

Environmental Protection Operations Directorate
Prairie & Northern Region
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Yellowknife, NT X1A 2P7

ECCC File: 6200 000 018/005
NWB File: 3AM-ARV1016



January 21, 2022

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: 3AM-ARV1016 – Hamlet of Arviat – Municipal Water Licence Renewal-Amendment Application

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned water licence application.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*. These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. 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. ARV-4 Monitoring Location

Reference(s)

- Business Case for Arviat Wastewater

Comment

The Business Case for the new Arviat wastewater treatment discusses the location of water quality monitoring downstream of the lagoon within the wetland area (ARV-4, which is the point of discharge from the system) and recommends that the location of ARV-4 be relocated to the end of the wetland, as wastewater treatment occurs within the wetland. It is



unclear whether GN-CGS is accepting this recommendation and proposing this change in the Water Licence Application.

ECCC Recommendation(s)

ECCC recommends GN-CGS clarify whether relocation of monitoring location ARV-4 is proposed.

2. Work Plan and Timelines for Proposed Updates

Reference(s)

- Cover Letter
- Business Case for Arviat Wastewater
- Email: feasibility study – solid waste facility
- Solid Waste Management Facility – Operations and Maintenance Plan

Comment

The Application indicates that there are upgrades planned for both the wastewater treatment facility and the solid waste facility. As indicated by the cover letter and the business case, GN-CGS is proposing to upgrade and expand the existing wastewater treatment facility, including construction of a new lagoon and demolition and replacement of the existing lagoon. The Business Case also recommends that several technical studies be completed along with the construction of the upgraded lagoon system, including a wetland study, a geotechnical study, and a detailed survey and assessment of the existing lagoon. For the solid waste facility, an email provided with the application package indicates that the Hamlet will not be proceeding with a new solid waste facility, but instead will be undertaking a new assessment in 2022/23 to determine what improvements can be made at the existing site. However, the updated Solid Waste Facility O&M Plan indicates that an extension to the existing solid waste facility is planned for 2024.

As noted, GN-CGS has identified there are several areas of planned work related to the wastewater and solid waste facilities over the upcoming years including completion of studies in advance of any construction. While several dates and timelines are discussed, the specific work plan and timelines for the upcoming projects are not entirely clear.

ECCC Recommendation(s)

ECCC recommends GN-CGS provide updated timelines and a work plan for studies and work related to the construction of the new wastewater facility and expansion of the solid waste facility.

3. Removal of Conditions Related to Abandonment and Restoration

Reference(s)

- Plan for Compliance – 2021

Comment

In the Plan for Compliance, Part G – Conditions Applying to Abandonment, Restoration, and Closure, GN-CGS has proposed removal of Conditions G1 and G2. Condition G1 is related to the submission of an Interim Abandonment and Restoration Plan for the Solid Waste Disposal Facility, Bulky Metals Area, and Hazardous Waste Storage Area. Condition G2 relates to the submission of a Final Abandonment and Restoration Plan for the two abandoned sewage lagoons. In both cases, the plan for compliance indicates that these sites are still in use and that the licensee requests that these be removed from the licence.

It is acknowledged that the Solid Waste Disposal Facility, Bulky Metals Area, and Hazardous Waste Storage Area are still in use; however, the intention of an interim abandonment and restoration plan is to provide preliminary planning for closure, as well as to identify any potential areas for progressive reclamation. The fact that the facility is still in use is not sufficient rationale for the removal of these conditions, and the interim plan may require updates since the 2010 submission.

For Condition G2, it is ECCC's understanding that the old sewage lagoon (two sewage lagoon cells located between the existing solid waste management facility and the current sewage lagoon) is not in use, and that only the current sewage lagoon is in use. In response to completeness comments GN-CGS verified this and stated that the old sewage lagoons are not in use and have not been cleaned or reclaimed. Given that these sewage lagoons are unused, work and planning towards final abandonment and restoration should be undertaken. In addition, it is unclear whether any information on abandonment and restoration of these lagoons has been submitted to date.

ECCC Recommendation(s)

ECCC recommends that GN-CGS:

- Provide an updated Interim Closure and Reclamation Plan for the Solid Waste Disposal Facility, Bulky Metals Area, and Hazardous Waste Storage Area and the Final Closure and Reclamation Plan for the two abandoned sewage lagoons.
- Describe the current state of abandonment and restoration activities completed on the unused sewage lagoon cells, and any planned future work.
- If additional work needs to be completed in order to provide updated plans, these water licence conditions should be updated and retained in the licence to ensure that information related to abandonment and restoration is provided.

4. Sludge Management

Reference(s)

- Sewage Treatment Facility Operations and Maintenance Plan – Section 6.0

Comment

The Sewage Treatment Facility O&M Plan notes that sludge has not been removed from the lagoon since it was commissioned in 2005 and that the current height of the sludge is 0.4 m from the bottom of the lagoon floor (20% of the total volume of the lagoon). The Plan indicates that sludge removal is recommended and was planned to take place in 2021 in order to improve capacity of the lagoon and eliminate the need for emergency decanting in the spring. It is unclear whether this desludging took place in 2021 or if it has yet to be completed. In addition, there are no details provided on the management, assessment, and disposal techniques for the desludging process.

ECCC Recommendation(s)

ECCC recommends GN-CGS:

- Provide an update on whether desludging occurred in 2021 and if not, when desludging is planned for.
- Provide information on sludge management, assessment, and disposal techniques and location.

5. Sewage Lagoon Monitoring Locations

Reference(s)

- Sewage Treatment Facility Operations and Maintenance Plan – Section 9.0

Comment

Table 2 of the Sewage Treatment Facility O&M Plan provides a summary of the monitoring stations, including those associated with the sewage lagoons and treatment wetland. This monitoring includes the following:

- ARV-3 – Raw sewage at truck offload point
- ARV-4 – Effluent from the discharge point of the sewage disposal facility (end of wetland)

ECCC notes that there is no sampling at the point of discharge from the lagoon into the wetland, or within the lagoon. There has been previous uncertainty on the efficacy of the lagoon treatment and the wetland treatment. Sampling at the point of discharge would provide comparison of the quality of effluent in the lagoon compared to the final effluent quality at ARV-4. This comparison would aid in evaluation and understanding of the treatment capacity of the wetland.

ECCC Recommendation(s)

ECCC recommends that consideration be given to include an additional monitoring station at the point of discharge from the lagoon into the wetland to evaluate sewage effluent quality prior to effluent entering the wetland.

6. Replicate or Duplicate Samples

Reference(s)

- Environmental Monitoring Program (EMP) and Quality Assurance/Quality Control (QA/QC) Plan – Section 4.2.2

Comment

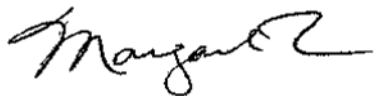
Section 4.2.2 of the EMP and QA/QC Plan provides a brief description of replicate or duplicate samples. However, no information is provided on how replicate or duplicate sampling will be implemented. The Plans should specify the frequency of replicate/duplicate sampling that will be completed as part of the sampling program.

ECCC Recommendation(s)

ECCC recommends that GN-CGS provide information of the frequency of replicate/duplicate samples within the sampling program.

If you need more information, please contact Victoria Shore at Victoria.Shore@ec.gc.ca.

Sincerely,



Margaret Fairbairn, Acting Regional Director
Environmental Protection Operations Directorate, Prairie Northern Region

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)