

Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 5200 000 012/004
IWB File: N5L3-0714



January 12, 2024

via email at: semmlerm@inuvwb.ca

Mardy Semmler
Executive Director
Inuvialuit Water Board
151 Mackenzie Road - Mack Travel Building - 2nd Floor
P.O. Box 2531
Inuvik, NT X0E 0T0

Dear Mardy Semmler:

RE: N5L3-0714 – Hamlet of Tuktoyaktuk – Hamlet of Tuktoyaktuk Type “B” Municipal Water Licence Renewal

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Inuvialuit Water Board (IWB) regarding the above-mentioned water license renewal.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. 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. Topic - Effluent quality criteria

Reference(s)

1. Re: N5L3-0714 - Hamlet of Tuktoyaktuk, Municipal Water Licence - Renewal (Inuvialuit Water Board; December 4, 2018)
2. RE: N5L3-0714 – Hamlet of Tuktoyaktuk – Type B Municipal Water Licence Renewal Application (Environment and Climate Change Canada; November 9, 2018)

Comment



The effluent quality criteria for effluent discharged from Sewage Waste Disposal Facilities at Surveillance Network Program (SNP) station 0714-2 includes two measures for Oil & Grease. Samples must have a maximum average concentration of 5 mg/L and no visible sheen. A single criterion should be sufficient to evaluate the presence of Oil & Grease in the effluent.

Hexane extractable material (HEM) is an accepted method of measuring Oil & Grease, and it appears in the laboratory results available from 2019 to 2021. Since the laboratory does not use the term Oil & Grease for the reported HEM concentration, there may be confusion when comparing reported results to licence requirements. If a target Oil & Grease concentration is kept as the criteria, labelling it as HEM or including that in the name could help increase clarity. There is also an effluent quality criterion for Oil & Grease at SNP station 0714-03, which should ideally be harmonized with that for SNP station 0714-2.

ECCC also notes that the effluent quality criteria for effluent discharged from Solid Waste Disposal Facilities at SNP station 0714-3 does not include an acceptable range for pH. Requiring effluent pH to fall within a specified range helps ensure water is not potentially toxic since both low and high pH can adversely affect aquatic biota.

Finally, the effluent quality criteria for SNP station 0714-3 also include a maximum average concentration of 25µg/L for polychlorinated biphenyls (PCBs). During the 2018 water licence renewal ECCC commented on PCBs: *“Results were below detection limits in 2012 and 2017 (SNP 0714-3 not sampled/not reported in other years); unless there is a known source in the landfill this analysis could be reviewed. If analytical data show that this is a consistent result, this requirement for analysis could be removed.”* All six samples from SNP 0714-3 from 2019-2021 have PCBs concentrations below the detection limit, though in one case the detection limit was above the effluent quality criterion. We reiterate our comment that unless there is a known source of PCBs in the landfill, the requirement for analysis and effluent quality criteria for PCBs could be removed since the results have consistently been below the detection limit for a decade.

ECCC Recommendation

ECCC recommends that the effluent quality criteria for Sewage and Solid Waste Disposal Facilities in a renewed water licence be reviewed to consider:

- Streamlining Oil & Grease criteria so that only one criterion is retained for Sewage Waste Disposal Facility effluent;
- Including hexane extractable material in brackets beside Oil & Grease if a concentration-based criterion is kept, to harmonize with laboratory reporting and reduce possible confusion;
- Including a range criterion for pH in effluent from the Solid Waste Disposal Facility; and
- If there is no known source of polychlorinated biphenyls in the landfill, removing effluent quality criterion and requirement for analysis for polychlorinated biphenyls in effluent from the Solid Waste Disposal Facility.

2. Topic – Sewage lagoon sludge management

Reference

1. Hamlet of Tuktoyaktuk, Sewage Disposal Facilities Operation and Maintenance (AECOM, Revised October 2023)

2. RE: N5L3-0714 – Hamlet of Tuktoyaktuk – Type B Municipal Water Licence Renewal Application (Environment and Climate Change Canada; November 9, 2018)

Comment

In 2018, ECCC recommended “*that the Hamlet provide information about sludge management in order to effectively manage the sewage lagoon, and prevent situations where emergency decants become necessary.*” In the past five years, authorization for emergency decants have been requested in 2021 and 2023. In both years, effluent pH was above the range allowed in the water licence. The Sewage Disposal Facility Operations and Maintenance (O&M) Plan specifies that “*Capacity related issues arise when a higher volume of spring runoff or rainwater enters the lagoon*”, which is likely to occur more often given future climate projections of increased winter and annual precipitation (<https://climatechange.toolkitnwtac.com/wp-content/uploads/sites/21/2021/01/NWT-Community-Report-Tuktoyaktuk-Jan-2021-min.pdf>).

Large sludge accumulations will reduce the lagoon’s capacity, which increases the likelihood of insufficient treatment, and may result in requiring an emergency decant. The first step to understanding if sludge accumulation is a concern at the Tuktoyaktuk lagoon would be a sludge depth survey, which should be done as soon as possible. Section 3.3 of the Sewage Disposal Facility O&M Plan provides instructions on how this could be done. The recommended timing for sludge management action in the O&M plan is “*once the lagoon cannot receive the entire year’s sewage load*”, which not appropriate because it does not allow for any time to compile the results. Should sludge removal be necessary, the proponent should plan for its removal and disposal including, finding associated workers and equipment to complete the work.

ECCC Recommendation

ECCC recommends the proponent complete a sludge depth survey of the sewage lagoon and determine if a sludge removal program is warranted.

3. Topic – Water sampling at sewage lagoon

Reference

- Hamlet of Tuktoyaktuk, Sewage Disposal Facilities Operation and Maintenance (AECOM, Revised October 2023)
- Re: N5L3-0714 - Hamlet of Tuktoyaktuk, Municipal Water Licence - Renewal (Inuvialuit Water Board; December 4, 2018)
- Water Licence Application Questionnaire for Municipal Undertakings (Hamlet of Tuktoyaktuk; October 10, 2023)

ECCC Comment

Water sampling detailed in Section 2.7 of the Sewage Disposal Facility O&M Plan does not correspond to the requirements in the water licence. The water licence specifies “*Water at Station 0714-2 shall be sampled prior to, and once during each discharge*”. Currently the O&M Plan includes “*Four Samples will be taken on an annual basis prior to discharge*” and “*at a minimum a grab sample should be collected at the beginning, middle and end of the discharge.*”

Additionally, the instructions on how to sample are not prescriptive enough. For example, the operations and maintenance plan states: “*The samples should preferably be collected by rinsing sample bottles with the sample wastewater for a couple of times prior to final sample collection.*”, however bottles must be rinsed three times with sample wastewater prior to sample collection.

Section 7 of the Water Licence Application Questionnaire has the correct information for both the sampling frequency and methodology.

ECCC recommendation:

ECCC recommends the Sewage Disposal Facility Operation and Maintenance Plan be updated with licence requirements for water sampling frequency and sampling methodology including specifying rinsing sample bottles three times with wastewater prior to sample collection.

4. Topic – Solid waste disposal facility capacity

Reference(s):

- Spill Contingency Plan for the Hamlet of Tuktoyaktuk, Water Licence #N5L3-0714 (AECOM, Revised October 2023)
- Spill Contingency Plan for the Hamlet of Tuktoyaktuk, Water Licence #N5L3-0714 (AECOM, Revised September 2018)
- Hamlet of Tuktoyaktuk, Solid Waste Disposal Facilities Operation and Maintenance Plan (AECOM, Revised October 31, 2023)

ECCC comment:

Section 1.12.2 of the Spill Contingency Plan discusses changing landfill locations: “*The existing landfill is scheduled to cease operation and is a listed priority site of the Government of Northwest Territories (GNWT) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) for closure. A new landfill site located approximately 17 km southwest of the community has been designed and approved and construction was initiated in 2015. As of this writing, Phase 1, including a landfill cell and access road to the site, has been completed. Phase 2, including fencing, gate, and buildings, is not complete. Final operations will be contingent upon receipt of final permission for direct access to the new ITH.*” This paragraph is identical in the 2018 and 2023 versions of the Spill Contingency Plan and it is unclear whether no further progress has been made, or if this section was not updated with recent information for the current version.

Since opening a new landfill requires many years of planning and work, it is important to plan ahead. The current solid waste disposal’s capacity is an important factor to help determine the timing for opening a new facility. No description of the current solid waste facility capacity was found in the Solid Waste Disposal Facilities O&M Plan, though the yearly waste generation is estimated in Table 2.1. Together these pieces of information could be used to estimate by which year a new landfill would need to be operational. Properly designed and operated landfills are important to prevent contaminants from waste from entering water and migrating off site.

The number of years capacity at the current solid waste disposal facility and timing of opening of the new facility can inform what measures should be included in a renewed water licence.

ECCC recommendation:

ECCC recommends:

- the proponent provide an estimate of the number of years the current solid waste disposal facility can be used as well as an update on Phase 2 of the construction and estimated opening date for the new landfill;
- if necessary, the Board consider including conditions in a renewed licence to ensure a proper solid waste disposal facility is available into the future.

5. Topic: Secondary containment for hazardous waste

Reference(s):

- Hamlet of Tuktoyaktuk, Water Licence Number: N5L3-0714, Hazardous Waste Management Plan (AECOM, Revised October 2023)
- Guideline for Hazardous Waste Management (Government of Northwest Territories (GNWT); October 2017)

ECCC comment:

Section 4.3 and Table 4 of the Hazardous Waste Management Plan describe the primary containment and security measures used for the storage of hazardous materials. In Table 4, the column describing secondary containment is blank.

As described in Section 4.3 of the GNWT Guidelines for Hazardous Waste Management, hazardous waste should be stored where “*Drainage is controlled to prevent spills or leaks from leaving the site and to prevent run-off from entering the site.*” It is not clear from the description of the Hazardous Waste Management Plan if measures are in place to contain possible spills and leaks from migrating off-site and potentially contaminating water.

ECCC recommendation:

ECCC recommends the proponent clarify what secondary containment measures are used at the hazardous waste storage facility to prevent spills and leaks from leaving site.

6. Topic – Spill contingency plan contact information

Reference(s):

- Spill Contingency Plan for the Hamlet of Tuktoyaktuk, Water Licence #N5L3-0714 (AECOM, Revised October 2023)
- RE: N5L3-0714 – Hamlet of Tuktoyaktuk – Type B Municipal Water Licence Renewal Application (Environment and Climate Change Canada; November 9, 2018)

ECCC comment:

ECCC notes that our 2018 comment on Spill Contingency Plan contact information was not correctly integrated in the Plan updated in 2023. We repeat it because the information has not changed since 2018:

“The regional director is no longer a primary point of contact. The new contact is through the NWT/NU 24 – hour spill report line. Similarly, Table 9 in section 4.2 Off-site Resources should have ECCC removed, as that contact number is also no longer valid.

In the case of a spill or emergency, the 24 Hour Northwest Territories Spill Report Line should be contacted first by the Proponent, who will then involve ECCC Emergencies when appropriate.

For information relating to the environmental enforcement and reporting requirements under the Canadian Environmental Protection Act and the Fisheries Act please contact ECCC Environmental Enforcement at 867-446-0926.

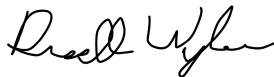
The ECCC National Environmental Emergencies Centre (NEEC) will provide technical and scientific environmental advice and assistance to the lead agency, in the event of an environmental emergency. A lead agency is described as the governmental authority that regulates or has authority over the activity from which the emergency originated. NEEC can be contacted at 1-866-283-2333.”

ECCC recommendation:

ECCC recommends that the next update of the Spill Contingency Plan remove reference to the ECCC director general in the distribution list of Section 1.3 and correct the phone number for ECCC environmental enforcement in Section 4.2.

If you need more information, please contact Russell Wykes at (867) 445-1263 or Russell.Wykes@ec.gc.ca

Sincerely,

A handwritten signature in black ink, appearing to read 'Russell Wykes', with a stylized, cursive script.

Russell Wykes
A/ Senior Environmental Assessment Officer

cc: Melissa Pinto, Acting Head, Environmental Assessment North (NT and NU)