



Nunavut Regional Office
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December 28, 2007

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Your file - Votre référence
2BB-BOS0712

2BE-HOP0712

Our file - Notre référence
9545-1-2HOPG / 190770
9545-1-1BOSG / 190771

**Re: Review Landfarm Operations and Maintenance Manual – Boston Camp
Landfarm Treatment Area and Windy Lake Camp Landfarm Treatment Area
– Miramar Hope Bay Ltd.**

Indian and Northern Affairs Canada (INAC) reviewed the Landfarm Operations and Maintenance Manual (O&M Manual) for Boston Camp Landfarm Treatment Area (LTA) and Windy Lake Camp LTA submitted to the Nunavut Water Board (NWB). The following advice has been provided pursuant to INAC's mandated responsibilities for the enforcement of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NW&NSRT) and the *Department of Indian Affairs and Northern Development Act* (DIAND Act). In conducting our review, INAC referred to the documents on the NWB's FTP-site under 2BB-BOS and 2BE-HOP. INAC recommends that the NWB take into consideration the following comments when reviewing this Landfarm Operations and Maintenance Manual.

The Operations and Maintenance Manual handed in for review by Miramar Hope Bay Ltd. covers two separate Landfarm Treatment Areas (LTA) required under two separate water licences. INAC recommends that a revised and updated Operation and Maintenance Manual be submitted for each separate water licence; namely, one for the Windy Lake Camp, 2BE-HOP0712, and another for Boston Camp, 2BB-BOS0712. Although the landfarm treatment areas are similar, the manuals should vary based on site specific conditions, such as plans, contingencies and time-table for decommissioning the Windy Lake Facility. INAC has concerns and comments pertaining to the two different LTAs that should be addressed. INAC recommends that the document(s) be resubmitted to the Board, specific to each project and with INAC's comments addressed.

General comments relating to the Landfarm Operations and Maintenance Manual with respect to Water Licences 2BB-BOS0712 and 2BE-HOP0712:

- INAC has not been able to ascertain whether engineered design drawings of the facility (stamped by a professional engineer registered in Nunavut) have been submitted. Confirmation has been requested previously by INAC, and is a requirement under water licence 2BB-BOS0712 part E item 7i., and water licence 2BE-HOP0712 part E item 6ii.



- INAC would like to receive more information pertaining to the drainage control system within the LTAs, including how the drainage water collected and whether the water is only pumped from the low point of the Landfarm, or if a sump is present. INAC had difficulty determining the presence of a sump through the drawings referred to in the O&M Manual, and through the O&M Manual itself. The Board should request clarification.
- INAC suggests that the manual should clarify the measures to be taken to minimize potential leakage through the liner, other than visual inspections. The manual states that weekly inspections will be done during Landfarm operations of the leachate collection system.
- INAC would like additional information on the leachate collection system at the Landfarms. The *Supplementary Information Requirements for Hydrocarbon-Impacted Soil Storage and Landfarm Treatment Facilities* states that the interception trench and sump between the Windy Lake Camp LTA and lakeshore was removed in 2005. This trench could have been used as a sample site and served as an indicator as to whether the liner was leaking or not. INAC recommends information be provided as to how leachate is monitored and collected for both LTAs. This would fall under Water Licence 2BB-BOS0712 Part E, 7iii for the Boston Camp LTA; and Water Licence 2BE-HOP0712 Part E, 6v for the Windy Lake Camp LTA.
- INAC recommends that an independent third party be responsible for sampling of the soil prior to it being removed from the landfarm and the results be included in reports to the Nunavut Water Board.
- The calculations used to determine the water balance in the landfarms differ from the *Supplementary Information Requirements for Hydrocarbon-Impacted Soil Storage and Landfarm Treatment Facilities* and the *Landfarm Operations and Maintenance Manual*. The calculations used in the former have a misplaced decimal; however, the error was corrected in the latter. INAC's consultant, BGC Engineering Inc., reviewed the Windy Lake Camp LTA, and raised questions over the methodology for the calculations, including the accounting of snow accumulations within the bermed area. The volume of accumulated water within the bermed area provided by BGC Engineering Inc. are higher than those proposed by the Proponent. INAC recognizes that the Proponent used the mean annual precipitation and, hence, accounts for snowfall; however, windblown snow may accumulate in the bermed in area. Miramar should clarify to the Board why windblown snow was not been included in their calculations.
- The Proponent suggests moisture content of the landfarmed material will be monitored weekly during the summer months (Section 4.4) in order to determine whether water spraying is necessary to prevent dust generation and to maintain optimal conditions for biodegradation. INAC requests information as to how moisture content will be measured, including the equipment and expertise that will be present on site.
- If nutrient addition is deemed necessary, INAC believes it has to be carefully managed. BGC Engineering Inc. suggested to INAC that "Overdosage, or a low moisture content with an otherwise optimal dosage will inhibit microbial activity." INAC requests further information on the assessment of necessity for nutrient addition, and the expertise in bio-remediation of the personnel adding the nutrients.
- INAC suggests that further information is required on the proposed use of the remediated soil. The Proponent states that the remediated soil will be used for reclamation purposes, without specifying if the soil will be on the surface or covered. Particularly, "Remediated soils will be used for reclamation purposes specifically on areas where the existing



vegetative cover has been disturbed” (Section 4.5). If the remediated soil is to be used as top-soil and soil cover, INAC proposes that the material should meet the more stringent Soil Quality Remediation Objectives for Residential/Parkland. The definitions of Industrial and Parkland Land Use provided in the *Environmental Guideline for Site Remediation*¹ are as follows:

- **Parkland:** all land uses in which the primary activity is recreational in nature and requires the natural or human designed capability of the land to sustain that activity.
- **Industrial:** all land uses in which the primary activity is related to the production, manufacture or storage of materials. The public does not usually have uncontrolled access to this type of land. This does not include institutions (e.g. schools, hospitals, playgrounds).

If the remediated soil is going to be used as surface cover, INAC suggests that the Parkland definition and criteria be used. When the land is reclaimed, the public and their food sources will have unlimited access to the land. INAC is aware that the Water Licence 2BE-HOP0712 has set out under Part D, Item 19, remediation parameters which are corresponding to the Industrial Land Use Guideline. However, INAC recommends that Parkland criteria be followed for both the LTAs if the remediated soil is to be used for surface reclamation purposes.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4548 or by email at ReinhartF@inac-ainc.gc.ca.

Sincerely,

Original Signed By

Froeydis Reinhart
Pollution Policy Specialist

Cc. Jim Rogers, Manager of Water Resources – Indian and Northern Affairs Canada,
Nunavut Regional Office

¹ Government of Nunavut – Department of Environment. *Environmental Guideline for Site Remediation*. January, 2002.