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Building Nunavut Together
Nunavuliuqatigiingniq
Bâtir le Nunavut ensemble

May 3, 2022

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1L0

RE: 3AM-ARV---- Municipality of Arviat – Renewal and Amendment Application

The Government of Nunavut Department of Community and Government Services (CGS) on behalf of the Municipality of Arviat has prepared a response to the comments submitted by Environment and Climate Change Canada (ECCC) and Crown Indigenous Relations and Affairs Canada (CIRNAC) on the water license renewal and amendment application.

Regards,

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Agency	Comment	Recommendation	Licensee Response
ECCC	01	ECCC recommends that further clarification on the proposed timing of the wetland flow study be provided. ECCC considers ECCC-01 resolved pending this clarification.	The wetland flow study will take place in summer 2022 and the resulting report is expected by December 2022.
ECCC	03	ECCC considers ECCC-03 resolved pending fulfillment of commitment 6.	The current solid waste facility will remain in use until at least 2044 and will not require an Abandonment and Restoration Plan during this water licence term which is expected to be 10 years. A contract for a comprehensive assessment on how to upgrade the current site will take place in summer 2022, with construction anticipated to begin in 2024. The assessment will include an investigation of the abandoned lagoon cells to determine if they are suitable to be repurposed and upgraded to accept solid waste. This assessment report in expected to be complete by March 2023. If they can be repurposed the design will be submitted as part of the larger solid waste project design to NWB for distribution. The design phase is expected to begin April 2023 and be complete by April 2024. If the lagoon cells cannot be repurposed and must be remediated, an Abandonment and Restoration Plan will be commissioned upon receiving this determination, anticipated by March 2023, and submitted to NWB upon completion. It is expected that the plan would be submitted to NWB by March 2024.
ECCC	04	ECCC considers ECCC-04 resolved pending fulfillment of commitment 2.	Information on replicate or duplicate samples was provided in Section 4.2.2 of the revised QA/QC Plan submitted on March 3, 2023. If additional information is needed in this section the licensee requests that ECCC advise on what to include.
CIRNAC	R-01	(R-01) CIRNAC recommends that the Licensee provide the detailed steps that it plans to take to address the overcapacity issue at the solid waste management facility (SWMF) until such time as a new facility can be constructed.	Beginning in 2018, the Municipality purchased equipment and began shredding depolluted metal waste to increase capacity at the site. The metal was then used as cover material for the landfill which resulted in compaction that drastically increased the capacity as seen in the photo that was provided during the technical review. CGS will undertake a study in summer 2022 to determine how to further improve capacity of the current solid waste site such that it can continue to be used until at least 2044. The study will also evaluate the feasibility of expanding into the abandoned lagoon cells after upgrades. The resulting Business Case Report is expected March 2023 and will be submitted to NWB for distribution along with any subsequent designs and planned modifications. A previous study that was conducted 2019-2020 which determined that constructing a new landfill in a new location was not feasible with the available funding.

CIRNAC	R-02	R-02) CIRNAC recommends that Licensee clarify: - The retention time of the effluent in the lagoon to achieve treatment goals before manual discharge by pumping. - The pumping rate from the lagoon discharge point to the wetland treatment area.	Lagoon-wetland systems do not function to achieve treatment goals prior to discharging into the wetland. The lagoon only represents first phase of the treatment process. The wetland treatment area is a significant component of the treatment facility. The 2-cell lagoon system will be sized to retain wastewater for 12 months, which is the retention time, for a 20-year design life following CSA W203:19 *Planning, design, operation, and maintenance of wastewater treatment in northern communities using lagoon and wetland systems.* Effluent will be decanted into the wetland treatment area in late summer once the wetland has had the opportunity to develop and runoff has passed through. Currently the effluent is benefiting from dilution rather than treatment, potentially resulting in lower effluent concentrations, but in reality, not better-quality effluent. The pumping rate will be determined during detailed design which is expected to be complete by March 2023, to optimize both drawn down time and effectiveness off the wetland treatment, but it will be below the recommended maximum of 2500 m^3/day to preserve the health of the marine receiving environment.
CIRNAC	R-03	CIRNAC recommends that the licensee clarify the change in parameters being requested in the two documents and update the documents accordingly.	This document was revised and resubmitted on March 3, 2022.
CIRNAC	R-04	CIRNAC recommends that Licensee provide a detailed plan on how it intends to prevent seepage of the effluent into ground water in the event that localized thawing of the permafrost damages the impermeable liner.	In the event that the liner is damaged resulting in a leak, the effluent will passively exfiltrate into the wetland treatment area, which is downgrade from the lagoon, in the same way that it does with the current permeable lagoon. The new lagoon will use the same wetland as the current lagoon therefore no additional land will be contaminated. In addition, the effluent samples taken, and lagoon water levels will be monitored in order to detect evidence of a leak. Repairs to the liner will be completed if there is a leak.
CIRNAC	R-05	(R-05) CIRNAC recommends that the licensee provide rationale: - On the “Not Active” status of the stations; and - For the “please delete from licence” request for ARV-10 and ARV-11 monitoring stations.	A “hydrocarbon impacted storage facility” was never constructed and does not exist therefore ARV-10 and ARV-11 do not exist. Having inactive compliance points listed in the monitoring station program table is unnecessarily cumbersome for operational staff and provide no benefit. Historical information on previous compliance points is stored on the Nunavut Water Board FTP site and therefore should not be included in active licenses.
CIRNAC	R-06	(R-06) CIRNAC recommends that the Licensee update section 6 of its sewage treatment facility operation and maintenance plan to include acceptable methods of sludge disposal as required by the water license.	A new Operations and Maintenance Plan will be prepared by the design consultant and contractor for the new 2-cell lagoon upon commissioning. The upgraded lagoon will be sized to accommodate 20 years of sludge accumulation however the plan will contain a sludge management plan with assessment and disposal techniques, and a disposal location in the event that sludge accumulates more rapidly than expected. Effluent samples and visual inspection will indicate how sludge is accumulating over time.