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Nunavut Water Board
PO Box 110
Gjoa Haven, NU, X0B 1J0

Dear Nunavut Water Board:

On behalf of the Municipality of Sanikiluaq, in coordination with the Municipal Works Division of the Department of Transportation and Infrastructure Nunavut, Government of Nunavut (GN-TIN), we are formally submitting this cover letter to accompany our application to amend and renew Water Licence 3BM-SAN2025. This submission details the critical municipal infrastructure upgrades being implemented and provides the operational justification for our requested licensing modifications.

The primary modification requested is an increase in the allowable annual water withdrawal limit from the current licence limit of 55,000 m3 to 110,000 m3 per annum. It is important to emphasize that 299 m3/day represents the absolute peak daily water taking threshold at operating year 5 of the new facility, rather than the expected average daily demand. This peak limit is necessary to provide the municipality with the operational flexibility to handle high-demand seasonal periods, intensive winter truck fill cycles, and critical emergency fire flows. The actual average daily water taking is expected to remain significantly lower (averaging approximately 150 to 200 m3/day) based on historical municipal records. Sizing the annual limit to meet the peak capacity ensures the Hamlet remains in full compliance at all times without exceeding the Type B daily threshold.

This amendment is prompted by a vital public health upgrade: the replacement of Sanikiluaq's aging and water supply system with a modern, centralized Water Treatment Plant (WTP). Sanikiluaq's raw water source experiences high natural salinity (Total Dissolved Solids reaching historical peaks of 1,250 mg/L), resulting in brackish water that violates aesthetic guidelines and forces residents to rely on localized point-of-entry reverse osmosis units. To address these issues, the new centralized facility will implement the following physical infrastructure changes:

- Centralized Multi-Barrier WTP: Standardized treatment train featuring ultrafiltration (UF) and reverse osmosis (RO) membranes to reduce TDS levels and meet the Guidelines for Canadian Drinking Water Quality.
- RO Reject Brine Management (Dual-Method): RO filtration generates a concentrated brine byproduct, representing a 20% to 30% process waste stream (up to 20,659 m3/year). To

protect the municipal sewage lagoon from salinity overload, a dual-disposal system is proposed: (a) Summer: Discharge via a 10 x 10 cm buried gravity-fed HDPE pipeline directly to the unnamed receiving creek west of town. (b) Winter: Vacuum-truck haulage of brine to a bedrock-stabilized marine discharge chute west of town, preventing hazardous ice-buildup along the creek channel.

- Fish Passage and Creek Upgrades: Under the summer pipeline plan, Dillon Consulting's hydrological assessments recommended replacing five failing steel culverts at the road crossing with a single 1.5 m H x 4.0 m W concrete box culvert. This upgrade restores natural creek hydraulics, facilitates upstream fish passage for Arctic char and round whitefish, and mitigates local erosion.

The Source Water Capacity Assessment confirms that Water Lake can easily sustain the requested volume of 110,000 m3/year. Even in a 1-in-50 year extreme low-drought scenario, the lake's estimated annual recharge is 111,000 m3, which exceeds the requested water volume. Furthermore, winter under-ice withdrawals during the 7-month frozen season at the design horizon represent only 7.9% of the under-ice volume (utilizing a conservative regional ice thickness of 1.5 m), which is fully compliant with the Department of Fisheries and Oceans (DFO) under-ice withdrawal guideline of <10% of total volume. This environmentally sound approach is supported by key regulatory bodies, having received a recommended approval from the Nunavut Impact Review Board (NIRB Screening Decision File No. 25WN065) on November 27, 2025, and a formal Letter of Advice from Fisheries and Oceans Canada (DFO File No. 25-HCAA-02290) on November 5, 2025, subject to standard environmental protection and erosion control mitigation measures.

Sincerely,



Kayla Clouter
Dillon Consulting Limited