

Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6200 000 001/011
NWB File: 3AM-IQA1626



July 28, 2025

via email at: licensing@nwb-oen.ca

Robert Hunter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Robert Hunter:

RE: 3AM-IQA1626 – City of Iqaluit – Type A Water Licence – 2024 Annual Report Reviewed

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) by the City of Iqaluit regarding the above-mentioned annual report.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental emergencies preparedness and responses. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation

The following comments are provided:

1. Topic: Wastewater treatment plant effluent quality

References

- Water Licence 3AM-IQA1626 2024 Annual Water License Report (City of Iqaluit; May 2, 2025)
 - Section H: A summary of any modifications and/or major maintenance work carried out at the facilities and any associated structures
 - Appendix B: Sampling Results



- RE: 3AM-IQA1626 – City of Iqaluit – 2023 Annual Water License Report (Environment and Climate Change Canada; August 6, 2024)
 - Comment #1: Wastewater treatment plant effluent quality
- RE: 3AM-IQA1626 – City of Iqaluit – Municipal Type A Water Licence – Annual Water Licence Report Review (Environment and Climate Change Canada; August 22, 2023)
 - Comment #2: Wastewater Treatment Plant (WWTP)

Comment

Section H of the Annual Report describes upgrades and maintenance done to the Wastewater treatment plant which included replacement and rebuilds of pumps, Salsnes filter #2 rebuild, and polymer dosing optimization. Improvements planned for 2025 are listed and include work on the ventilation system, air quality, the laboratory, and the electrical system.

The wastewater treatment plant effluent quality, reported for surveillance network program (SNP) station IQA-04, does not meet secondary treatment targets. It is not clear when in 2024 the upgrades were done. If the upgrades were done before the very end of the year, further upgrades may be required. Monitoring results are variable but do not demonstrate a clear improvement trend. In particular, ammonia concentrations are higher in the effluent than in the influent for 75% of sampling days. The data reported does not include an acute lethality test and the lab reports do not include unionized ammonia concentrations, both of which are part of the monitoring program prescribed in the licence.

It is also not evident how the upgrades planned for 2025 are going to improve effluent quality. Based on the sampling results, the same conclusion from 2022 and 2023 holds: *“Improvements in effluent quality should be pursued on a priority basis.”* The same recommendation is therefore still applicable.

Recommendations

ECCC recommends the Proponent provide a summary of actions to be taken to achieve acceptable wastewater treatment plant effluent quality, including a timeline for completing.

Furthermore, ECCC reminds the Proponent of their requirement to provide quarterly reports as per issued Fisheries Act direction, until the plant effluent has been demonstrated to be effectively treated and passing lethality tests.

2. Topic: Sewage lagoon effluent quality

Reference

- Water Licence 3AM-IQA1626 2024 Annual Water License Report (City of Iqaluit; May 2, 2025)

- Appendix B: Sampling Results

Comment

The sewage lagoon effluent quality, reported for IQA-02, does not meet secondary treatment targets. ECCC notes the Fecal Coliform, Total Suspended Solids, and Ammonia concentrations measured in 2024 are 2-3 times higher than those measured in 2023. BOD₅ concentrations are approximately 7 times higher in 2024.

In 2023, ECCC commented on the effluent quality variability within the decant period. Data from 2024 highlights important variability between years. Review of sample results with site conditions and processes used at those times could help the Proponent identify possible causes in effluent quality variability. This information could then be used to optimize processes to improve effluent quality.

Recommendations

ECCC recommends the Proponent:

- discuss possible causes for the variability of sewage lagoon effluent quality between and within years; and
- provide a summary of actions to be taken to achieve acceptable sewage lagoon effluent quality, including a timeline for completing.

3. Topic: Presentation and discussion of water quality data

References

- Water Licence 3AM-IQA1626 2024 Annual Water License Report (City of Iqaluit; May 2, 2025)
 - Table 7: Summary of 2023 [2024] Sampling Conducted
 - Appendix B: Sampling Results
- RE: 3AM-IQA1626 – City of Iqaluit – 2023 Annual Water License Report (Environment and Climate Change Canada; August 6, 2024)
 - Comment #4: Presentation and discussion of water quality data
- Environmental Monitoring Program and Quality Assurance/ Quality Control Plan Revision 3 (City of Iqaluit; April 2019)
 - Section 4.5: Quality Assurance and Quality Control Program

Comment

For the City of Iqaluit's 2023 Annual Report, ECCC commented on presenting and discussing water quality data and the comment remains pertinent for the 2024 Annual Report. Table 7 summarizes the 2024 sampling results by identifying the date, parameters, station ID, sample description and lab sample ID. The sample results themselves, specifically the parameter concentrations measured by laboratory analysis, are not summarized. This makes it difficult for both the Proponent and reviewers to identify elevated

concentrations of parameters of concern, or to detect trends in water quality. These are objectives of the water monitoring program and will give context for discussion and interpretation of water quality results.

Additionally, ECCC notes that no quality assurance/quality control (QA/QC) sample results were included in the annual report. QA/QC is a part of the Environmental Monitoring Program and should be completed alongside annual water quality monitoring.

Recommendations

ECCC's recommendation is unchanged from the recommendation for the 2023 Annual Report. ECCC recommends that in future annual reports, the Proponent:

- summarizes water quality sample results in tables presenting measured parameter concentrations for the monitoring stations;
- note any elevated monitoring parameters, discuss the potential underlying cause(s), and describe any measures taken/planned to prevent elevated parameter concentrations; and
- implement QA/QC for water quality monitoring including QA/QC samples and a discussion of the results.

4. Topic: Landfill water sampling locations

References

- Water Licence 3AM-IQA1626 2024 Annual Water License Report (City of Iqaluit; May 2, 2025)
 - Section B: The monthly and annual quantities in cubic meters of any discharges from the Wastewater Treatment Facilities (Monitoring Stations No. IQA-02, IQA-04, IQA-08)
 - Table 7: Summary of 2023 Sampling Conducted
 - Appendix B: Sampling Results
- RE: 3AM-IQA1626 – City of Iqaluit – 2023 Annual Water License Report (Environment and Climate Change Canada; August 6, 2024)
 - Comment #5: Landfill water sampling locations
- 2023 Annual Report Review Response (City of Iqaluit; November 1, 2024)

Comment

ECCC submitted a comment for the 2023 Annual Report that it was difficult to understand what locations were sampled because the same sample ID (IQA-08) was used for three different sample names (Inside Landfill, Outside Landfill, and West 40 Landfill – Effluent discharge). In their 2023 Annual Report Review Response, the Proponent clarified where the different samples came from and provided a map. There have been improvements in the 2024 Annual Report as lab sample IDs have been matched to SNP station locations for two of the samples taken at the landfill (24-016164-1-Landfill Ditch and 24-016164-3-Between Metal and Tank). However, results from a third sample are presented

in Appendix B (24-016164-2-Metal Ditch) and it is not clear where this sample was taken. There is an SNP station at the holding pond next to the area where metal is stored (IQA-08), but this may not be where the sample was taken since no effluent was discharged from the West 40 Landfill in 2024. It is necessary to understand where samples were taken to interpret sample results.

Recommendation

ECCC recommends the Proponent clarify the sampling location for sample ID 24-016164-2-Metal Ditch at the landfill.

If you need more information, please contact Jessica Kassar at (867) 222-2036 or Jessica.Kassar@ec.gc.ca

Sincerely,

Jessica Kassar
Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)