



Crown-Indigenous Relations
and Northern Affairs Canada

Relations Couronne-Autochtones
et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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May 13, 2020

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via email: licensing@nwb-oen.ca

Your file - Votre référence
3BM-SAN1520

Our file - Notre référence
CIDM#1285056

Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on the Hamlet of Sanikiluaq's renewal application for water licence #3BM-SAN1520 for municipal undertakings – Hamlet of Sanikiluaq

Dear Mr. Dwyer,

Thank you for your April 23, 2020 invitation for technical review comments on the above referenced application. The Water Resources Division of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application and the results of our review are provided in the enclosed memorandum for the Nunavut Water Board's consideration.

Comments have been provided pursuant to CIRNAC's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. If there are any questions or concerns, please contact me at (867) 975-3876 or by e-mail at sarah.forte@canada.ca.

Sincerely,

Sarah Forté
Water Management Specialist

Technical Review Memorandum

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Sarah Forté, Water Management Specialist, Water Resources Division, CIRNAC

Date: May 13, 2020

Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on the Hamlet of Sanikiluaq's renewal application for water licence #3BM-SAN1520 for municipal undertakings – Hamlet of Sanikiluaq

Region: ☐ Kitikmeot ☐ Kivalliq ☒ Qikiqtani

A. BACKGROUND

On April 23, 2020, the Nunavut Water Board provided notification of the Hamlet of Sanikiluaq's submission of a renewal application for their Type B water licence 3BM-SAN1520 for the use of water and deposit of waste in the Hamlet of Sanikiluaq.

The hamlet's water source is Sanikiluaq Lake, immediately adjacent and to the south of the community. A water treatment plant/truck fill station built in 2010 ensures filtration and chlorination of water that is distributed through trucked delivery. Since 2016, the hamlet has reported problems from high sodium concentrations in their potable water. Starting in 2017 reverse osmosis units were installed in individual buildings and houses. The possibility of a central desalination plant is raised in the application summary.

The community's sewage is also trucked, and treated in Annak Lake (2.9 km west of community), which is used as a sewage lagoon. The capacity is estimated at 19 360 m³. The north-west side has no berm and liquid flushes over into a wetland continuously during the summer. Flow through the wetland covers a distance of approximately 1 km before reaching Eskimo Harbour on Hudson Bay.

The solid waste facility is co-located with the sewage lagoon and is divided into areas for domestic waste and metal waste. There is also an adjacent area outside the facility with drums referred to variously as contaminated area, Unauthorized Dump Site and hazardous waste section. The fence around the facility is incomplete and in disrepair. The burn cage used in the domestic waste area was dismantled in 2018 after the roof collapsed. Runoff is not managed in the facility or the contaminated area, and drains towards the same wetland receiving sewage lagoon effluent.

The hamlet is requesting for a 5-year renewal using all the same facilities as are authorized under the present licence.

B. RESULTS OF REVIEW

On behalf of Crown-Indigenous Relations and Northern Affairs (CIRNAC) Water Resources, the following comments and recommendations are provided for the Board's consideration:

1. Water quantity requested and hydrology study

Comment

The application requests authorization to withdraw 42 112 m³/year. According to information available in the annual reports, water use is steadily increasing, as compiled in the table below.

Year	Quantity of water used (m ³ /year)	Increase from previous year (%)
2019	42 112	4.6
2018	40 274	3.6
2017	38 884	12.4
2016	34 596	5.9
2015	32 684	1.1

No explanation has been provided for the increasing quantity used, but population increase is a likely hypothesis. It would be conservative to estimate continued increase, in which case the 42 112 m³/year will be insufficient to meet demand in 5 years, the requested licence term. The total increase over the past 5 years is approximately 30%, applying this to the next 5 years would result in annual water use of approximately 55 000 m³/year in 2025.

A hydrology study of Sanikiluaq Lake was carried out in 2014. According to the Plan for Compliance, it was provided to the Board but CIRNAC has been unable to find it on the ftp registry. It likely has relevant information to consider regarding sustainable water abstraction volumes for the lake.

Recommendation

CIRNAC recommends the applicant provide explanations on how 42 112 m³/year would be sufficient for the Hamlet's needs in 2025 or modify the quantity of water requested.

Additionally, CIRNAC recommends the applicant share the results of the 2014 hydrology study so its findings can be used.

2. Windy Lake

Comment

Windy Lake was being considered as a secondary water source to address the sodium concerns of Sanikiluaq Lake in the 2016 and 2017 annual reports and the 2017 inspection report. No information was found on the results of this investigation.

Recommendation

CIRNAC recommends the applicant provide an update on whether Windy Lake is still being considered as a potential secondary water source.

3. Central desalination plant

Comment

The application executive summary states “*a central desalination plant is expected to be built*” to address the high sodium concentrations in the source water, Sanikiluaq Lake. Presently reverse osmosis units installed in buildings and houses are used to reduce sodium concentration in water. The information on timing provided is: “*A consulting firm is expected to start design works on the new desalination plant sometimes at the end of the year.*”

A central desalination plant would have to be included in the water licence.

Recommendation

CIRNAC recommends the applicant specify if they expect this plant to be constructed within the requested duration of the licence renewal, with the understanding that COVID-19 restriction measures may have added uncertainty to timelines. Information on the plant should be shared with the Board as it becomes available.

4. Monitoring

Comment

Monitoring allows us to evaluate the performance of waste management measures and is an important part of operations. Water quality sample results are included with the last annual reports available and the tables presented in excel files are consistent, making it simple to evaluate results.

As can be seen from the data reported, the hamlet has been diligently sampling monitoring stations SAN-2 and SAN-4 since 2015. Results from the water treatment plant, where raw water likely represents SAN-1, are also submitted with the annual reports and are of interest.

CIRNAC was unable to find any sample results for SAN-5, Runoff from the Unauthorized Disposal Area before entering the Sewage Lagoon.

Recommendation

CIRNAC commends the applicant on its sampling and reporting of monitoring stations SAN-2 and SAN-4, and recommends they expand the sampling program to include SAN-5 to meet the water licence requirements.

CIRNAC also recommends that the Quality Assurance / Quality Control Plan be updated to include all the monitoring stations in the water licence.

5. New sewage lagoon

Comment

The current sewage lagoon capacity is half of the annual water use volume, which results in uncontrolled discharge throughout the year. The application executive summary states: *“The Hamlet has attempted to build a new sewage lagoon. This project was put on hold due to the new Transport Canada Regulations. As a result, Hamlet is continuing using the existing facility as a device of sewage treatment facility. However Hamlet is looking for Capital funding to improve sewage treatment facility in very near future.”* This echoes the 2015 annual report, which informed that construction for the new sewage lagoon was on hold because of Transport Canada restrictions.

The only information CIRNAC found regarding the new lagoon was its proposed location, approximately 500 m to the west of the current lagoon. CIRNAC did not find any design plans or descriptions of the new sewage lagoon.

It is possible to engage with NAV Canada on the possibility of modifying or constructing new structures within lands in the 4 km radius of the airport covered by the *Sanikiluaq Airport Zoning Regulations*. A Hazard Identification and Risk Assessment is generally necessary. Permission would be required to construct a new lagoon or modify the existing one.

The situation with the sewage lagoon has not changed perceptibly since the last licence renewal, and it is not clear what efforts have been done to improve the situation.

Recommendation

CIRNAC recommends the applicant provide more information on the new sewage lagoon, including:

- any plans or descriptions available for the new sewage lagoon;
- description of steps taken to discuss siting of new lagoon with NAV Canada since 2015; and
- whether the intended use of capital funding is for improvements on the existing facility or construction of a new facility.

6. Solid waste facilities

Comment

The situation at the solid waste facility, as described in the inspection reports, is poor. Comments from 2018 and 2019 include:

- *The Burn and Cap area used to have a burn cage. It was demolished over the year as the roof collapse, causing a health and safety concern. Since the demolition of the burn cage, the fires haven't been hot enough to burn all the material, as the concentration of solid burn material is spread out, and not all the material is burning.*
- *Improper installation of fencing has left approximately 1 metre gap at the bottom of the fence, which allows windblown garbage to migrate outside of the fence*
- *The fencing was in a state of disrepair*
- *Gaps built into the fencing on the north side of the Solid Waste Facility allow for windblown garbage to exit the fenced area, and mixes with the leachate exiting the fenced area*
- *Hazardous Waste Section is exposed to the elements with no berm to limit any migration of leaks. Multiple pools of water surround the Hazardous Waste Area*
- *Multiple signs of leaks and spills that appear to be migrating down slope*
- *There were numerous observations of hazardous waste such as batteries, and waste oil drums throughout the Bulk Metal section*

CIRNAC did not find any proposals to address these deficiencies in the renewal application. Instead, the Plan for compliance and Executive Summary focus on a future facility:

A consulting firm is currently working on the waste audit and feasibility study of the waste management site. The design work will start on the new site once it is selected and supported by the Hamlet. The decommissioning of the existing site will be implemented soon after the new site is designed, built and commissioned. The new site will have an independent cell to manage each different type of wastes. The new site will be fenced with a control gate.

While it is encouraging to read about a possible new facility in the future, it is necessary to improve the existing facility until such time a new facility is available. Incomplete burning due to the collapse of the burn cage, and the lack any work on the fence means the situation is poorer than at the previous licence renewal. While it is not possible to solve all the issues at once, incremental measures to prevent windblown garbage from entering water and manage water and runoff at the facility should be planned and gradually implemented.

Recommendation

CIRNAC recommends the applicant provide a description of steps to be taken to prevent windblown garbage from entering water and manage water and runoff at the solid waste facility, as well as a schedule for their proposed implementation.

7. Plan updates missing

Comment

The current water licence required two plans to be updated within 90 days of licence issuance:

- Operation and Maintenance Manual of Water Truck Fill Station Municipality of Sanikiluaq (Part F, Item 1)
- Solid Waste Operation and Maintenance Plan for the Hamlet of Sanikiluaq (Part F, Item 3).

The licensee was also required to submit a Closure and remediation plan for the Unauthorized Disposal Areas (Part G, Item 6).

CIRNAC was not able to find any of these with the current application or on the Board's ftp registry. The requested updates are still relevant.

Recommendation

CIRNAC recommends the applicant provide updated plans and requested plan prior to a renewed licence being issued.

C. REFERENCES

2014-2019 Annual Report for the Hamlet of Sanikiluaq, Government of Nunavut – Community and Government Services, March 2015-2020.

2014, 2016-2019 Water Licence Inspection Forms, Crown-Indigenous Relations and Northern Affairs Canada, 2014, 2016-2020

Application for the Municipality of Sanikiluaq Water Licence #3BM-SAN1520 Type-B Renewal and Amendment, Government of Nunavut – Community and Government Services, March 2020.

Executive Summary of the Hamlet of Sanikiluaq Water Licence # 3BM-SAN1520, Government of Nunavut – Community and Government Services, March 2020.

Land Use in the Vicinity of Aerodromes, TP1247E-9th Edition, Transport Canada, 2013.

Municipality of Sanikiluaq Operation and Maintenance Manual Water Truck Fill Station Volumes I & II, exp Services Inc., July 2011.

NWB Renewal Licence No. 3BM-SAN1520, Nunavut Water Board, May 14, 2015

Operation and Maintenance Manual for the Existing Sewage Lagoons, Hamlet of Sanikiluaq, Baffin Region, Community and Government Services, Government of Nunavut, September 2014.

Plan for Compliance Licence No.3BM-SAN1520, Government of Nunavut - Community and Government Services, September 2014.

Sanikiluaq Airport Zoning Regulations, Government of Canada, April 2, 2013.

Site Plan: Sanikiluaq Water Use and Waste Management Infrastructure, Arktis piusitippaa, November 2013.

Solidwaste Operation and Maintenance Plan, Hamlet of Sanikiluaq, Baffin Region, Community and Government Services, Government of Nunavut, September 2014.