(867) 920-8130.** EC will be notified through this process.

Waste Treatment & Disposal

15. The proponent intends to discharge sewage from the septic tank out of the outfall pipe onto the designated outfall area (supplementary questionnaire). If used, all sumps are to be located above the high water mark and in such a manner as to prevent the

contents from entering any waterbody frequented by fish. Further, all sumps should be backfilled and contoured to match the existing landscape upon completion of the project.

16. All solid wastes (e.g. potable water bottles) should be disposed of at an appropriate facility. The proponent is encouraged to make use of recycling facilities for all recyclable materials.

17. The proponent indicates in the supplementary questionnaire that nonhazardous, noncombustible waste will be disposed of in an approved landfill. The proponent should provide proof that the designated facility is able to accept any waste generated from the normal operations of this project.

18. Bulky items / scrap metal and waste oil / hazardous waste, according to the supplementary questionnaire, will be stored on a palet line and retrograded for disposal outside of Nunavut as required. The proponent should provide proof that the designated facility is able to accept any waste generated from the normal operations of this project.

19. The proponent is considering using an incinerator as part of their waste management strategy. EC is developing a Technical Document for Batch Waste Incinerators. The technical aspects of the document focus on appropriate incineration equipment and best management practices required to achieve the Canada-Wide Standards for dioxins/furans and mercury. To assist the NIRB, a draft copy of the executive summary of the technical document is provided. The NIRB and the proponent are encouraged to contact EC for further information regarding the technical document.

Wildlife

20. 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 of migratory birds are discovered, the proponent should halt all activities until nesting is completed (i.e. the young have left the vicinity of the nest).

21. CWS recommends that camp waste be made inaccessible to wildlife at all times. Camp waste can attract predators of migratory birds (e.g., foxes and ravens) to an area if not disposed of properly.

22. 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.

23. 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.

Table 2: SARA Listed Species for Project Area

Terrestrial Species at Risk [1]	**COSEWIC Designation**	**Schedule of SARA**	**Government Organization with Lead Management Responsibility** [2]
Harlequin Duck (Eastern Population)	Special Concern	Schedule 1	EC
Peregrine Falcon (*anatum-tundris* complex) [3]	Threatened	Schedule 1 (*anatum)* Schedule 3 *(tundrius)*	Government of Nunavut
Polar Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western population)	Special Concern	Pending	Government of Nunavut

[1] The Department of Fisheries and Oceans has responsibility for aquatic species.
[2] Environment Canada (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. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.
[3] The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tunrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subcomplex. This subpopulation complex was listed by COSWIC as Special Concern.

Impacts could be disturbance and attraction to operations.

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 as well as the booklet “Species at Risk in the Northwest Territories” available at www.enr.gov.nt.ca.
- 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 or the Department of Fisheries and Oceans (DFO), the Territorial Government or DFO 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.

24. 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 SARA. 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 application or the supporting documents, EC should be notified, as further review may be necessary. Please do not hesitate to contact me at (867) 669-4748 or Stacey.Lambert@ec.gc.ca with any questions concerning the above points.

Yours truly,

Original signed by

Stacey Lambert
Environmental Assessment Coordinator, EPO

cc: Carey Ogilvie (Head, Environmental Assessment North, EPO)
Lisa Perry (Sr. Environmental Assessment Coordinator, EPO)