



October 19, 2016

AlecSandra Macdonald
Land and Water Technician
Gwich'in Land and Water Board
Box 2018
Inuvik, NT
X0E 0T0

Dear Ms. Macdonald,

**RE: Tsiigehtchic
 Type B Water Licence Renewal Application – G16L3-002
 Municipal Water Licence – Water Use and Deposits of Waste
 Request for Review and Comment**

The Department of Environment and Natural Resources (ENR), 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: SNP Monitoring Deficiencies

Comment(s):

As noted by the Water Resource Officer in his 2016 inspection, the community has not been collecting the required SNP compliance samples. ENR acknowledges the communities effort in creating a SNP protocol that was submitted with this application, but reminds the Community to ensure SNP samples are collected as required by the Water Licence.

The Water Licence currently requires for SNP monitoring activities occur twice a year: once immediately after breakup, and, once prior to freeze up.

ENR notes that results from sampling at SNP 1557-4 were submitted with this Water Licence renewal application package. Only 5 sampling events occurred, specifically on September 15, 1991, October 12, 2006, June 27, 2007, June 15, 2010 and June 7, 2016. ENR would like to remind the Hamlet that effluent sampling of their waste management activities is required twice a year.

Recommendation(s):

- 1) The Charter Community of Tsiigehtchic should collect all required SNP samples to remain in compliance with the Water Licence.

Topic 2: SNP Monitoring Deficiencies**Comment(s):**

Table 19b of the SNP document also reports a TSS EQC exceedance for SNP 1557-4 (970 mg/L reported; EQC of 180 mg/L). It isn't clear if the Community notified the Board or the Inspector of the exceedance.

Recommendation(s):

- 1) Annual Reports should indicate what actions were taken following elevated SNP results, including when they were reported to the Board or the Inspector. Any actions taken to identify the source of the elevated levels as well as the steps taken to prevent future exceedances should also be included.

Topic 3: Annual Reporting**Comment(s):**

ENR notes that there were no Annual Reports submitted with the current Water Licence application and none are posted on the Gwich'in Land and Water Board's Public Registry. Annual reporting is an important requirement of the Water Licence. It also serves as an important tracking tool for reviewers and also for the community and community members.

Recommendation(s):

- 1) ENR recommends that all past Annual Reports be submitted to the Gwich'in Land and Water Board and posted on the GLWB Public Registry, and on an annual basis as per their Water Licence and requirements for all documents to be posted on the Public Registry.

Topic 4: EQC Compliance Point**Comment(s):**

The SNP document, submitted to support the Water Licence application, has requested the Condition for the water quality parameters stipulated for Station 1557-4 at the discharge of the E-Lake Lagoon be assigned to Station 1557-5 at the final discharge point where the treated wastewater leaves the treatment system and

enters the receiving environment of the Mackenzie River. ENR assumes this request may be due to SNP Station 1557-4 reporting TSS concentrations of 970 mg/L, an exceedance of the Licence by five times (EQC of 180 mg/L), while the downstream SNP station (1557-5) has a concentration of only 6 mg/L. However, it is not clear to ENR if the Community is requesting that the EQCs be removed from the current compliance point (SNP 1557-4) or if the request is for adding EQCs to both SNP stations (SNP 1557-4 & 5).

Additional sampling and monitoring is required to examine the performance of the lagoon and ensure the proper location for the applying the EQC's is selected. It is not clear to ENR if the 970 mg/L was a sampling or laboratory error. It seems to be the only result with such a large concentration. As such, it is ENR's opinion that the existing sample record is not sufficient to capture the potential scale and scope of waste releases from the lagoon.

Recommendation(s):

- 1) ENR requires additional supporting information on the natural conditions of the discharge point of Nagwichoojik (Mackenzie River) to support applying the Water Licence EQCs of SNP 1557-4 to SNP 1557-5.

Topic 5: Changes to Part A - Scope and Definitions of Tsiigehtchic Water Licence

Comment(s):

The Board should consider including the recommended definitions in the Tsiigehtchic Water Licence to provide further clarity and consistency within the Water Licence and with other Boards.

Recommendation(s):

- 1) It is recommended the GLWB consider insertion or adjustment of the following (or similar) conditions within Part A - Scope and Definitions of Tsiigehtchic Water Licence:
 - A definition for Modification, Municipal, Professional Engineer, Reclamation, Regulations, Sewage Sludge Treatment Facility, Spill Contingency Plan, Surveillance Network Program and Unauthorized discharge. The following suggested definitions are currently used by other Boards in other jurisdictions and may be considered by the GLWB:

Modification means a change, other than an expansion, that does not alter the purpose or function of that structure.

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.

Professional Engineer means a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories in accordance with the Engineering and Geoscience Professions Act, S.N.W.T. 2006, V.16, or amendments, and whose principal field of specialization is appropriate to address the components of the undertaking at hand.

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

Regulations means Regulations promulgated pursuant to section 63 of the Act.

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

Spill Contingency Plan means a document, developed in accordance with Indian and Northern Affairs Canada's April 2007 Guidelines for Spill Contingency Planning, that describes the set of procedures to be implemented to prevent and minimize the effects of a spill.

Surveillance Network Program means a monitoring program established to define environmental sampling and analysis requirements, as detailed in Annex A of this Licence, to collect Water quality data, and to assess discharge quality, Licence compliance, and potential for impacts to the environment.

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

Topic 6: Changes to Part B – General Conditions

Comment(s):

The Board should consider adding the following (or similar) conditions under Part B, Item 1 of Tsiigehtchic Water Licence which will ensure consistency with other municipal Water Licences in the NWT.

Recommendation(s):

- 1) ENR recommends that the following (or similar) conditions be added under Part B, Item 1 of Tsiigehtchic Water Licence:
 - A summary of Modifications and/or major maintenance work carried out on the Waste Disposal Facilities, including all associated structures;
 - A list of unauthorized discharges;
 - An outline of any spill training and communications exercises carried out;
 - The monthly and annual quantities of sludge removed from the Sewage Disposal Facilities;
- 2) Additionally, ENR recommends addition of the following (or similar) conditions to be included in the Water Licence:
 - a) The Licencee 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 Licencee shall revise the plan as requested by the Board.
 - b) The Licencee shall, within 60 days if the issuance of this Licence, post the necessary signs, where possible, to identify the stations of the “Surveillance Network Program”. All postings shall be located and maintained to the satisfaction of an Inspector.
 - c) The Licencee shall, within 60 days of issuance of this Licence, post signs in the appropriate areas to inform the public of Water Supply and Waste Disposal Facilities. All postings shall be located and maintained to the satisfaction of an Inspector.
 - d) Conditions relating to the reporting of spill such as B.5 should be transferred to a section within the Water Licence specific to spill contingency planning (see below comment on SCP).

Topic 7: Part D – Conditions Applying to Waste Disposal

Comment(s):

The Board should consider adding the following conditions to the Tsiigehtchic Water Licence to ensure the necessary provision and clarity towards waste disposal practices.

Recommendation(s):

- 1) ENR recommends that the following (or similar) conditions be added Part D – Conditions Applying to Waste Disposal. Note that for clarification purposes for the Licencee, the Board may regroup and identify condition under Sewage and Solid Waste (see approved Water Licence for the Village of Fort Simpson).
 - e) The Licencee shall ensure that any unauthorized Wastes associated with this undertaking do not enter any Waters.
 - f) The Licencee shall immediately notify an Inspector of the exceedance of any effluent quality criterion.
 - g) A freeboard of one metre, or as recommended by a qualified geotechnical engineer and as approved by the Board, shall be maintained at all dykes and earthfill structures associated with the Sewage Disposal Facilities.
 - h) An EQC for Total Petroleum Hydrocarbons (TPH) of 5 mg/L.

Topic 8: Conditions Applying to Spill Contingency Planning

Comment(s):

There is currently no provision in Tsiigehtchic Water Licence to ensure that the necessary planning is in place to prevent and/or quickly respond to all accidental spills that may occur at the hamlet Waste Management Facilities or elsewhere in the community.

Spill Contingency Planning is a crucial step in protecting the community groundwater and surrounding water bodies from impacts of waste management activities. Therefore, the Board should consider addition a Section to the Water Licence for Spill Contingency Planning to ensure necessary provisions exist in the Water Licence for planning and response to spills.

Recommendation:

- 1) ENR recommends that a section be added to Water Licence to include full Spill Contingency Planning, and to ensure consistency with other Water Licences currently issued by other Boards. It should include the following items:
 - a) The Licencee shall submit to the Board, within 6 months of the issuance of this Water Licence, a Spill Contingency Plan in accordance with the Guidelines for Spill Contingency Planning, April 2007 developed by INAC - Water Resources Division.
 - b) The Licencee shall act in accordance with the approved Spill Contingency Plan, and shall annually review the Plan and made the necessary revisions

to reflect changes in operations, technology, chemicals or fuels, or as directed by the Board. Revised 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 I the approved Plan.

- c) If, during the term of this Licence, a spill or an Unauthorized Discharge of Waste occurs or is foreseeable, the Licencee shall:
- Implement the Spill Contingency Planning
 - Report the incident immediately via the 24-hour NWT Spill Report Line at (867) 920-8130 in accordance with the instructions contained in the Spill Report Form NWT;
 - Submit to an inspector a detailed report on each occurrence not later than 30 days after initially reporting the event.
- d) All spills and Unauthorized Discharges of Water or Waste shall be reclaimed to the satisfaction of an inspector.

Topic 9: Part G – Conditions Applying Operation and Maintenance

Comment(s):

The Operations and Maintenance Plan (O&M) requires a number of improvements to be acceptable and consistent.

Recommendation:

- 1) ENR recommends that the Water Licence include a provision for the O&M to be updated and remain current to adequately demonstrate actual waste management activities employed at their facilities.
- 2) ENR recommends that the Board consider including a Sewage O&M Plan as a requirement of the Water Licence. The Plan should outline sludge management activities to help ensure the proper operation and performance of the sewage waste handling facilities.
- 3) ENR recommends that the section relating to “Conditions Applying to Operation and Maintenance” include a condition that requires a regular and annual review of the O&M to reflect changes in operations, technology, and the results from research and other studies, or changes included and as directed by the Board.

Topic 10: Municipal Water Supply

Comment(s):

ENR understands from the proposed Municipal Water Supply Operations and Maintenance Plan that no facility designs or drawings have been submitted. This information is required as per Section 4 – Facility Design of the Operation and Maintenance template from the Mackenzie Valley Land and Water Board (MVLWB).

Recommendation(s):

- 1) It is recommended the proponent submits the facility drawings as required or addresses the reason for the exclusion.

Topic 11: Wastewater Treatment System

Comment(s):

ENR understands from the proposed Wastewater Treatment System Operations and Maintenance Plan that some of the information required under the MVLWB Operation and Maintenance template is missing, under Section 8 - Sludge Management, and Section 10 - Record Keeping.

In addition, the current Wastewater Treatment System is missing security and control measures as indicated under Section 3 - Security and Control.

Recommendation(s):

- 1) ENR recommends the proponent includes the missing information or address the reason for the exclusions.
- 2) ENR recommends the proponent commit to installing further security and control measures at the Wastewater Treatment System such as, but not limited to, proper signage.

Topic 12: Solid Waste Facility

Comment(s):

ENR understands from the proposed Solid Waste Facility Operations and Maintenance Plan that hazardous materials are improperly stored at the solid waste site despite past recommendations made by consultants.

The proposed Solid Waste Facility Operations and Maintenance Plan is missing security and control measures as indicated under Section 3 - Security and Control. The proposed Solid Waste Facility Operations and Maintenance Plan, Section 12 – Landfilling Operations, indicates that the Charter Community of Tsiigehtchic conducts compaction of landfilled waste. However this document is missing key information in the MVLWB Operations and Maintenance template.

Recommendation(s):

- 1) It is recommended that the proponent commit to constructing a new designated area for hazardous wastes as detailed in the recommendation under Subsection 4.5.3 – Hazardous Waste Storage Area.
- 2) It is recommended the proponent commit to installing further security and control measures at the Solid Waste Facility such as, but not limited to, proper signage.
- 3) ENR recommends the proponent provide further detail as required by the MVLWB Operations and Maintenance template.

Topic 13: Spill Contingency Planning

Comment(s):

ENR understands that the proposed Spill Contingency Planning document lists off-site resources for assistance in the event of a spill. In addition, some of the information pertaining to ENR contacts needs to be updated.

The proposed Spill Contingency Planning document does not list any facilities under Subsection 2.12 – SCP-Resource Inventory.

Recommendation(s):

- 1) Update the telephone number for the ENR Inspector from (867) 678-0590 to (867) 678-6676 under Subsection 2.6 – Off-Site Resources.
- 2) Update the telephone number for the ENR Water Resource Officer from (867) 678-6650 to (867) 678-6676 under the Tsiigehtchic Contact List for Spill Contingency Plan.
- 3) The proponent must update the list of facilities and provide detail on location and volume. If there are no spill kits in any of the facilities, the proponent commit to acquiring a basic spill kit at each facility that is listed under Subsection 2.12 – SCP-Resource Inventory.

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,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
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Environmental Impact Assessment Section
Conservation Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories