



March 7, 2017

AlecSandra Macdonald
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Gwich'in Land and Water Board
Box 2018
Inuvik, NT
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Dear Ms. Macdonald,

**RE: Town of Inuvik
 Type A Water Licence Renewal Application – G17L3-001
 Municipal Water Licence
 Request for Review and Comment**

The Department of Environment and Natural Resources, Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

Topic 1: Part A - Scope and Definitions of Inuvik Water Licence

Comment(s):

To reflect current updates and maintain consistency with other Water Licences issued in the NWT, the GLWB should consider adding or adjusting the following definitions in *Part A - Scope and Definitions* of the Inuvik Water Licence:

Municipal Sewage Sludge is a mixture of water and non-stabilized solids separated from various types of wastewater as a result of a natural or artificial process.

Reclamation means activities which facilitate the return of areas affected by the Waste Disposal Facilities to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and surrounding environment.

Sewage Sludge Treatment Facility *comprises the area and engineered structures designed to treat Sewage sludge.*

Unauthorized discharge *means a release or discharge of any Water or Waste not authorized under this Licence.*

The term “*Abandonment and restoration*” has been replaced by “*Closure and reclamation*” in other NWT Board jurisdictions and most recent Water Licences, and “*Closure and reclamation*” should be used where appropriate within Inuvik’s Water Licence. In the same manner, the term “*Spill Contingency Planning*” is now commonly used in NWT Water Licences and should be used where appropriate in Inuvik Water Licence such as Part G.

Recommendation(s):

- 1) ENR recommends that the above definitions and updated terminology be added to Inuvik’s Water Licence.

Topic 2: Changes to Part B – General Conditions

Comment(s):

ENR notes that Part B, Item 1 of the current Inuvik Water Licence does not contain the following conditions:

- A description of sewage sludge management activities;
- Any updates and/or revisions to approved management plans (with brief summary in the introduction);
- The annual quantity of hazardous material stored on site and shipped off site (if any);
- The Licensee shall operate in accordance with the plans and programs approved pursuant to the conditions of this Licence and with any revisions to the plans and programs as may be made pursuant to the conditions of this Licence and as approved by the Board. If any plan is not approved by the Board, the Licensee shall revise the plan as requested by the Board.

Similar conditions have been included in the more recent municipal Water Licences issued in the NWT.

Recommendation(s):

- 1) ENR recommends that the above (or similar) general conditions be added to the Inuvik Water Licence to provide the necessary clarity and to better align with current NWT Water Licences.

Topic 3: Part D – Conditions Applying to Waste Disposal

Comment(s):

ENR notes conditions such as follows have been included in the more recent municipal Water Licences issued in the NWT in Part D – Conditions Applying to Waste Disposal. Note that for clarity purposes for the Licensee, the Board may regroup and identify conditions under Sewage and Solid Waste.

- The Licensee shall ensure that any unauthorized Wastes associated with this undertaking do not enter any Waters.
- The Licensee shall immediately notify an Inspector of the exceedance of any effluent quality criterion.

Recommendation(s):

- 1) ENR recommends that these conditions be added to the Inuvik Water Licence to ensure the necessary provision and clarity towards waste disposal practices.

Topic 4: Part F – Conditions Applying to Spill Contingency Planning

ENR notes that similar conditions have been included in the more recent municipal Water Licences issued in the NWT.

- The Licensee shall act in accordance with the approved Spill Contingency Plan, and shall annually review the Plan and make the necessary revisions to reflect changes in operations, technology, chemicals or fuels, or as directed by the Board. Revisions to the Plans shall include a brief summary of the changes made, and *shall* be submitted to the Board, for approval, at least sixty (60) days prior to any proposed changes to the requirements in the approved Plan.
- All spills and Unauthorized Discharges of Water or Waste shall be reclaimed to the satisfaction of an inspector.

Recommendation(s):

- 1) ENR recommends addition of similar conditions to Inuvik Water Licence to foster the necessary provision towards Spill Contingency Planning (Part G).

Topic 5: SNP Effluent Monitoring of Sewage Disposal Facilities – CBOD Monitoring

Comment(s):

Carbonaceous Biochemical Oxygen Demand (CBOD) was selected as a preferable parameter to measure wastewater effluent quality in southern Canadian jurisdictions, with the adoption of the Canada-wide Wastewater System Effluent Regulations (WSER). The WSER do not yet apply to wastewater treatment systems in Canada's North and it is unknown when the WSER will be legislated in the NWT because of the unique challenges presented in the Northern environment.

In the spirit of harmonizing wastewater treatment systems' monitoring requirements, BOD has been replaced by CBOD within NWT Water Licences, allowing for comparison between NWT wastewater treatments systems performance with its southern Canadian counterparts. Inuvik's current licence requires monitoring of Biochemical Oxygen Demand (BOD₅) at SNP 0036-3 (compliance point), as well as SNP 0036-6, SNP 0036-7 and SNP 0036-8.

In past Water Licences renewals, ENR recommended that both parameters be monitored to establish a CBOD/BOD trend ratio specific to a sewage/wastewater treatment system. During Fort Providence last Water Licence renewal in July 2016, an EQC for CBOD was derived at 90% of BOD value by looking at the trend analysis submitted by the City of Yellowknife (MV2009L3-0007). This CBOD/BOC ratio reflected a 3 years analysis of wastewater effluent monitoring data.

Recommendation(s):

- 1) ENR recommends BOD monitoring to be replaced by CBOD in order to align with southern Canadian jurisdictions in using this parameter to assess wastewater treatment quality through oxygen-consuming capability of sewage discharges.

Topic 6: Sewage Treatment Facility (STF) O&M Plan

Comment(s):

A Sewage Treatment Facility O&M plan was submitted as part of this application providing important information on the design and operation of Inuvik's wastewater treatment cells system.

The recently produced MVLWB O&M templates for *Sewage Treatment Facility O and M Plan*, recommends the following information be included within an STF O&M Plan : Facility Location Coordinates; Name, contact info & roles/responsibilities of each staff member working at STF; Annual volume of wastewater collected in piped system in m³/year; Date of decommissioning of the STF (if unknown, estimate

year); Ground Conditions relating to permafrost in and around the community in which the STF is located (Permafrost, Continuous permafrost, Discontinuous permafrost); How the sludge is disposed of (after being transferred to the sludge cells); Annual flow design; Where are records of annual/yearly quantities of sewage discharged to the STF are kept; Summary of any closure and reclamation work completed; Summary of any studies requested; Records of repairs and upgrades; etc.

Recommendation(s):

- 1) ENR recommends that Inuvik's current STF O&M (or future versions) be updated to provide the above information on the wastewater treatment system. During this updating process of the STF O&M plan, the Town may also refer to the MVLWB O&M template specific to Engineered Lagoons (Schedule C) and/or Natural Lake Lagoon (Schedule B) for additional information/details that Land and Water Boards are expecting within STF O&M plans.

Topic 7: Sewage Treatment Facility (STF) O&M Plan – Sludge Treatment

Comment(s):

The STF O&M plan specifies, section 3.3.5, that sludge was transferred from the primary cells to the sludge holding cells (last transfer occurring in 1993). Section 3.3.1 described that runoff water is often trapped in the sludge holding cells and should be removed through pumping to prevent erosion of the dykes. Section 3.3.8 of the STF also reported a possible reduction of sludge transfer operations and sludge accumulation since enzyme addition procedures were initiated shortly after 1993.

Recommendation(s):

- 1) ENR recommends that sludge holding cells runoff accumulation be added to the items to be inspected and removed, to prevent erosion of the dykes.
- 2) ENR recommends that details on enzyme additions procedures to the wastewater treatment cells be provided within the current or subsequent updated versions of the STF O&M plan.

Topic 8: ENR Inspector Information Update and GLWB Notification

Comment(s):

Section 4.0 of the STF O&M Plan refers to Indian and Northern Affairs Canada Inspector Jan Davies. Following devolution, GNWT Environment and Natural Resources has taken over responsibility for Water Licence inspections.

Recommendation(s):

- 1) ENR recommends the department, name and contact information be updated to GNWT Environment and Natural Resources, Water Resources Officer Lloyd Gruben, at 867.678.6650. Contact information within the SCP should be revised and updated as necessary to prevent any delays in time of spills emergencies.
- 2) Contact information referring to AANDC within the Application Package should also be revised to ENR contact.
- 3) Part D, Item 5 of Inuvik current Water Licence specifies that the Licensee shall advise an Inspector at least ten (10) days prior to initiating the Batch Decant of the sewage lagoon. The GLWB may also be advised of the decant at the same time as inspector, as currently done in other NWT Water Licences, which would require that such specification be made this condition.

Topic 9: Spill Contingency Plan – Staff Roles and Responsibilities of Spill Response Team

Comment(s):

Section 2.11.4 of Inuvik SCP provides the Procedures for Initial Actions. One very important step to be conducted as Initial Actions is the *Activation of the Spill Response Team* (or responding personnel), as specified in 2007 INAC Spill Contingency Guidelines (“Procedures for initial action” - Section 2.3).

The SCP Guidelines also specifies (section 2.2) that the response organization should identify each employee’s associated duties (roles and responsibilities during a spill emergency), as well as 24 hour telephone numbers for employee(s) responsible for activating the plan.

While section 2.4 of Inuvik SCP provided contact information for the spill response personnel as well as their Job title, the roles and responsibilities of these staff members within the Spill Response Team were not identified. It is also noted that no employee was assigned the important role of On-Site Supervisor (see below comment).

Recommendation(s):

- 1) ENR recommends that the employee who will assume the role of “On-Site Supervisor” in the eventuality of a spill emergency situation be identified within the Inuvik SCP. ENR further recommends that alternate(s) to the On-Site Supervisor be identified within the plan for times that the On-Site Supervisor may not be available.

- 2) ENR recommends that spill response roles and responsibilities be specified for each spill response personnel (section 2.4), in order to provide clarity and prevent delays in the eventuality of spill emergency situation.

Topic 10: Spill Contingency Plan - Lines of Communication and Response Duties of Response Personnel in Communication Flowchart

Comment(s):

Section 2.2 of the 2007 INAC Spill Contingency Guidelines specifies that a flowchart should be prepared to depict communication lines and the response duties of each member of the response team (example provided in Figure 3 of the Guidelines).

A Spill Response Flowchart is provided under Figure 2.1 of the Inuvik SCP. Inuvik's SCP flowchart does not however provide the name of the "On-Site Supervisor", as well as the associated contact information. This flowchart should be updated to contain this information, and posted at highly visible(s) location(s) that are easily accessible by on-site staff.

Recommendation(s):

- 1) To prevent confusion in time of emergency, the SCP flowchart provided on page 10 should be updated to provide the name of the *On-Site Supervisor*.
- 2) Once the flowchart diagram is updated with the name and contact information of the On-Site Supervisor (and alternate(s)), ENR also recommends that this diagram be posted in a highly visible place at each of Inuvik waste management or recreational facilities enumerated in section 1 where hazardous substances are being stored (near potential spill sources).

Topic 11: Spill Contingency Plan - Immediately Reportable Spill Quantities - Appendix A

Comment(s):

ENR's website, under "Hazardous Material Spills - Reporting Spills" provides "Reportable Quantities for NWT Spills. Appendix A of the current SCP also provides a Table of *Immediately Reportable Spill Quantities* for the required various substances. ENR notes that untreated sewage and wastewater is currently missing from this Table.

Recommendation(s):

- 1) ENR recommends for Sewage and Wastewater to be added to Inuvik SCP Appendix A: Reportable Quantities for NWT Spills.

Topic 12: Spill Contingency Plan - Section 2.11.7: Spill Under Ice

Comment(s):

Section 2.11.7 provides information on the planned spill emergency procedures if a spill was to occur on the ice, but does not provide which procedures would be considered if a spill was to migrate under ice.

Recommendation(s):

- 1) ENR recommends that details on planned procedures to recover spilled material under ice be clarified and identified within Inuvik's SCP. These clarifications will help staff to plan ahead and understand best possible response procedures may this type of scenario was to occur.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the Inuvik Region and were coordinated and collated by the Environmental Impact Assessment Section, Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick.clancy@gov.nt.ca.

Sincerely,



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