

February 25, 2010

0222880805-LTR-V0003-00

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Ms. Beaulieu

Subject NWB Licence No. 8BR-KRK0609 – Submission of Reports

Wardrop has completed the five outstanding reports identified in your letter of December 8, 2009. The documents in the attached package include the following:

- Annual Operations Report: 2006 to 2008
- Quality Control/Quality Plan
- Interim Abandonment and Reclamation Plan
- Spill Contingency Plan
- Operations & Maintenance Manual

These documents are being submitted for Board approval pursuant to the terms of Licence 8BR-KRK 0609.

A drawing showing the proposed location and design of the splash pad is also enclosed. Installation of the splash pad is scheduled to be completed prior to any water discharge in 2010.

Wardrop has been in communication with Mr. Ryan Barry at the Nunavut Impact Review Board, who has provided direction on submitting project information for NIRB screening. The NIRB screening application will be submitted within the next week.

REQUEST FOR REVISION TO WATER QUALITY LIMITS FOR RETENTION CELL DISCHARGE

Now that we have gained some operational experience with the Kugaaruk landfarm, we have a better understanding of some of the practical aspects of this project. As a result, some of the operational procedures which were described in the original Licence application can be refined to reflect these aspects. One of these issues is the manner in which water is discharged and the choice of appropriate water quality limits for this discharge.

Section 5 of Part I in the 2006 Licence for the Kugaaruk facility, states that water to be discharged for the facility must meet applicable CCME quality criteria for freshwater aquatic life. Presumably this provision is based on the information provided in the initial application and on the recommendations in the intervener submission from Environment Canada.

Direct application of the CCME freshwater aquatic life guideline limits would be applicable if the retention cell discharge was occurring directly into the receiving water body or if the discharge was being directed to the water body by a channel with minimal opportunity for the contaminant levels to be altered after leaving the discharge point. With the development of a splash pad in 2010, neither of these scenarios will be applicable to the discharge of water from the Kugaaruk landfarm

The drawing of the splash pad included in this submission shows the surface contour lines between the discharge point and the shoreline of the closest surface water body, St. Peter Bay. The horizontal distance from the discharge point to the Bay is approximately 1200 m. Over this distance there is a 55-m drop in elevation.

The stratigraphy recorded during the installation of five groundwater monitoring wells consisted primarily of sand and gravel deposits from surface to permafrost at a depth of 1.5 m.

The design and placement of the splash pad to be constructed in 2010, will allow discharged water to dissipate over a relatively large surface area immediately downstream. When the granular surficial deposits are taken into consideration along with the effect of the splash pad, it is anticipated that the discharge will percolate into the soil within a short distance from the discharge point. As a result, the discharge would be more accurately represented as a groundwater flow regime rather than channelized surface flow.

Wardrop is hereby requesting that the Nunavut Water Board consider applying criteria from the B.C. Contaminated Sites Regulation (B.C. Regulation 375/96) as the water quality limits for water discharged from the landfarm. The criteria in Schedule 6 of the B.C Regulation are generic water standards for the protection of aquatic life. They are applicable to groundwater flowing into surface water which supports aquatic life. B.C Environment states that groundwater flow into surface water need not be considered where the distance from the contaminant source is greater than 1.0 km. or where the time of travel is greater than 50 years. Although the splash pad at the landfarm is more than 1 km from the shore line of St Peter Bay, it is likely that the surface gradient and granular overburden will result in a time of travel to surface water of less than 50 years. On the basis of the assumption on the time of travel, Wardrop is of the opinion that the B.C criteria can be applied. Naphthalene is included in the list of parameters in the following table as an indicator of the presence of polycyclic aromatic hydrocarbons (PAH). Naphthalene is one of the more mobile PAH fractions and was used by B.C, Environment as a surrogate in the derivation of the EPHw10-19 value.

The proposed limits taken from the B.C regulation are as follows:

Proposed Water Quality Discharge Criteria for Kugaaruk Landfarm	
Parameter	Discharge Limit
Volatile Hydrocarbons (C6-C10) VHW ₆₋₁₀	15 mg/L
Extractable Hydrocarbons (C10-C19) EPHw ₁₀₋₁₉	5 mg/L
Benzene	4 mg/L
Toluene	0.39 mg/L
Ethylbenzene	2 mg/L
Naphthalene	0.01 mg/L

Source: Schedule 6 of B.C. Regulation 375/96 under the Environmental Management Act

If any additional clarification is required on any of the attached material or on the requested change to the water discharge limits, please contact me at (204) 988-0527, or david.ediger@wardrop.com.

Thank you for your consideration.

Sincerely

WARDROP ENGINEERING INC.



Dave Ediger
Senior Environmental Engineer

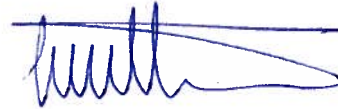
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Attachment

Copy Mr. K. So, Government of Nunavut

Reviewed by

WARDROP ENGINEERING INC.



Lorne Stone
Principal