



Environmental Protection Operations
P.O. Box 2310
Yellowknife NT X1A 2P7

September 3, 2010

Our file: 4782 007
Your file: MV2009L3-0007

Mackenzie Valley Land and Water Board
4910 50th Ave 7th floor
P.O. Box 2130
Yellowknife NT X1A 2P6

Attention: Lynn Carter
Regulatory Officer

permits@mvlwb.com

RE: MV2009L3-0007 – City of Yellowknife – Request to amend arsenic discharge criteria for Biotreatment Pad

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

The City of Yellowknife is requesting to amend the arsenic discharge criteria for water discharged from the Biotreatment Pad lagoon to a land surface within the City landfill footprint. The request is to increase the criteria from 25µg/L to 340 µg/L. EC's concern is with the accumulation of contaminants in the discharge area, potential flushing/migration of contaminants into the shallow groundwater or nearby pond, and eventual creation of a closure liability.

Volumes to be disposed of are variable, and have ranged from approximately 52 m³ to 172 m³ /year since 2007. Loadings associated with these volumes, calculated using an average of the arsenic concentrations reported, would range from 2.5 to 9.0 g of total arsenic being discharged each year. The proposed discharge site is already disturbed as it receives runoff from the asphalt disposal pile as well as the winter snow disposal.

An increase in the criteria could further increase the arsenic loadings at the discharge site, and no monitoring is being done on site groundwater quality, nor soil arsenic levels. Without such information it is difficult to predict what discharge criteria would be appropriate given the receiving environment conditions. However, given the limited volumes of treated water to be released, EC agrees a moderate increase would be reasonable provided discharge volumes do not substantially increase. Periodic testing of the receiving soils would be appropriate to monitor for accumulations, with a frequency of every second or third year suggested. If levels approach or

exceed the territorial guidelines for industrial use, alternative disposal methods or treatment would be warranted. EC also notes that total as well as dissolved arsenic should be reported for the discharge.

Environmental Protection Operations (EPO) should be notified of changes in the proposed or permitted activities associated with this amendment request. Please do not hesitate to contact me at (867) 669-4735 or by e-mail at anne.wilson@ec.gc.ca with any questions or comments.

Yours truly,

Anne Wilson
Water Pollution Specialist

cc: Carey Ogilvie (Head, Assessment & Monitoring, EPO)
Jane Fitzgerald (EA Coordinator, EPO)