



Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 6200 000 015/002
NWB File: 3BM-KIM0911

October 24, 2018

Via email at: licensing@nwb-oen.ca

Ida Porter
License Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Ms. Porter:

RE: 3BM-KIM0911– Hamlet of Kimmirut – Renewal and Amendment for a Type “B” Water License

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned Type “B” Water License and is submitting comments via email. ECCC’s specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, and the pollution prevention provisions of the *Fisheries Act*.

The following comments are provided:

1.0 Topic: Scope of Licence – Abandonment and Restoration

References:

- Licence renewal letter from CGS to NWB dated Sept. 4, 2018
- Revised Plan For Compliance Licence No. 3BM-KIM0911 (EXPIRED)

Issue:

The renewal Water Licence will encompass the existing water supply system, existing wastewater disposal system and the existing waste sites (bulky wastes and landfill). Government of Nunavut, Department of Community and Government Services (GN-CGS) has repeatedly stated that the “new” lagoon and solid waste site were not to be included in the licence. The facilities that were constructed but never commissioned (i.e. the 2012/13 constructed sewage lagoon and “new dump site”) would not be used as

licenced facilities, but ECCC notes that these will need to be abandoned appropriately. Closure planning for the abandonment and restoration of structures at these sites should be done as outlined by GN-CGS, as stated in the revised Compliance Plan:

- *The A&R plan of the existing sewage-dumping site and the 2013-14 built new sewage lagoon will be prepared during the design phase of the proposed new WWTF to a new location at site # 9.*
- *The A&R Plan for the 2001 built solid waste site and the existing solid waste site will be prepared during the design phase of the new Solid waste site.*

CGS has requested a 10-year licence term. ECCC has no objection to this.

Recommendation:

ECCC recommends that the renewal license include a condition for the abandonment and restoration of the sites, which were constructed but not commissioned, and for the existing solid waste site.

2.0 Topic: Wastewater O&M Manual

References:

- Expired License 3BM-KIM0911
- Operation and Maintenance Manual of existing Sewage Treatment System: Hamlet of Kimmirut: May 2016

Issues:

There are some discrepancies in the O&M Manual that could be cause for confusion. Revising the following excerpts from the O&M Manual would provide clarity:

1. Facilities:
 - a. Section 2.1.1 includes a description and diagram of the 2012/13 built system, and states that it will be commissioned. GN-CGS now states that this system will not be used. This section should be removed.
 - b. The future site for the sewage lagoon facility has been identified and screened by Transport Canada. GN-CGS states that design is expected to start in 2019 and construction is in 2020-21. The O&M Manual will need to be amended once new facilities are constructed and commissioned.
2. Sampling of wastewater:

The expired water license includes the requirement for sampling at KIM-3 of *effluent discharge from existing Sewage Disposal Facility*. The description of where and how often to sample is inconsistent in various places and documents. The sample results provided for 2014 to 2017 are not clearly flagged as to exact

location, and the sampling results are highly variable indicating that some samples were perhaps taken from the truck and some from land further away from the discharge.

3.4.4 Sampling Procedures and Requirements

The proposed sampling program will help to monitor only the raw sewage quality on daily basis.

*...Descriptions of each sampling location of the sewage treatment system for the Monitoring Program are listed in **Table 4** below in page 15 and shown in **Appendix-B**. (This section shows the license wording for KIM-3 and a line drawing with the site not accurately placed).*

By obtaining samples at the location proposed above, raw sewage quality can be monitored. Samples will be taken from location KIM-3 on monthly basis.

...A grab sample will be taken from each of the sewage trucks during discharge to the hill slope.

3. APPENDIX-A: GUIDELINES FOR WATER, WASTEWATER AND LEACHATE SAMPLING AND TESTING

The section on wastewater states:

1. Collect five treated samples from the first point of discharge of Sewage (end of pipe).
2. Collect five raw samples directly from the truck discharge

ECCC notes that these samples would effectively be the same quality (i.e. untreated wastewater) and questions the benefit of collecting raw wastewater samples. The results provided by GN-CGS from the Caducean Environmental Laboratory for 2014-2017 do not show consistent or useful data.

Recommendations:

ECCC recommends that:

- The facilities description be revised to remove the references to the 2012/13 built system and the Manual be revised as new facilities are constructed and commissioned;

- References to wastewater sampling be revised to reflect the water licence requirements as noted in section 2;
- The Proponent revise these sections of the Manual to specify the frequency specified in the license (Monthly during months of May to August inclusive – in the expired license) and to clearly identify the sampling location – whether from the truck or from the outfall area, and if the latter, identify where the station KIM-3 signage is;
- That the NWB consider deferring further wastewater sampling until the wastewater treatment system is constructed and commissioned as current sampling methods and locations are of questionable value.

3.0 Topic: Solid Waste Management

References:

- Solid Waste Operation and Maintenance Plan for Hamlet of Kimmirut
- June 2017 INAC Inspection Report

Issue:

The Solid Waste O&M Plan describes how operations should be carried out for the municipal landfill. However, based on the Inspection Report, and sections of the Plan, there does not appear to be proper segregation and management of the municipal waste materials.

The Plan states:

(Page 3) The Bulky metals site is located next to the Landfill site. This site receives all the metal wastes without any segregation. Each year this facility is increasing its square area. Dump truck or low bed is used to transport bulky metals from the community to this site. Hazardous waste management cell was not built within the bulky metals site. As a result, hazardous wastes are mixed up with other materials.

No engineered Land farm was built to accommodate and treat contaminated soil of this community.

The MSW disposal area at Kimmirut is used as a natural attenuation landfill. This means that the landfill is not lined and small amounts of contaminants can enter the surrounding environment to be naturally broken down. (Page 8)

The Waste Truck Driver should monitor the waste they collect from community buildings every day, collecting only that which is acceptable for disposal at the MSW disposal area.

The MSW disposal area needs to be properly signed to inform operators and residents of the correct location to dispose of or store certain wastes.

The current site is due to be replaced, and will require extensive remediation to address the mixed wastes (including hazardous waste materials) and contaminants associated with the wastes. ECCC notes that the concept of “natural attenuation” does not apply to metals or persistent compounds, and that these would not be “naturally broken down” in the environment.

Recommendations:

ECCC recommends that:

- The development of the new landfill include provisions for waste segregation and containment at the new site;
- Closure planning for the current landfill site is initiated and that it include site testing and appropriate remediation planning.

4.0 Topic: Open Burning

Reference:

- Solid Waste Operation and Maintenance Plan for Hamlet of Kimmirut

Issue:

The Solid Waste plan states that the Hamlet should burn garbage at least weekly, and that waste should be properly segregated into burnable and non-burnable waste. However, the practice of waste sorting is limited to a visual inspection of the load by the driver, and would not segregate burnable from non-burnable items. ECCC notes that burning of food wastes, textiles and plastics is strongly discouraged because of incomplete combustion that can affect air quality and contaminate adjacent lands and waters. Unless residents are willing to sort wastes at source, burning of bagged wastes will be a source of pollution.

The Hamlet will be commissioning a new landfill site by about 2021. The development of the new Solid Waste Strategy and the Capital Action Plan for the Solid Waste have been developed. A feasibility study is expected on the community's solid waste management in 2019, design and regulatory approval in 2020 and construction & commissioning in 2021.

Recommendations:

ECCC recommends that:

- ECCC recommends that the new facility be planned in accordance with the guidance document “Solid Waste Management for Northern and Remote Communities Planning and Technical Guidance Document March 2017” (Link below) and that open burning not be used.
- Open burning be minimized to the extent possible, and that it follow best practices for waste segregation (see Environmental Guideline for the Burning and Incineration of Solid Waste, Department of Environment, Government of Nunavut 2012 Link below);
- The Proponent plan the new solid waste site such a way that open burning is eliminated or limited to a wood and cardboard burn box.

<https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html>

<https://www.gov.nu.ca/environment/documents/guideline-burning-and-incineration-solid-waste-2012>

5.0 Topic: Hazardous Waste Management

References:

- Solid Waste Operation and Maintenance Plan for Hamlet of Kimmirut Section 6.2 Hazardous Waste Management
- June 2017 INAC Inspection Report
- Revised Plan For Compliance License No. 3BM-KIM0911 (EXPIRED)

Issue:

The Plan outlines the need for proper waste segregation and disposal of hazardous wastes, but this is not being put into practice. As stated in the 2017 Inspection Report:

The storage of Hazardous Waste does not appear to the inspector to be segregated, nor does it have the capability to contain contact water or to divert upstream flow around the Hazardous material.

The response to Hazardous Waste non-compliance (in the Revised Plan for Compliance Licence No. 3BM-KIM0911 (Expired)) is to defer to the plans for the new facility in approximately 2021. This does not address the problems with current practices, and the needed improvements in waste management. Waste sorting and appropriate storage and containment should be implemented and ultimate disposal options identified. Cleanup of the current disposal site should also be addressed, in preparation for closure.

Recommendations:

ECCC recommends that:

- The Hamlet institute practices outlined in the Hazardous Waste Management section of the Plan.
- That the appropriate site remediation be done for the current site in advance of closure.

6.0 Topic: QA/QC Plan**Reference:**

- Hamlet of Kimmirut Environmental Facilities Quality Assurance/Quality Control Plan

Issue:

Only trip blanks are recommended for use in assessing quality control and assurance. These are of somewhat limited value, as the samples are provided by the lab and sealed throughout all transport and handling. Field blanks, which are filled with distilled water and handled the same as the municipal samples, would be more informative than trip blanks. To provide an evaluation of the lab precision, split or duplicate samples should be analyzed. These should represent approximately ten per cent of the total number of samples each year.

The lab's internal QA/QC program will provide information on the accuracy of the analytical tests e.g. by using spiked samples. While no data quality objectives have been specified, including the lab sheets as an appendix to the Annual Report would provide this information to the Board.

Errata:

- Table of Contents 3.2 should be "Method Detection Limits".
- Page 3 includes a request for removal of facilities from the water license; this is not appropriate for inclusion in a QA/QC plan and appears to have been cut and pasted in with the background information.
- Section 1.2 The first paragraph is difficult to understand and refers to the wrong section of the license. It may be more constructive to quote the relevant section of the license: *11. The Licensee shall, within sixty (60) days of Licence issuance, submit to the Analyst for approval, a Quality Assurance/ Quality Control (QA/QC) Plan, which addresses both field and laboratory requirements. The Plan shall be submitted to the Board upon approval by the Analyst for inclusion with the O&M Manual, required under Part F, Item 2(f).*

- 1.5 Definitions: “**CALA** refers to the Canadian Association for Laboratory Accreditation, formally known as the Canadian Association of Environmental Analytical laboratories (CAEAL).” – This should be “formerly”. This error is also in section 3.1.
- Appendix A Site Plan – should include monitoring stations. This is a very crude representation; a map or diagram would be more helpful for staff to identify sampling stations.
- In Appendix D. Guidelines for Water, Wastewater and Leachate sampling Baffin Communities, the section on Wastewater sampling directs collection of samples but refers to YRB-3 instead of KIM-3 and also directs collection of four raw samples directly from the truck discharge. There is no requirement in the licence for the collection of raw sewage, and no practical reason for doing so. This should be removed, as it appears to be a cut and paste error from another plan.
- The Laboratory Accreditation page in Appendix B similarly refers to sampling at YRB-3 (should be KIM-3) and refers to an inaccurate parameter sampling list. The missing parameters are: Chloride, Total Hardness, Total Alkalinity, Total Cobalt, Total Manganese, Total Aluminum, and Total Organic Carbon. This page should be corrected/updated.

Recommendations:

ECCC recommends that the Hamlet:

- Include field blanks in addition to trip blanks;
- Uses replicate or split samples be done for QA/QC on sample analyses;
- Address the errata identified above.

Should you require further information, please do not hesitate to contact me at (867) 669-4743 or Russell.Wykes@Canada.ca.

Sincerely,

[original signed by]

Russell Wykes
Environmental Assessment Coordinator

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)