Environment Canada | Environnement Canada

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NWB File: 3BC-ERK
Our file: 4703 003 002 001

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Via Email: *licensing@nunavutwaterboard.org*

Re: NWB 3BC-ERK – DND Eureka – "Type B" Water License Application

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 Environment Canada's mandated responsibilities under the *Canadian Environmental Protection Act*, and Section 36(3) of the *Fisheries Act*.

The Department of National Defence (DND) is applying for a new water license to allow for the deposit of sewage waste and solid waste. The Eureka camp is seasonally occupied by approximately 35 people from April to October. Water is obtained from the Environment Canada weather station under water license 3BC-EUR0611. DND proposes to treat sewage waste using a digester and two cell sewage lagoons. Water is then discharged overland to Slidre Fiord. Combustible solid waste is incinerated and combined with non combustible waste in the landfill area. Waste oil and hazardous waste is shipped to Trenton, Ontario for proper disposal. There is ongoing treatment of hydrocarbon impacted soils.

Our review of the application materials identified considerable gaps in the information that we feel would be necessary to provide recommendations towards a licence that is both achievable and protective of the environment. Environment Canada requests that the Nunavut Water Board (Board) have DND address deficiencies in the application prior to issuing a water license. The following items should be addressed prior to the issuance of the Water License:

- Provide the Board with current and detailed maps indicating the location of any historical lagoons, the solid waste area, and the hazardous waste storage area, including their location in relation to water.
- Submit an abandonment and reclamation plan be submitted, for any areas previously used as a sewage disposal area or as a solid waste facility.
- An Operations and Maintenance (O&M) Manuals should be submitted for both the Sewage Disposal and the Solid Waste Disposal facilities. Generally the plans should include:
    - A description of how facilities are operated and maintained;
    - How often these tasks are performed; and,
    - Who is responsible for their completion.

- Environment Canada recommends that a Sludge Management Plan be submitted for approval. EC recommends the following on sewage sludge disposal:
    - Maintenance should include periodic removal and disposal of sewage sludge. Estimates should be made of the quantities of sludge likely to be produced, the required frequency of extraction from the lagoons; and operational procedures developed for environmentally sound removal and disposal. These procedures should include characterization to ensure disposal options are appropriate. Environment Canada recommends that prior to desludging occurring, the proponent submit for approval a Sewage Sludge Management Plan that clearly outlines the chemical composition.
- A monitoring program should be established by DND. Sampling should be conducted along the length of the treatment system (ie lagoons, wetland areas). Monitoring frequency performed by DND should be sufficient to inform how the system can best be managed to optimize treatment. For example, timing of discharge will be a factor in how effectively the wetland can take up nutrients and incorporate solids; discharge should occur gradually over the warmer months to ensure that the effluent has enough treatment time in the wetland system.
- Provide a report identifying all Final Discharge Points, including a general description and geo-referenced locations.

General Comments:

- DND should be aware of the work being done to develop a Canada-wide Strategy for the Management of Municipal Wastewater Effluents, under the aegis of the Canadian Council of Ministers of the Environment (CCME). The latest version of the Canada-wide Strategy, which addresses specific parameters and governance, was approved by the CCME February 17, 2009 (http://www.ccme.ca/assets/pdf/cda_wide_strategy_mwwe_final_e.pdf). As part of the federal government's implementation of the CCME Canada-wide Strategy, it is EC's stated intention to develop a regulation under the *Fisheries Act*. The Canada-wide Strategy will more clearly define regulatory requirements related to the release or discharge of wastewater into surface waters. Environment Canada's goal is to ensure that effluents from wastewater systems are treated before being discharged to the receiving environment so that effluents do not pose unacceptable risks to ecosystem and human health, or to fisheries resources.
    - The focus is on setting maximum allowable limits for BOD_5, residual chlorine and TSS in municipal wastewater effluent. There will be a period of up to five years during which northern issues are examined and practical limits put forth for wastewater quality. For DND, this may eventually impact the BOD and TSS discharge criteria.
- Environment Canada recommends the use of an approved incinerator for the disposal of combustible camp wastes. The proponent is considering onsite incineration as another 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/drgd-wrmd/default.asp?lang=En&n=82401EC7-1.

  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.

Contaminated Sites:

- Environment Canada recommends that the Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils (SAIC, 2006) are consulted for information on biopile design in relation to the recommendation of building biopiles to remediated contamination at "The Fort." Furthermore, because of the regional climate with average summer temperatures not exceeding 5.7 °C (p. 1), there are implications on biodegradation (e.g. rate of degradation).
- The 2006/07 sampling program and the 2007-08 follow-up activities only addressed the new barrel dump as do the remediation recommendations. Sampling of the old Barrel Dump should be considered as there may be potential for metal contamination due to erosion as well as petroleum hydrocarbon contamination from any residual fuel products present on the crushed barrels. Also, if there are no plans to use the crushed old barrels, DND should consider removing them to prevent further erosion.
- For the North Airstrip Apron, where the four active aboveground storage tanks are located, it is recommended that the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, that came into force on June 12, 2008 (Government of Canada, 2008), are consulted as they contain pertinent information on storage tank requirements. These regulations apply to both outside, aboveground and underground storage tank systems (including the piping and other tank associated equipment) under federal jurisdiction containing petroleum and allied petroleum products that have a capacity greater than 230 litres. This includes tanks located on federal or Aboriginal lands. Exceptions are pressurized tanks, mobile tanks, tanks regulated by the National Energy Board, and outdoor, aboveground storage tank systems that have a total combined capacity of 2500 litres or less and are connected to a heating appliance or emergency generator. All storage tank system owners must identify their tank systems to EC and installation of new systems must comply with the regulation's design requirements. Further information on these regulations can be found at www.ec.gc.ca/st-rs.
- Because ecological receptors have been identified as frequenting the vicinity of the site, addressing the contamination present at the site is all the more crucial, especially as some areas do not have barriers (e.g. lack of berms around the four active ASTs installed in 1999).
- EC recommends that waste oil and/or fuel barrels should be stored in a lined and bermed area. Please note that all hazardous materials should be neutralized (if applicable) and stored in sealed and labeled containers. Effluent that has accumulated within the hazardous waste storage containment area should be treated as hazardous waste and decanting of snow or water from the area of the hazardous waste storage area should proceed only if the appropriate chemical analysis has determined the contents meet the requirements of Section 36(3) of the *Fisheries Act*.

References:

Government of Canada. 2008. Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations. Canada Gazette Part II. Available at http://www.ec.gc.ca/CEPARegistry/regulations/detailReg.cfm?intReg=110

SAIC Canada. 2006. Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils. Prepared for Environment Canada. August, 2005.

EC looks forward to providing further feedback once the above items are made available. Please contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at carrie.spavor@ec.gc.ca

Yours truly,

Original signed by

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cc: Carey Ogilvie (Head, EA-North, Environment Canada, Yellowknife, NT)
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