

Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6200 000 014/008
NWB File: 3BM-CLY1924



February 7, 2025

via email at: licensing@nwb-oen.ca

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Richard Dwyer:

RE: 3BM-CLY1924 – Government of Nunavut – Hamlet of Clyde River– Renewal and Amendment of Water Licence

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

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: Amendment of Compliance Point

Reference(s)

- Amendment Justification Summary – Item D-2
- Licence No. 3BL-CLY1924 – Part H: Conditions Applying to Monitoring Program

Comment

The renewal application requests to move the effluent compliance point for the wastewater treatment facility from CLY-4 (effluent discharge from existing sewage disposal facility) and CLY-5 (Effluent discharge from enhanced sewage disposal facility (lagoon decanting point))



to CLY-6b (surface water at the end of the vegetated strip wetland). The rationale provided indicates, *“the wastewater treatment facility is designed as a lagoon-wetland treatment system for which the wetland performs significant effluent treatment based on the lab results from the Water Licence monitoring program. The end of the wetland is where the effluent enters the receiving environment and should therefore be the compliance point, as it represents the fully treated effluent.”*

It is acknowledged that the wetland provides additional treatment, however, ECCC notes that monitoring compliance at the end of the wetland may pose practical issues for establishing a meaningful and reliable compliance point. Wetlands are diffuse systems, often with unclear flow paths, and effluent disperse non-uniformly which may pose difficulty in setting a defined point for compliance.

In addition, there is extremely limited monitoring data available for the last five years. Since 2019, no data has been provided for the surface water quality sampling at CLY-6, and only one monitoring event (October 2021) has been provided for CLY-4 and CLY-5. Given the limited monitoring data presented, there is insufficient justification to move the compliance point from CLY-4 and CLY-5 to CLY-6.

ECCC Recommendation(s)

ECCC recommends retaining the compliance points at CLY-4 and CLY-5 where control of flow of effluent from the lagoon can be maintained.

2. Topic: Monitoring at CLY-6a and CLY-6b

Reference(s)

- Licence 3BL-CLY1924 – Part H: Conditions Applying to Monitoring Program
- Amendment Justification Letter – Item H-1

Comment

The Proponent has requested removal of monitoring at station CLY-6a, stating that this location is redundant since the monitoring program also requires monitoring of CLY-6b at the same location. As per the station descriptions in the licence, CLY-6a monitors the sampling well at the end of the vegetated filter strip wetland, while CLY-6b is a surface water monitoring station. Based on these descriptions, the monitoring stations serve two different purposes, with CLY-6a sampling groundwater and CLY-6b sampling surface water. ECCC was unable to locate figures depicting CLY-6b to confirm whether the sampling well was installed, and no recent monitoring data has been provided for this monitoring location to support the argument that this station is redundant.

ECCC Recommendation(s)

ECCC recommends the Proponent:

1. Clarify whether a sampling well exists at CLY-6b
2. Provide recent monitoring data (2019 – present) collected at CLY-6a and CLY-6b and additional supporting justification that these two stations are redundant.

3. Topic: Monitoring at CLY-11

Reference(s)

- Amendment Justification Letter – Item H-1
- Licence 3BL-CLY1924 – Part H: Conditions Applying to Monitoring Program
- 2021 Annual Report
 - CIRNAC Water Licence Inspection Form
- Plan for Compliance 2024

Comment

The Amendment Justification Letter proposes that CLY-9, CLY-10, and CLY-11 are removed from the monitoring program stating that, “CGS has contracted Dillon to study the recommended frequency of an engineer’s inspection of the water and waste infrastructure including the Clyde River sewage lagoon. The findings of the study will be provided in the 2024 annual report to request a defensible inspection and monitoring method and frequency.”

ECCC notes that CLY-11 specifically is not necessarily directly connected to an engineer’s inspection, as this location is for monitoring of wastewater seepage presence and quality in the standpipes around the lagoon. Monitoring for seepage from the lagoon would be an important component for understanding structural integrity of the lagoon, but also to understand the potential for unanticipated releases to the receiving environment.

As noted in the plan for compliance, as well as recent CIRNAC inspection reports, slumping and erosion have recently been observed at the lagoon., which only further highlights the need for seepage monitoring.

ECCC Recommendation(s)

ECCC recommends:

1. The Proponent clarify whether an engineer must be present to sample CLY-11
2. The Proponent clarify what information related to seepage monitoring at standpipes is expected to be included in the Dillon study.
3. CLY-11 is retained in the monitoring program to monitor for potential seepage from the lagoon.

4. Topic: Annual Reporting

Reference(s)

- Annual Reports: 2020, 2021
- Plan for Compliance 2024

Comment

The most recent annual report posted on the registry is from 2021, however the annual report includes monitoring data from only one sampling event (October) at CLY-4 and CLY-5. One other annual report (2020) has been posted in the last five years but did not include any

monitoring data. The Plan for Compliance indicates that monitoring has been completed since then, stating that in only two rounds of monitoring were completed in 2024 (as compared to the required three rounds). It is unclear whether monitoring has not occurred during other years, or whether the annual reports have just not been provided.

Annual reports provide reviewers with an understanding of conditions on site as well as provide an understanding of the potential implications of requested amendments to the licence.

ECCC Recommendation(s)

ECCC recommends the Proponent provide a summary of all available monitoring data for the last five years (2019 – 2024).

5. Topic: Status of the Sewage Lagoon

Reference(s)

- 2021 Annual Report
 - CIRNAC Water Licence Inspection Form
- Plan for Compliance 2024
- Operation and Maintenance (O&M) Plan for Municipal Water Licence: Sewage Disposal Facilities
 - Section 1.2 – SWDF Site Summary
 - Section 8.0 - Maintenance

Comment

The plan for compliance notes that erosion has occurred at the lagoon south berm. The planned short-term and long-term measures for compliance include *“ensuring all sediment and erosion control measures are implemented”* and *“incorporate sediment and erosion control measures into the initial planning phase of any future activities”*, respectively. However, the 2021 inspection report had also previously identified slumping/erosion stating that, *“signs of slumping on base of sewage lagoon wall observed in previous years have gotten deeper and wider.”*

Given the lack of annual reporting, it is unclear whether the slumping of the lagoon berms observed and noted in 2021 is the same issue as noted in the 2024 compliance report or if it constitutes a separate occurrence. Regardless, slumping and erosion appears to be an ongoing issue associated with the sewage lagoon. Additional measures may be required to ensure that the stability and integrity of the lagoon is maintained such that the risk of unanticipated spills to the receiving environment is minimized.

Section 1.2 of the O&M Plan for the Sewage Disposal Facility indicates that the lagoon is approaching its design life (2028). In addition, Section 8 states that desludging is not expected during the design life, but that effluent quality will guide when sludge management is implemented as monitoring will indicate when performance starts to degrade. As noted in the comments above, there is currently limited data for which to assess lagoon performance.

ECCC Recommendation(s)

ECCC recommends the Proponent discuss:

1. Whether the erosion noted in the plan for compliance is the same ongoing issue noted in the 2021 inspectors report, or a separate occurrence. If ongoing, additional discussion should be provided on how erosion and slumping will be prevented for continuing further
2. Any planned monitoring of sludge to confirm design life, lagoon capacity, and treatment efficacy.

6. Topic: Guidelines or Site-Specific Criteria

Reference(s)

- Environmental Monitoring Program and Quality Assurance/Quality Control Plan
 - Section 2.0 – Environmental Monitoring and Reporting

Comment

The Environmental Monitoring and Quality Assurance/Quality Control Plan states:

“The guidelines or site-specific criteria will be used to interpret the analytical results are as follows:

All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater, or by such other methods approved by the board”

ECCC notes that the referenced “Standard Methods for the Examination of Water and Wastewater” relates to methods for sampling collection, preservation, and analysis by the lab, it does not include criteria used for interpretation of the results, once monitoring data is analyzed by the lab.

No interpretation has been completed on any of the limited monitoring data provided in the annual reports, so it is not clear to reviewers if any guidelines or site-specific criteria are being applied.

ECCC Recommendation(s)

ECCC recommends that the Environmental Monitoring Program is updated to provide details on which guidelines will be used for interpretation of monitoring data.

7. Topic: Hazardous Waste Management and the Solid Waste Disposal Facility

Reference(s)

- Operations and Maintenance Plan for Municipal Water Licence: Solid Waste Disposal Facilities
 - Section 5.1 – Municipal Waste Disposal
 - Section 5.3 – Hazardous Waste Management

- Plan for Compliance 2024 – Item D-7

Comment

Related to hazardous waste management, the O&M plan states, “*a hazardous waste management cell was not built within the bulky metals site. As a result, the hazardous wastes are mixed up with other metals*” and “*the bulk metal/hazardous waste storage area is currently used to store hazardous wastes from the community. This area is filled but not bermed or lined and runoff from the facility presently flows into the sewage treatment wetland.*”

Hazardous materials should be separated from other wastes and stored with secondary containment to prevent release to the receiving environment. If runoff from hazardous wastes is allowed to enter the sewage treatment wetland this may impact the performance of the wetland, as well as poses a risk to aquatic life. The plan for compliance does not acknowledge this issue related to hazardous waste management, instead stating that the municipality is in compliance with licence terms related to hazardous waste management.

ECCC notes that the compliance plan states that solid waste facility updates are anticipated to take place in 2026 and recommends that proper management of hazardous waste is prioritized. Understanding the elongated timelines to complete works in Nunavut, temporary interim measures to prevent runoff to the receiving environment should be considered.

ECCC Recommendation(s)

ECCC recommends that the Proponent:

1. Prioritize proper management of hazardous waste such that hazardous waste does not interact with other wastes or the receiving environment
2. Discuss interim measures to prevent runoff from hazardous waste to the sewage treatment wetland.

If you need more information, please contact Maja Crawley at (431) 800 5713 or Maja.Crawley@ec.gc.ca

Sincerely,

Maja Crawley
Environmental Assessment Officer

Attachment(s):

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