Environment and Climate Change Canada | Environnement et Changement climatique Canada

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

July 19, 2017

ECCC File: 6200 000 016/004
NWB File: 3BM-PAN1417, 3AM-PAN----

Karén Kharatyan
A/Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

via email: licensing@nwb-oen.ca

RE: 3AM-PAN---- – Government of Nunavut, Community and Government Services – Hamlet of Pangnirtung Water Licence Renewal and Amendment

Attention: Karén Kharatyan

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board regarding the above-mentioned water licence renewal and amendment application 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*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

The following comments are provided:

1. Reported Data for Effluent Quality

References:

- 160503 3BM-PAN1417 2014 - 2016 Caduecon Lab in Ottawa-Wastewater test results of the Hamlet of Pangnirtung-ILAE.xls
- 161213 3BM-PAN1417 Pang WWTF Effluent Summary 2015 - 2016-ILAE.pdf
- 170524 3BMPAN1417 WWTP Lab Test Results-ILAE.xlsx (January 2015 on)

Comment:

Analytical results reported in the 2015-2016 effluent summary tables raised a number of data questions or issues:

- Was there a process change between February 2015 when ammonia was reported at 32.6 – 48.2 mg/L and May to July when all results were reported as 0.01 mg/L?
- Data Quality Assurance/Quality Control (QA/QC) issues were evident in the numerous negative values for ammonia and Total Suspended Solids (TSS) in the Wastewater Treatment Plant (WWTP) Lab Test Results spreadsheet. After April 2015 there were numerous negative TSS results reported. After October 2015 negative values for ammonia were reported and comprised most of the results between December 2015 and June 2016 (16 of 21 results). Please advise how data QA/QC was done and whether or not these data should have been screened out.
- February 2016 samples reported in the pdf summary appear to have exceeded holding times for all parameters. Samples were analysed approximately five weeks after collection.
- Many ammonia results in the Excel spreadsheet are reported as zeros in mid-2016. What was the detection limit for these results?

Recommendation:

ECCC recommends that the Proponent provide responses to all points listed above and verification of the questionable data provided for final effluent from the wastewater treatment plant.

2. Open Burning

References:

- 140814 3BM-PAN1417 AANDC Inspection-IMLE.pdf
- 150819 3BM-PAN1417 July 22 2015 Inspection Report-IAAE.pdf
- Section 5.1.2, 170620 3BM-PAN1417 Revised Solid Waste OM Plan-ILAE.pdf
- Government of Nunavut, Department of Environmental Guideline for the Burning and Incineration of Solid Waste (available at: http://www.gov.nu.ca/sites/default/files/guideline_-_burning_and_incineration_of_solid_waste_2012.pdf)

Comment:

The Revised Solid Waste Operation and Maintenance Plan states that the Hamlet burns garbage daily, and provides some direction:

- Household waste is dumped out of the compactor truck in the selected Burn Area of the Municipal Solid Waste (MSW) disposal area.
- Waste is properly segregated into burnable and non-burnable waste.
- Any non-burnable, non-hazardous waste should be moved to the edge of the covered portion of the MSW disposal area landfill (tipping face).

The Revised Solid Waste Operation and Maintenance Plan outlines acceptable wastes for burning. The list in Table 6: Burnable and non-burnable wastes includes as burnable wastes "domestic waste (e.g. food waste, paper products, paper board/cardboard packaging, etc.)" (page 18).

This contradicts the Nunavut Guideline for the Burning and Incineration of Solid Waste. Table 2 of that document lists the following as appropriate for open burning:

- Paper products
- Paperboard packing including boxboard and cardboard
- Untreated wood including lumber and plywood
- Natural fiber textiles

Food wastes and food packaging are not considered appropriate to be open-burned.

As there is no segregation of domestic waste at source, and nominal segregation in the landfill, open burning should be strongly discouraged with the exception of the materials listed above and only if segregated. "Domestic waste" is not an acceptable category to include for open burning as it can contain plastics, aerosols, synthetic fiber textiles, bulbs, household batteries, non-combustible materials, and wet waste materials which will promote incomplete combustion. As noted in the Nunavut Guideline for the Burning and Incineration of Solid Waste, "burning solid waste directly on the open ground or in burn boxes often does not achieve the temperatures or holding time needed for complete combustion of the waste to occur. This results in the formation of potentially hazardous pollutants and ash, which are likely to impact nearby land and water. Food waste that is not completely burned through open burning can also be a powerful attractant for animals....non-combustible materials such as metal and glass do not burn and will rob heat away from waste that can be destroyed by burning" (page 9).

Both the 2014 and 2015 Indigenous and Northern Affairs Canada (INAC) Inspection Reports noted uncontrolled fires. The 2014 INAC Inspection Report states that "within the Solid Waste Management Area at the site of the Municipal waste are the entire site was on fire" (page 2), and it was found that hazardous wastes were mixed in with the municipal wastes and cover material was not being applied. In 2015, hazardous waste was being segregated, but open burning was ongoing.

Recommendation:

ECCC recommends that the Proponent limit the practice of open burning to only the wastes identified in the Nunavut Guideline for the Burning and Incineration of Solid Waste. All other wastes should be disposed of properly.

3. Notification of Discharge During Bypass Conditions

References:

- Section 4, 170322 3BM-PAN1417 Pangnirtung WWTP Bypass Contingency Plan Final-IAAE.pdf.

Comment:

The Pangnirtung WWTP Bypass Contingency Plan outlines various types of bypass situations, and when each might occur (e.g. power failure, pump station or fine screen out of service). The treatment system plant is a ZeeWeed 500d membrane bioreactor (MBR) sewage treatment system based on the activated sludge process. It has been installed in a two trained configuration which would allow for maintenance or repairs to be completed without the need to discharge untreated sewage under the normal course of events. If a discharge of untreated or partially treated wastewater during bypass conditions occurs, notification should be provided to the NT/NU Spill Line at 867-920-8130. This information is not included in this plan.

Recommendation:

ECCC recommends that the Proponent update the Pangnirtung WWTP Bypass Contingency Plan to include an explanation of what will be done should untreated or partially treated wastewater be discharged during bypass conditions.

4. Bioassay Testing

References:

- 140814 3BM-PAN1417 AANDC Inspection-IMLE.pdf
- 170606 3BM-PAN1417 Applicant Response to ECCC Comments-ILAE.docx

Comment:

Bioassay testing was a requirement of the previous licence (Item D.3), but was never completed. This was included as an issue to be addressed in the 2011 Plan for Compliance, and non-compliance was flagged in the 2014 INAC Inspection Report. The Proponent agreed that acute toxicity testing can be completed once it is included in the new Type A water licence.

ECCC acknowledges that there are practical difficulties with sampling and transporting the wastewater samples to the test labs within the required holding time window. However, a measure of non-toxicity should be required under the license. Due to these practical difficulties, and in the event that other measures of non-toxicity be needed, ECCC suggests the requirement be included in the Surveillance Network Program (SNP) rather than the body of the Type A water licence.

Recommendation:

ECCC recommends that the Type A water licence include the requirement for effluent to be non-acutely toxic at end of pipe. The rainbow trout bioassay test could be specified in the SNP, and should be completed annually.

5. Location and Extent of Treatment Wetlands; Monitoring Stations

References:

- 170606 3BM-PAN1417 Applicant Response to ECCC Comments-ILAE.docx
- 170620 3BM-PAN1417 Revised Solid Waste OM Plan-ILAE.pdf

Comment:

The Revised Solid Waste Operation and Maintenance Plan states that the leachate from the solid waste disposal facility enters the sewage treatment wetland (Section 8.1). This sewage treatment wetland is not discussed anywhere else in the application, nor was it depicted in any of the figures. In comments submitted to the Nunavut Water Board on June 6, 2017, ECCC recommended that the Proponent provide clarification on how the leachate is collected from the solid waste operation, how the leachate is managed after collection, if/where it is discharged to the environment, and provide information on the quality of the leachate that is being produced, and that is ultimately entering the receiving environment.

In the Applicant Response to ECCC the Proponent responded to the above-noted questions stating that "the Leachate from Landfill site and metal sites are naturally treated in the wetland. The past lab results are attached. The monitoring stations are established and sampling will be continued at those stations in each summer. The sketches attached show the relative locations of the Environmental facilities and wetlands including monitoring stations" (page 2).

None of the lab results provided appeared to be for any of the SNP stations other than the WWTP. Figure 5 provided by the Proponent on page 7 of the Revised Solid Waste Operation and Maintenance Plan does not show a wetlands area, or a scale for distance.

ECCC notes that the Revised Solid Waste Operation and Maintenance Plan does not list SNP Station PAN-6 with the other sites described in the tables on pages 8 and 30. Table 7: Monitoring Station (page 30) in the Revised Solid Waste OM Plan does not include the frequency for PAN-5.

Recommendations:

ECCC recommends that the Proponent address the previously requested information on the solid waste leachate (i.e., how leachate from the solid waste sites behaves and is sampled), past results for leachate quality, the overland area that is affected by leachate, and an estimate of volumes. The approximate area that is considered as a treatment wetland for the leachate should be shown on a map or diagram.

ECCC recommends that the Proponent include SNP PAN-6 in the tables on pages 8 and 30, and PAN-5 frequency in Table 7: Monitoring Station on page 30 of the Revised Solid Waste Operation and Maintenance Plan.

6. Spill Contingency Plan ECCC Contact Number

Reference:

- 170322 3BM-PAN1417 Pangnirtung Spill Contingency Plan FINAL-IAAE.pdf

Comment:

Table 4-2: Additional Agencies lists the Environment Canada 24-hour telephone number as (867)975-4464. In the case of a spill or emergency, the 25 Hour NWT/NU Spill Report Line should be contacted first by the Proponent. The NWT/NU Spill Report Line will then involve ECCC Emergencies when appropriate. For information relating to the environmental enforcement and reporting requirements in the *Canadian Environmental Protection Act* and the *Fisheries Act* the Proponent can contact ECCC Environmental Enforcement at (867)669-4730.

Recommendation:

ECCC recommends that the Proponent remove the Environment Canada 24-hour telephone number ([867]975-4464) from the Pangnirtung Spill Contingency Plan.

7. Technical Meeting, Pre-hearing Conference and Public Hearing Form

ECCC's preference is for the Hamlet of Pangnirtung Renewal-Amendment Water Licence Technical Meeting, Pre-Hearing Conference and Public Hearing to be in written form.

Should you require further information, please do not hesitate to contact me at (867)669-4732 or Emily.Nichol@canada.ca

Sincerely,

Emily Nichol

Emily Nichol
Environmental Assessment Coordinator

cc: Bradley Summerfield, Senior Environmental Assessment Coordinator
Georgina Williston, Head, Environmental Assessment North (NT and NU), PNR-EPOD