



Whale Cove Municipal Water Licence Application Executive Summary

This application is being submitted for the amendment of water licence 3BM-WHA2126.

The Government of Nunavut (GN) is in the process of designing a new water treatment plant at the same site as the current plant. This project will include the construction of a new raw water intake in Fish Lake next to the existing intake. The GN intends to refurbish the existing intake by replacing the pump, motor, fish screen, wiring, heat trace and associated equipment. Each intake will be sized to provide sufficient flow based on the design flow and associated headloss, both during normal WTP operation and fire flow (1,000 L/min) bypass scenarios. A second, new inclined shaft intake will be constructed parallel to the existing intake to provide redundancy protection against intake failures. The intake will be constructed of an insulated HDPE carrier pipe not less than 300 mm in diameter that houses the pump and HDPE discharge pipe. The carrier pipe will be sized so that the pump can easily be retrieved through the pipe without binding or restrictions, including consideration for loading on the pipe. The pump will be submersible style mounted to an engineered skid for ease of installation and removal through the carrier pipe. Both the new intake and existing intake shall include a fish screen that meets Fisheries and Oceans Canada requirements. The new treatment process is expected to increase the water use by <5% but withdrawal is projected to remain below the currently allowable 30,000 m³ until beyond 2040. The wastewater holding tank is sized to hold 3-4 days of wastewater with a volume of 20 m³. This will be approximately an additional 2,000 m³ of wastewater each year that the 36,000 m³ lagoon can accommodate. There are no changes to the wastewater or solid waste infrastructure proposed in this amendment. The licensee is requesting to increase the licence term to 10-years.

The licensee is also requesting to remove the following items from the water licence:

- Part I-5: The licensee requests that this condition be removed. The monitoring stations are regularly monitored, multiple times a week, during regular municipal operations and sampling begins when flow is present. Preparing a weekly report is too high of a burden. This requirement is inconsistent with other municipal water licences.
- Part D-3 and I-1: The wastewater effluent compliance point should be WHA-4 which is at the end of the wetland-treatment-area. Effluent quality limits should be applied at WHA-4 because it represents fully treated effluent. A Wetland Assessment was conducted during the design of the lagoon-wetland project that indicated that the wetland is a critical component of the treatment system and provides significant reduction of contaminants.

The effluent quality limits at WHA-4 should be carbonaceous biological oxygen demand 100 mg/L and Total Suspended Solids 120 mg/L. These limits can be reliably met by lagoon-wetland systems while preserving the health of the receiving environment as demonstrated during the

multi-year Nunavut research. Furthermore, CBOD is replacing BOD5 as the standard test parameter as indicated in *Good Engineering Practice for Northern Water and Sewer Systems*, Government of Northwest Territories, 2017.

WHA-3 should continue to be monitored but effluent quality limits should be removed since it represents partially treated effluent.

Measuring of volume of effluent at WHA-3 and WHA-4 should be removed as this is inconsistent with most NWT municipal water licences. Wastewater volume discharged by truck is normally reported rather than effluent discharged from the lagoon.

- References to a landfarm and the monitoring stations WHA-5, WHA-6, WHA-7, and WHA-8 should be removed from the amended licence. The landfarm that is referenced in the current licence was never operated as a landfarm and shortly after its construction this area was absorbed into the surrounding bulky metal waste disposal area and is inaccessible. This area was never properly operated and was exposed to bulky metal waste with sharp edges, therefore its integrity to store contaminated soil cannot be guaranteed. This area will continue to be used as part of the bulky metal disposal area. No soil will be disposed there, no effluent will be discharged, and monitoring wells cannot be installed.
- F-4: The licensee is requesting to remove the requirement for an engineer to inspect the water and waste infrastructure annually. The Municipality does not have engineers available who are trained to conduct water or waste facility inspections. Engineers cannot misrepresent their area of expertise according to NAPEG's Code of Ethics Rules of Conduct: "Professional Engineers and Professional Geoscientists:
shall undertake only such work as they are competent to perform by virtue of training and expertise, and shall express opinions on engineering and geoscience matters only on the basis of adequate knowledge and honest conviction."

When issues arise with the infrastructure under this licence, normally reported by municipal or CGS staff to the CGS Community Support Division, engineers who are trained specifically for the type of inspection needed are hired accordingly. Any reports generated would be submitted to NWT. CGS technical staff will continue to participate in CIRNAC inspections however CGS cannot guarantee a civil, municipal, or geotechnical engineer will be available. Additionally, final reports typically take longer than 60-days to be received from a consultant and reviewed by the CGS technical team. The licensee requests that the submission timeline be adjusted to 60 days after the final report is submitted to CGS by the consultant.